THE
UNITED STATES ARMY
MARKSMANSHIP UNIT

INTERNATIONAL RUNNING TARGET
GUIDE

FOREWORD

This International Running Target Guide was written with the primary objective of elevating Running Target marksmanship at all levels. The material has been compiled from training observations and match experience of many of the top USA and world competitors. The techniques are applicable for instruction, training and competitive firing. The format is designed for quick reference to all phases of the sport including the ISU Rules and Regulations in effect at the time of publication. This present text should not be considered as the ultimate word as improvements and refinements are a never ending process.

This booklet describes and illustrates the methods and techniques used by USAMU and USA shooters. The contents are subject to change as new developments and improved techniques are proven to be effective.

Suggestions for improvement and corrections of this text are solicited and may be addressed to: Commander, USAMU, Fort Benning, Georgia 31905, USA.

STANLEY J. PARMENTIER
Colonel, Infantry
Commanding

TABLE OF CONTENTS

		Page
Foreward		i
Table of Contents		ii
Illustrations		iii
Chapter	1. History of Running Target	
	2. Excerpts from ISU Constitution	
	3. Olympic and ISU Eligibility Rules	
	4. International Running Target	
	A. Introduction	
	B. The Shooting Range	
	C. Targets and Scoring	
	D. Shooting Stations	
	E. Courses of Fire	
	F. Selection of Rifle, Ammunition, Sights, Equipment and Accessories	
	G. Reticles	
	H. Lead	
	I. Aiming Points	
	J. Sighting In	
	K. Physical Conditioning	
	L. Mental Conditioning and Attitude	
	M. Technique of Shooting Running Target	
Chapter	5. 10 Meter Air Rifle Running Target	
Chapter	6. Mental Discipline	
	A. Purpose	
	B. General	
	C. An Essential of Marksmanship	
	D. Developing Mental Discipline and Confidence	
	E. Why Can't you be a Winner?	
	F. Match Pressure	
	G. Reducing Tension and Attaining Relaxation	
	H. You Can Win	
Chapter	7. Physical Conditioning	
	A. Objective	
	B. Physiology of Exercise	
	C. Factors Influencing Physical Fitness	

D. Physical Training Program

Chapter 8. International Shooting Union Regulations

A. Regulations for Running Targets

Supplemental Information and Annexes

Annex

A Double Running Target Range Layout

B Top, Side and Front Views of Area Firing Booths

C Top and Front View of Pit

D Dimensions for Target Carriers and Pits

E Ammunition Velocities Calculated Mathematically

F Lead Distance Changes by Varying Scope Power

G The Psychology of Competitive Shooting

ILLUSTRATIONS

FIGURE	
1	Ft Benning Running Deer Range - 1956
2	Ft Benning Running Deer Range - 1960
3	Ft Benning Running Boar Range - 1975
4	Running Target Rifles and Scopes
5	Running Target Accessories
6	Reticles Currently Used in Scopes
7	Aiming Point Distances
8a,b,c,	Normal Run Aiming Points - Eye
8d,e,f	Normal Run Aiming Points - Eye or Tusk
8g,h,i	Fast Run Aiming Points - Nose or Tusk
8j,k,l	Fast Run Aiming Points - Nose or Tusk
8m	Two Post Reticle for any Aiming Point
9a	Reticle and Lead Measurements
9b	Ammunition Variables
10	Shot Groups -. Behind on Each Run
11	Shot Groups - Centered on Each Run
12	Shot Groups - Ahead on Each Run
13	Shot Groups - Centered on Each Run
14	Shot Groups on Same Side of Each Target
15	Three Dot Reticle Measurements
15a	Reticle Placement - 2 Dot at 6X
15b	Reticle Placement - 2 Dot at 9X
15c	Reticle Placement - Two Post
15d	Reticle Placement - Diamond at 7X
16	Canted Groups
17	Road to Success
18a	Ready Position - Hand Forward
18b	Ready Postion - Hand Back
19	Foot Position
20a	Shooting Position - Hand Forward
20b	Shooting Position - Hand Back
21a	Rifle Butt - High Firing Position
r 21b	Rifle Butt - Low Firing Position
22a	Head - High Firing Position

22b	Head - Low Firing Position
23	Hibbs Range - Ft Benning, Georgia
?r	
24	Shooting Booth
25	Target Running
26	10 Meter Running Target Range
27	Scaled Down 10 Meter Target
28	10 Meter Experimental Target
29	10 Meter Running Target Range
30	Adjustable Butt Restrictions from ISU Regulations
31	50 Meter Running Boar Target
32	Quantico, Virginia, USA
33	Mexico City, Mexico
34	Bayamon, Puerto Rico
35	Hamburg, Germany
36	Moscow, USSR
37	Eskilstuna, Sweden

FIGURE 1, FORT BENNING RUNNING DEER RANGE 1956 - FRONT VIEW

Construction on Running Boar Range
Figure 2

Fort Benning Running Boar Range
Figure 3

Chapter I

HISTORY OF RUNNING TARGET INTERNATIONAL COMPETITION

International Running Target as a shooting sport began in Scandinavia as practice for hunters who shot at wooden silhouettes of wild game propelled by various means across an opening. The most popular event became official by ISU Rules. This was a Running Deer, gravity run range, consisting of a silhouette mounted on a heavy cart of wood or metal on wooden or metal tracks between protective walls or mounds of earth. The tracks were level for a distance behind each wall, then sloped toward the center so that with a push to gain momentum, the cart would roll across the opening to the opposite side and stop behind the wall. With practice, a pit crew could obtain a reasonably consistent speed across the opening.

As the sport evolved from a means of practice to the precise, demanding game of today, many changes took place. Scoring areas were added to determine the better hits, thus the beginning of the competitive sport as we know it today. These scoring areas have undergone many changes in shape, number, and size before arriving at the present system of ten concentric circles scored 1 thru 10. The targets themselves have gone through almost as many changes. The first standardized running target was the running deer, a life size silhouette of the European Stag, shot at a distance of one hundred meters. The scoring area consisted of three concentric scoring rings 5, 4, & 3. The other parts of the body except the hindquarters were scored either 2 or 1 point. The Runnng Deer course consisted of 50 single shots and 50 double shots (two shots on each exposure). Only manually operated rifles with metallic sights were allowed. It was not until 1964 that the telescope sight was permitted.

Although running deer is no longer a recognized ISU shooting sport, it is still a very popular sport in Scandanavia where it is included in their Scandanavian Games, and in USSR.

As Europe became more heavily populated, space and noise became a problem in many areas. Many recommendations were submitted to the ISU, particularly by the western European countries, to adopt a running target sport that would require less space and create less noise. The 50 meter range with a 10 meter opening was generally accepted in 1964-1965 with three targets under consideration: the running roebuck target submitted by the Scandanavian countries, the running tiger by India for the Orient, and the running boar proposed by West Germany for middle Europe. The running roebuck was unacceptable to West Germany because their hunting laws forbid shootng at the roebuck if it is moving. A world moving target competition, scheduled to be shot in Santiago, Chile in 1965 on the running roebuck target, was cancelled and no major competition was ever conducted on the roebuck target. At the 1966 World Championships held in Wiesbaden, Germany, the running boar target was used and officially accepted by the ISU General Assembly.

The original target had five concentric scoring rings with the center ring scoring 5 (50 mm), 4 (100 mm), 3 (150 mm), 2 (200 mm) and 1 (250 mm). The next change was of value for the scoring rings. The rings kept the same dimensions but were scored 6 thru 10. Currently the scorig area consists of ten concentric scoring rings with the 10 ring being 60 mm and each successive ring 34 mm larger. The total scoring area is now 366 mm in diameter.

As the targets changed, the weapons and sighting systems evolved from the European 8 mm bolt action service or hunting rifle with crude iron sights to the specially designed precision .22 caliber rifles with multi-reticule variable power telscopic sights used today.

The target carrier mechanisms were not neglected. From the early crude gravity run systems they have evolved to precise, electrically powered, automatic target carrier systems adjustable to less than .1 second.

Interest in running target shooting is increasing in the United States. It is enjoying a great surge of popularity in Europe, especially the eastern countries as evidenced by more and more world class teams entered at the World Championships.

This training guide and the availability of more ranges on which to practice and compete in this interesting and challenging sport may create the interest necessary to make running target a major shooting sport in the United States.

CHAPTER II

EXCERPTS FROM THE INTERNATIONAL SHOOTING UNION CONSTITUTION

The International Shooting Union which was re-established in 1921 under the name of "Union Internationale de Tir" is the successor of "1" 'Union Internationale des Federations et Associations Nationales de Tir," founded in 1907 and dissolved in 1915.

A. PURPOSE.

The purpose of the Union is to promote and guide the sound development of the shooting sport and to strengthen the bonds of friendship between the shooting associations and federations of all nations, irrespective of political, racial and religious differences

by establishing permanent communications between the national shooting associations for the exchange of ideas on the development and perfection of the sport of shooting;

by organizing World Championships and encouraging and controlling the organization of continental or regional championshps;

by supervising the shooting events of Olympic Championships and at the regional games organized under the auspices of the International Olympic Committee;

by issuing technical rules for the various shooting sports;

by awarding distinctions to shooters and to those who have worked for the development of shooting;

by publishing an official bulletin;

by encouraging in a general way all efforts to strengthen the comradeship between shooters of different nations, based on the love of their country and the respect for that of others, thereby creating international confidence and good will.

B. ADMINISTRATION OF THE UNION.

The Union shall conduct its affairs through the following bodies:

The General Assembly

The Administrative Council

The Executive Committee

The Technical Committee

The Permanent Shooting Committee

The Committee of Auditors

Complete organization and functioning details are obtainable in the Constitution and General Regulations, as well as the Shooting Rules for the various events recognized by the International Shooting Union.

C. SHOOTING COMPETITIONS.

1. Running Game Target - 50 meters is a compulsory event in the World Championships and Olympic Games.

2. A World Running Game Target Championship may be organized during the "off-years," and World Records established.

3. Continential Championships and Games may also include the Running Game target disciplines where records are established.

D. BULLETINS.

1. There is published bi-monthly, the Official Journal of the International Shooting Union (UIT) "SHOOTING SPORT." Individuals may subscribe to this magazine, which is printed in four languages: English, German, French, and Spanish, and through it, the UIT furnishes its readers with current rule and regulation changes.

2. The National Rifle Association of American (NRA) is the official representative in the UIT for the United States.

CHAPTER III

OLYMPIC AND ISU ELIGIBILITY RULES

Under NRA Rules there is no eligibility distinction made between individuals other than laid down in Section 2 of each competition regulation. Each individual may participate in NRA sanctioned competition providing he/she complies with the provisions of Section 2, NRA Rules and the program for any specific tournament, including the US International Shooting Championships.

For selection to the Olympic and Pan American Games teams, individuals must meet the eligibility rules of the IOC and UIT. To be named to a US team for the World Shooting Championships or the Confederation of The Americas Shooting Championships, individuals must meet the criteria laid down in the UIT regulations.

When there is a question as to an individual's eligibility status, that question will be resolved by the US International Competitions Committee.

Reprinted below is the full text fo Article 26 and 27, International Olympic Committee "Eligibility Code" and the International Shooting Union Eligibility Rule. The NRA must certify that each individual named to a team is in compliance with the eligibility rules.

Rule 26, Approved by the 75th Session of the I.O.C., October 21, 1974 at Vinenna, Austria.

To be eligible for participation in the Olympic Games, a competitor must:

Observe and abide by the Rules and Regulations of the IOC and in addition the Rules and Regulations of his or her International Federation, as approved by the I.O.C., even if the Federation rules are more strict than those of the I.O.C.

Not have received any financial rewards or material benefit in connection with his or her sports participation, except as permitted in the By-Laws to this rule.

Rule 27 - Medical Code*

A - Doping is forbidden. The I.O.C. will prepare a list of prohibited drugs.

B - All Olympic competitors are liable to medical control and examination in conformity with the rules of the Medical Commission.

C - Any Olympic competitor refusing to take a doping test or who is found guilty of doping shall be eliminated.

If the Olympic competitor belongs to a team, the match or competition in question shall be forfeited by that team.

After the explanations of the team have been considered and the case discussed with the International Federation concerned, a team in which one or more members have been found guilty of doping may be disqualified from the Olympic Games.

In sports in which a team may no longer compete after a member has been disqualified, the remaining members may compete on an individual basis.

D - Competitors in sports restricted to women must comply with the prescribed tests for femininity.

E - A medal may be withdrawn by order of the Executive Board on a proposal of the Medical Commission.

The "I.O.C. Medical Controls" brochure shall be deemed to be a by-law to rule 27.

F - A Medical Commission may be set up to implement these rules. Members of this commission may not act as Team Doctors.

G - The above regulations shall in no way affect further sanctions by the International Federations.

BYLAWS TO RULE 26

A - A competitor may:

1. Be a physical education or sports teacher who gives elementary instruction.

2. Accept, during the period of preparation and actual competition which shall be limited by the rules of each International Federation:

(a) Assistance administered through his or her National Olympic Committee or National Federation for:

Food and lodging.

Cost of transport.

Pocket money to cover incidental expenses.

Insurance coverage in respect of accidents, illness, personal property and disability.

Personal sports equipment and clothing.

Cost of medical treatment, physiotherapy and authorzied coaches.

(b) Compensation, authorized by his or her National Olympic Committee or National Federation, in case of necessity, to cover financial loss resulting from his or her absence from work or basic occupation, on account of preparation for, or participation in the Olympic Games and International sports competitions. In no circumstances shall payment made under this provision exceed the sum which the competitor would have earned in the same periods. The compensation may be paid with the approval of the National Federations or the National Olympic Committees at their discretion.

3. Accept prizes won in competition within the limits of the rules established by the respective International Federations.

4. Accept academic and technical scholarships.

B - A competitor must not:

1. Be, or have ever been, a professional athlete in any sport, or have entered into a contract to that end prior to the official closure of the Games.

2. Have allowed his person, name, picture or sports performance to be used for advertising, except when his or her International Federation, National Olympic Committee or National Federation enters into a contract for sponsorship or equipment. All payments must be made to the International Federation, National Olympic Committee or National Federation concerned, and not to the individual.

3. Carry advertising mateiral on his person or clothing in the Olympic Games, World or Continental Championships and Games under patronage of the I.O.C., other than trade marks on technical equipment or clothing as agreed by the I.O.C. with the International Federations.

4. Have acted as a professional coach or trainer in any sport.

INTERNATIONAL SHOOTING UNION ELIGIBILITY RULES

GENERAL

1. For all Championships and Games which are under the direction, control or recognition of the International Shooting Union, its Eligibility Rules will be strictly applied.

2. The International Shooting Union invites its Member Federatons to apply these eligibility rules for entry both to their National Competitions and to all International Competitions organized with the participation of their shooters.

3. The eligibility rules of the International Olympic Committee must be observed for participation in the Olympic Games.

4. The amateur rules of the appropriate National Olympic Committee must also be observed by the shooters of each country.

ELIGIBILITY

5. An amateur shooter is anyone who devotes and continues to devote himself to the practice of the shooting sport for pleasure and diversion without deriving any material personal profit from competing in his sport; he will strictly observe the agreed rules and procedure in a spirit of fair play and discipline.

6. An official declaration of eligibility for all competitors by the National federation or association of the country will be required, prior to any international competition conducted according to the rules of the UIT at which world records can be made.

7. A shooter does forfeit his eligibility if:

(a) He accepts payment for participating in a shooting sport event or for training for that event or for the demonstration or exhibition of shooting.

(b) He drives profit and accepts any payment from press, television or film companies in connection with his shooting sport activities.

(c) He supports advertising for any manufacturer or dealer of any shooting equipment of any kind; (the long established practice of the make and model being inscribed on firearms or other shooting equipment or inside of clothing is not considered as advertising).

8. A shooter does not forfeit his eligibility if:

(a) He receives from his National Federation or Shooting Club:

I. arms, ammunition and other shooting equipment.

II. travelling expenses and pocket money for his participation in national and international competitions.

III. costs of meals and lodging for the purpose of such shooting competitions (corresponding to the actual cost to him).

IV. entry fees to these shooting competitions.

V. insurance cover in respect of accidents, illness, personal property and disability.

VI. cost of medical treatment, physiotherapy and authorized coaches.

(b) He receives money prizes not exceeding SFr 200, ($125), or the equivalent per day or a toal of SFr. 1000, ($625), or the equivalent for contests fired over several days in the same tournament and within the same calendar week. Such prize money is considered to be compensation for expenses borne by the shooter. Money prizes exceeding the above-mentioned amounts must be paid to the National Federation or Club of which the competitor is a regular member.

(c) He receives prizes in kind which do not exceed SFr. 5000 ($3,125), in value within one calendar year. An amateur is not permitted to sell such prizes in kind.

(d) He receives academic and technical scholarships.

(e) He obtains his livelihood by working in the arms, ammunition and shooting accessories manufacture and trade, provided that he also complies with all other Eligibility Rules.

(f) He is serving in the Defense Forces of his country and is required to give instructions in shooting as a part of his regular duties.

CHAPTER IV

INTERNATIONAL RUNNING TARGET

A. INTRODUCTION:

The present Running Target courses of fire (Running Boar) were introduced to this country in 1965. At that time there were no ranges and only few shooters with prior experience in 100 meter Running Deer competition. Since then the U.S. has made great strides in catching up with the rest of the world in International R/T circles. Through research, evaluation, and development, the U.S. effort has improved greatly, but still lacks national participation and promotion enjoyed by Trap, Skeet, Rifle and Pistol.

The purpose of this chapter is to outline and explain R/T shooting fundamentals and techniques in a manner that will assist the novice R/T shooter and improve the performance of the more experienced shooters. This chapter will also acquaint the reader with some of the problems he will face in this challenging sport and how to overcome them and give a good performance. If success in World or Olympic R/T competition is the goal, then one must train diligently toward that end.

B. THE SHOOTING RANGE (See Chapter 8, Para 6.1-6.12 ISU Regulations for Running Target).

C. TARGETS AND SCORING (See Chapter 8, Para 4.1-4.15 ISU Regulations for Running Target).

D. SHOOTING STATION (See Chapter 8, Para 6.13-6.14 ISU Regulations for Running Target).

E. COURSES OF FIRE:

COURSE A:

The standard course of competition consists of 60 shots fired in two series of 30 Normal runs and 30 Fast runs. The program is further divided into 20 Normal runs followed by 20 Fast runs which is the team score and then 10 Slow followed by 10 Fast. The aggregate is the individual score with a possible of 600 points. Only one shot is fired in each run. Two trial runs, one in each direction, will be allowed before each series.

COURSE B:

This course of competition is called the Mixed Run course and consists of 40 shots fired in two series of 20 runs. Each series will contain 10 slow and 10 fast runs arranged in such a way that the competitor cannot predict whether the next run is slow or fast.

NOTE: See ISU Regulations, Chapter 8, Sec 7 and 8.

F. SELECTION OF RIFLE, AMMUNITION, SIGHTS, AND EQUIPMENT.

1. RIFLE: The rifle used in Running Target must be of .22 Rimfire Caliber. It may be one used for smallbore competition or be a custom built rifle using a target type barreled action with custom stock. One may purchase a ready made rifle from several famous foreign manufacturers. The rifle decided on should be capable of firing 3/4" or less ten-shot groups at 50 meters with selected ammunition. Tests have determined that the optimum barrel length is from 18 to 20 inches which gives the best all around results using standard or high-speed ammunition.

ISU Rules limit the weight of the rifle with scope and accessories to 5 kilograms (11 pounds). The trigger pull must be at least 5 kgs (1.1 pounds). For consistent performance, a good trigger with a smooth let-off is a must. Such a custom trigger is truly worth the added investment because it can maintain its weight for an indefinite time and be less apt to change or go sour in the middle of an important competition.

2. AMMUNITION: The competitor has the option as to the type of ammunition desired for Normal and Fast runs. Normal runs may be fired with either Standard or Hi Speed. Most shooters prefer the Standard velocity because it usually groups tighter giving an accuracy edge and a better aiming point. For the fast runs those using single dot or crosshair reticles should consider high velocity ammo to provide a better aiming point due to the increased lead necessary in the Fast run series. Standard velocity types may be used in the Fast runs but a double dot reticle is necessary to provide a suitable aiming point.

3. SIGHTS: A quality variable power scope is presently being used by most Running Target shooters in the world, either in the 3X9 or 4X12 type. Scopes presently used to great advantage is a single power scope and two fully and separately adjustable post reticles which will be discussed later.

Variable power scopes give the shooter a few advantages. One may easily find out through practice what power setting he likes best. Another advantage the variable has over a fixed power scope is when using certain type reticles, one can change lead on the target by changing the power setting. (These reticles must be custom made for individual specifications.)

Figure 6 shows the more widely used reticles for Running Target shooting. Later in this chapter we will explain how these reticles are used.

4. EQUIPMENT AND ACCESSORIES:

a. Leather International style shooting jacket, or shooting vest, or shooting sweater. Some shooters may prefer to have a rough leather or suede shoulder pad instead of the slick shotgun style pad.

b. Loading block.

c. Athletic warm-up suit, ISU shooting boots or athletic shoes which provide stable support. This uniform is generally used in most shooting sports all over the world.

d. Shooting glasses and ear plugs or muff type.

e. Tool kit for minor repairs.

f. Spare parts kit (firing pin, extractor, etc.).

g. Three second stop watch for timing runs.

h. One main and one back-up scope.

i. Good quality fibre glass or plastic coated cleaning rod with accessories.

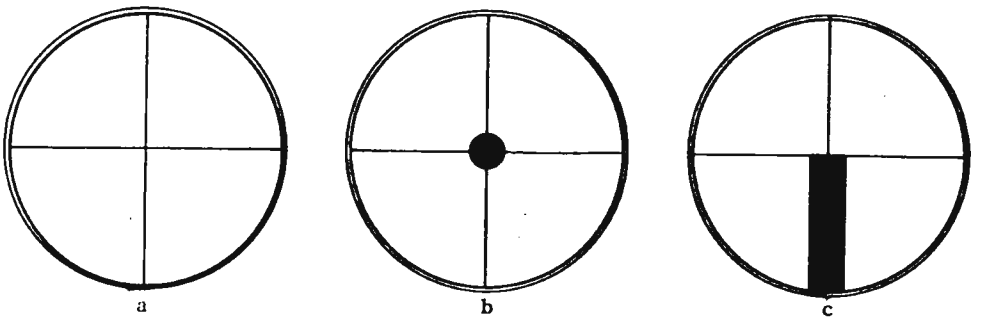
j. Leather or canvas gun case. For transporting long distances an aluminum gun case is preferred.

NOTE: Equipment (Figure 4 and 5)

FIGURE 4 RUNNING TARGET RIFLES & CONVERSIONS W/3X9 AND 4X12 VARIABLE SCOPES

FIGURE 5,
RUNNING TARGET ACCESSORIES

RETICLES
EASILY AVAILABLE

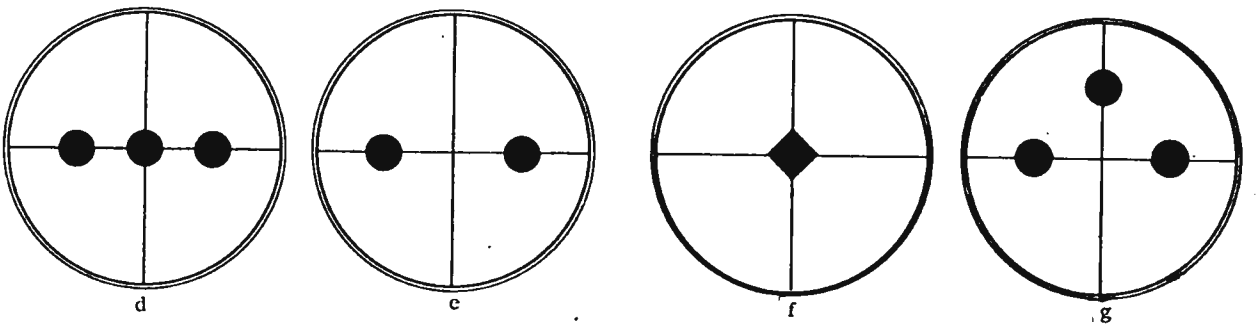


MEDIUM CROSS HAIR

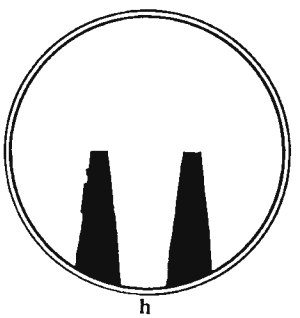
FINE OR MEDIUM CROSS HAIRS
(OPTIONAL)

MEDIUM CROSS HAIR

CUSTOM MADE

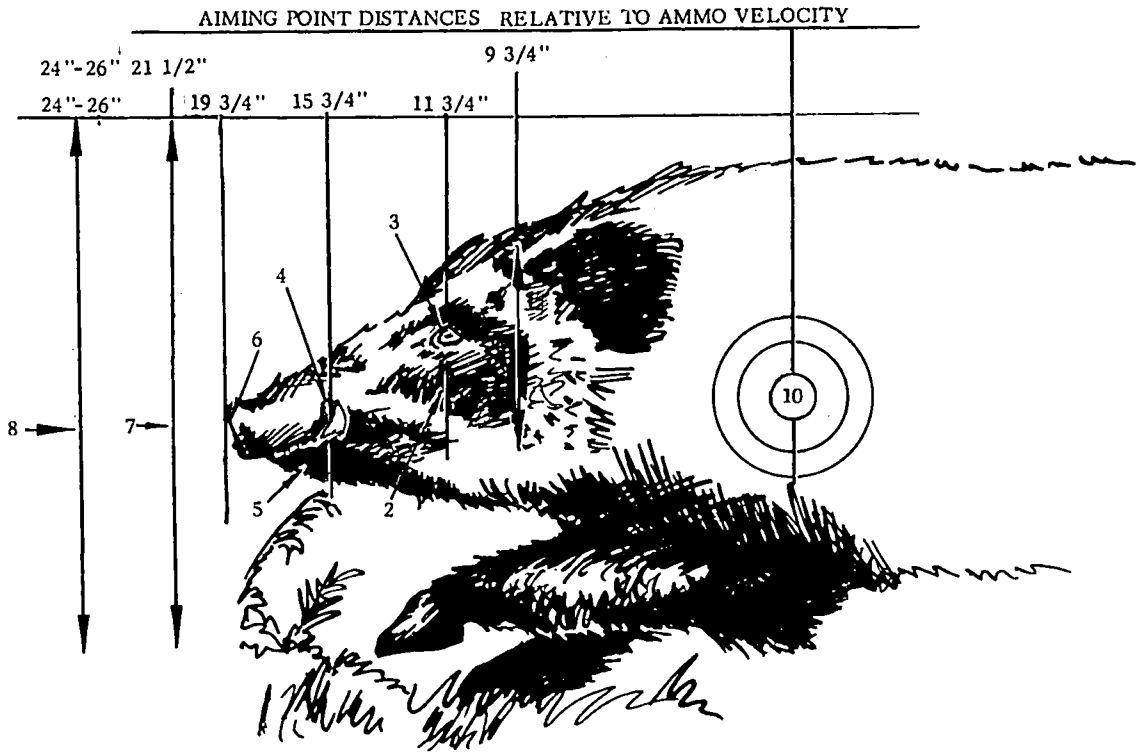


FINE OR MEDIUM CROSS HAIRS
(OPTIONAL)



NO CROSSHAIRS
EACH POST MOVEABLE

FIGURE 6, RETICLES CURRENTLY USED IN VARIOUS SCOPES

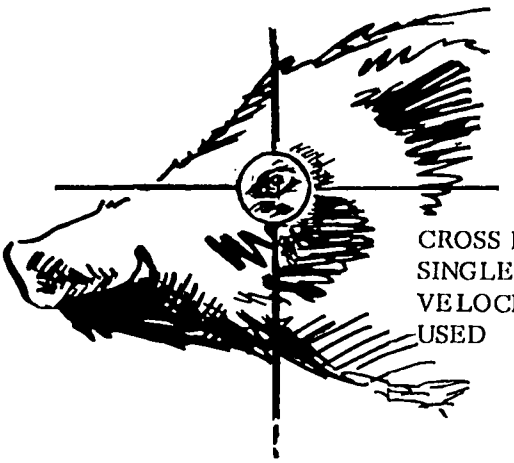


1. NORMAL RUN AIMING POINT WITH HI VELOCITY AMMUNITION
2. DARK AREA UNDER EYE (Single reticle)
3. EYE (Single reticle)
4. TUSK (Double reticle)
5. JAW (Double reticle)
6. TIP OF NOSE
7. FAST RUN AIMING POINT (SINGLE RETICLE) (High velocity ammo)
8. FAST RUN AIMING POINT (SINGLE RETICLE-STANDARD-STANDARD VELOCITY AMMO)

FIGURE 7. AIMING POINT DISTANCES

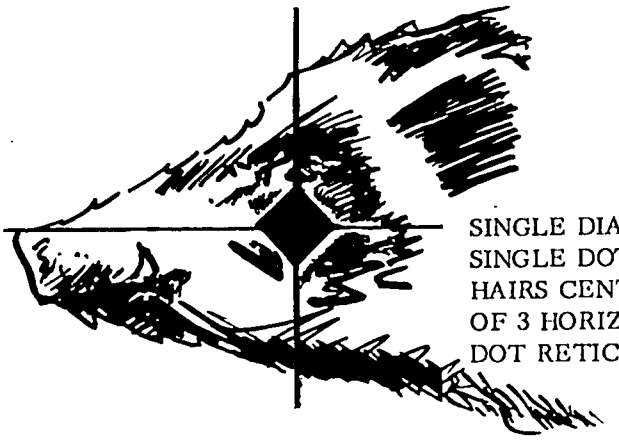
G. RETICLES:

Reticle choice or selection (Figure 6) is usually based on individual preference to use a combination of aiming points (Figure 7). Before selecting a reticle, a knowledge of how these various reticles are used on preferred aiming points is necessary. Figures 8A thru 8M shows various reticles being used correctly on preferred aiming points at different speeds. It can be seen that many reticles and aiming point combinations are available for trial before selection is made. Your initial choice of reticle may be aided by our further discussions as we break the reticles down into two categories, single reticle and multiple reticles.



CROSS HAIRS SINGLE DOT
SINGLE DIAMOND STANDARD
VELOCITY AMMUNITION
USED

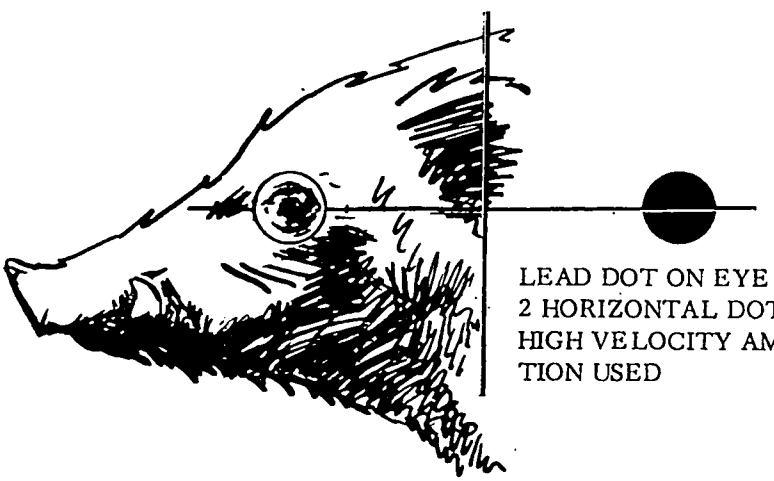
A. NORMAL RUN USE:
FIGURE 8A



SINGLE DIAMOND
SINGLE DOT CROSS
HAIRS CENTER DOT
OF 3 HORIZONTAL
DOT RETICLE

FIGURE 8B,

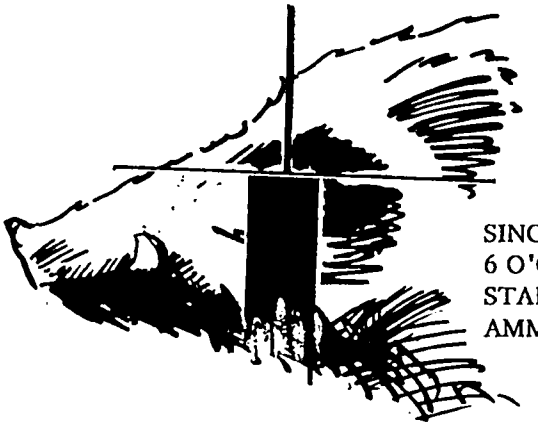
SLOW RUN AIMING POINT



LEAD DOT ON EYE WITH
2 HORIZONTAL DOTS
HIGH VELOCITY AMMUNI-
TION USED

FIGURE 8C,

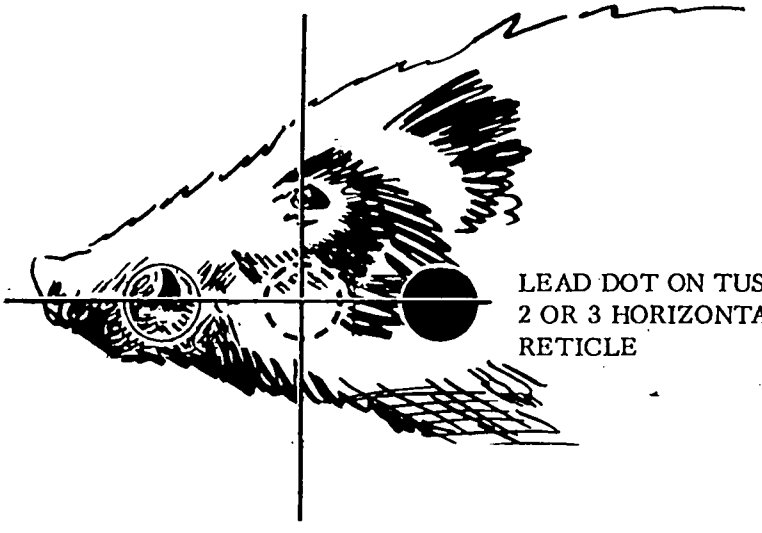
SLOW RUN AIMING POINT



SINGLE POST
6 O'CLOCK ON EYE,
STANDARD VELOCITY
AMMUNITION USED

FIGURE 8D,

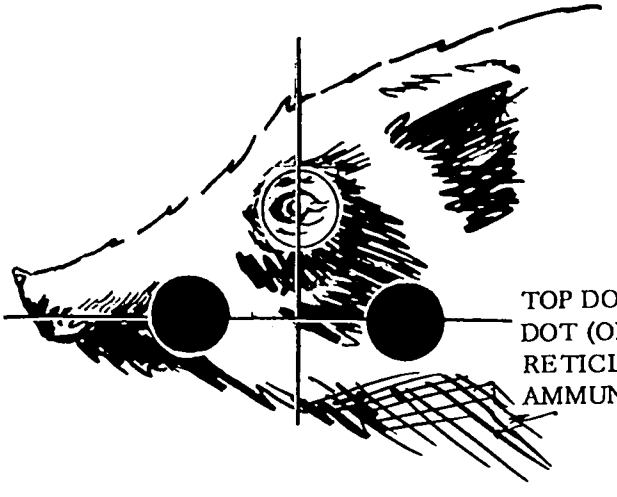
SLOW RUN AIMING POINT



LEAD DOT ON TUSK WITH
2 OR 3 HORIZONTAL DOT
RETICLE

FIGURE 8E,

SLOW RUN AIMING POINT



TOP DOT ON EYE WITH 3
DOT (ONE VERTICAL DOT)
RETICLE STANDARD VELOCITY
AMMUNITION USED

FIGURE 8F,

SLOW RUN AIMING POINT

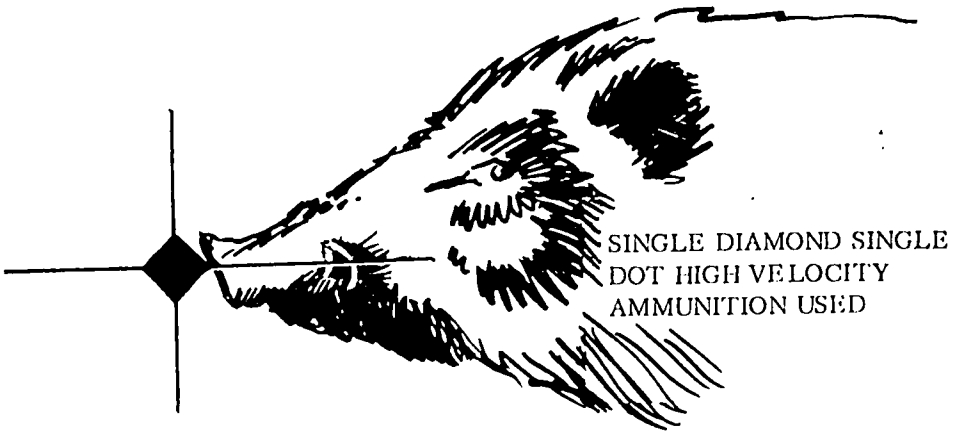


FIGURE 8G,

FAST RUN AIMING POINT

FIGURE 8H,

FAST RUN AIMING POINT

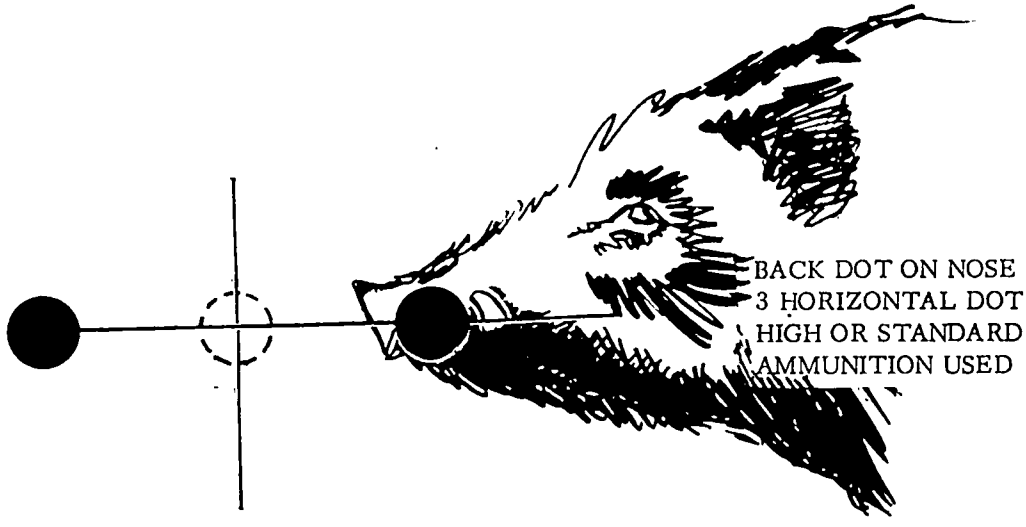
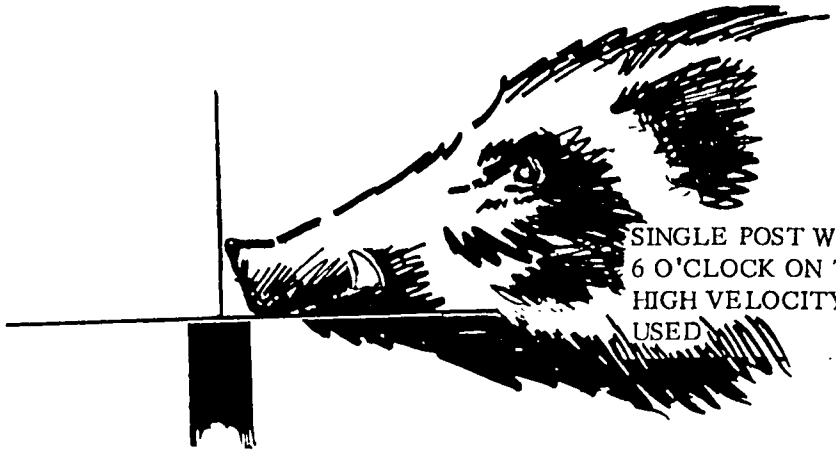


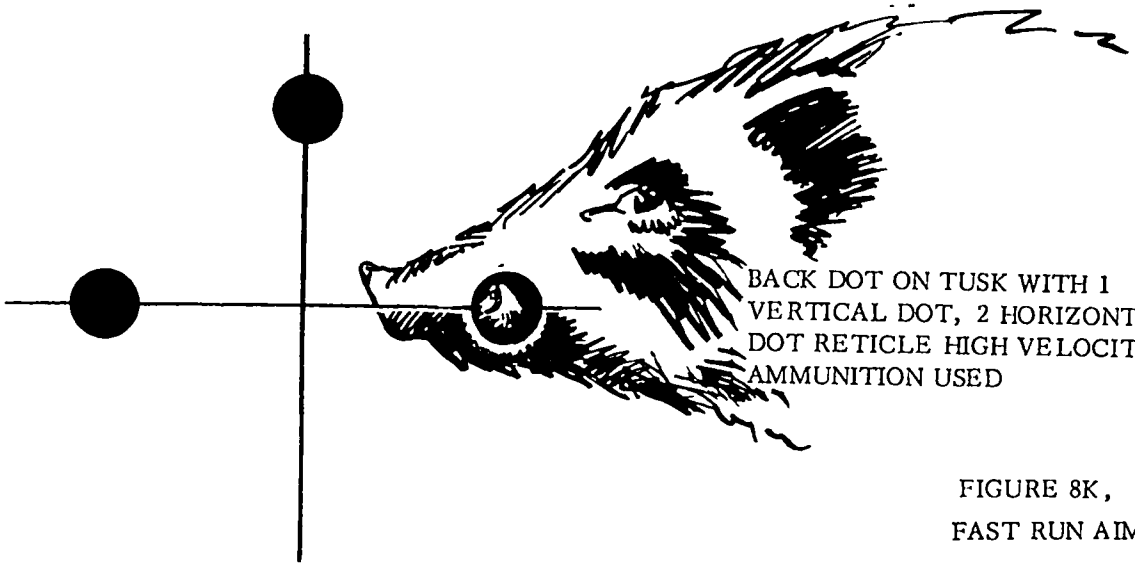
FIGURE 8I,

FAST RUN AIMING POINT



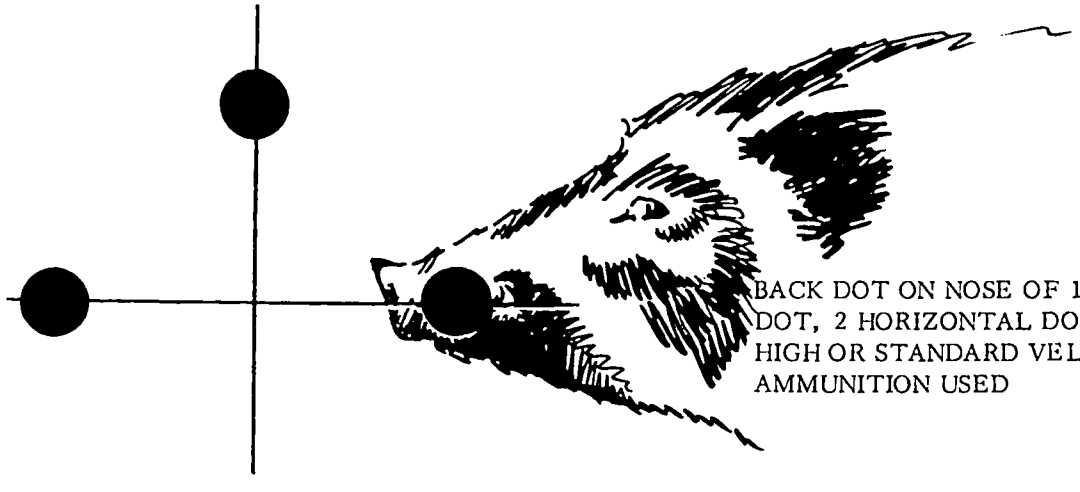
SINGLE POST WITH HOLD AT 6 O'CLOCK ON TIP OF NOSE HIGH VELOCITY AMMUNITION USED

FIGURE 8J,
FAST RUN AIMING POINT



BACK DOT ON TUSK WITH 1 VERTICAL DOT, 2 HORIZONTAL DOT RETICLE HIGH VELOCITY AMMUNITION USED

FIGURE 8K,
FAST RUN AIMING POINT



BACK DOT ON NOSE OF 1 VERTICAL DOT, 2 HORIZONTAL DOT RETICLE HIGH OR STANDARD VELOCITY AMMUNITION USED

FIGURE 8L,
FAST RUN AIMING POINT

TWO POST RETICLE. POST ARE INDEPENDENTLY ADJUSTABLE FOR ELEVATION AND LEAD. TYPE USED BY THE RUSSIAN TEAM. ANY AIMING POINT CAN BE USED BY ADJUSTING POST.

FIGURE 8M

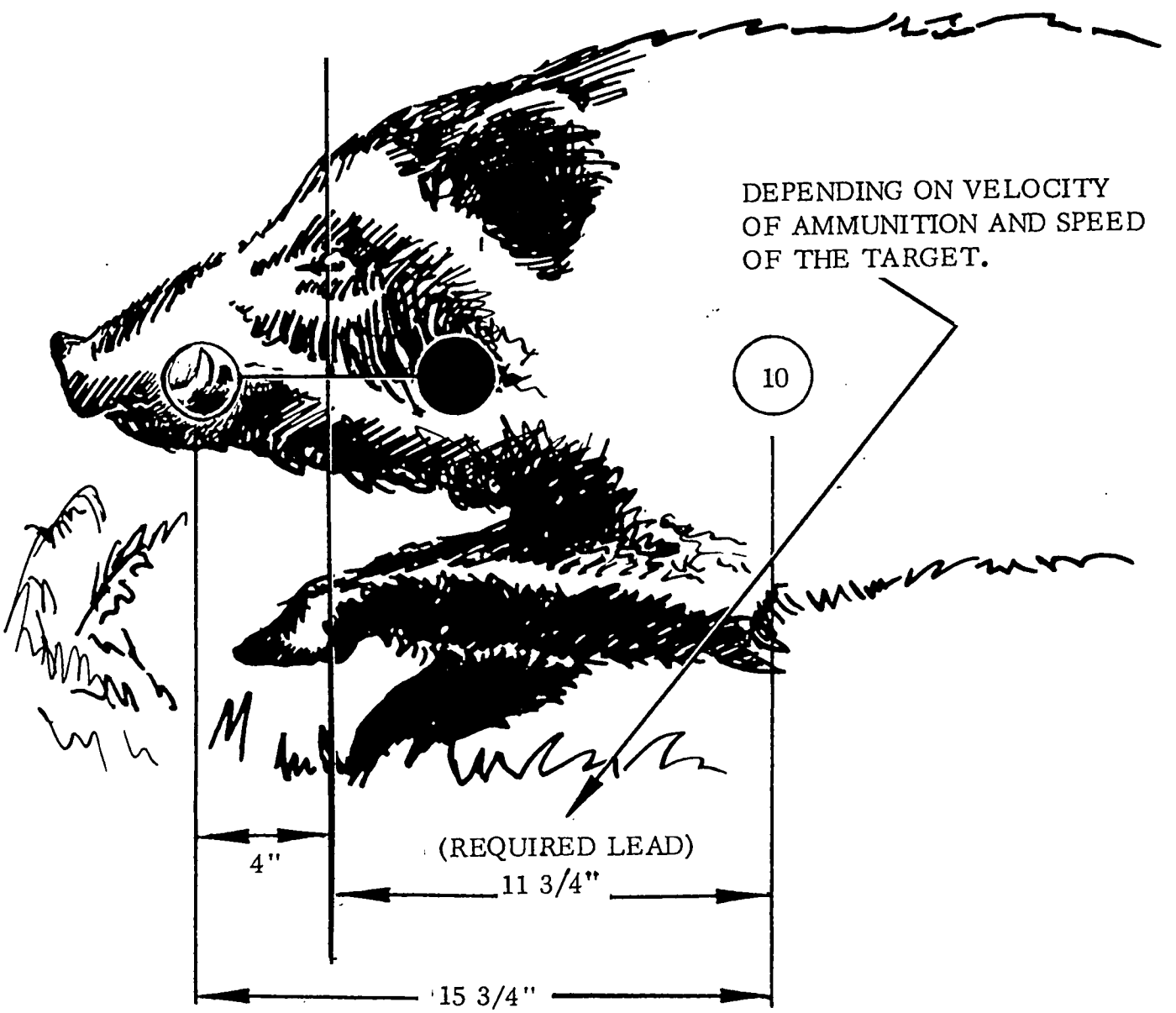


FIGURE 9A,

RETICLE & LEAD MEASUREMENTS

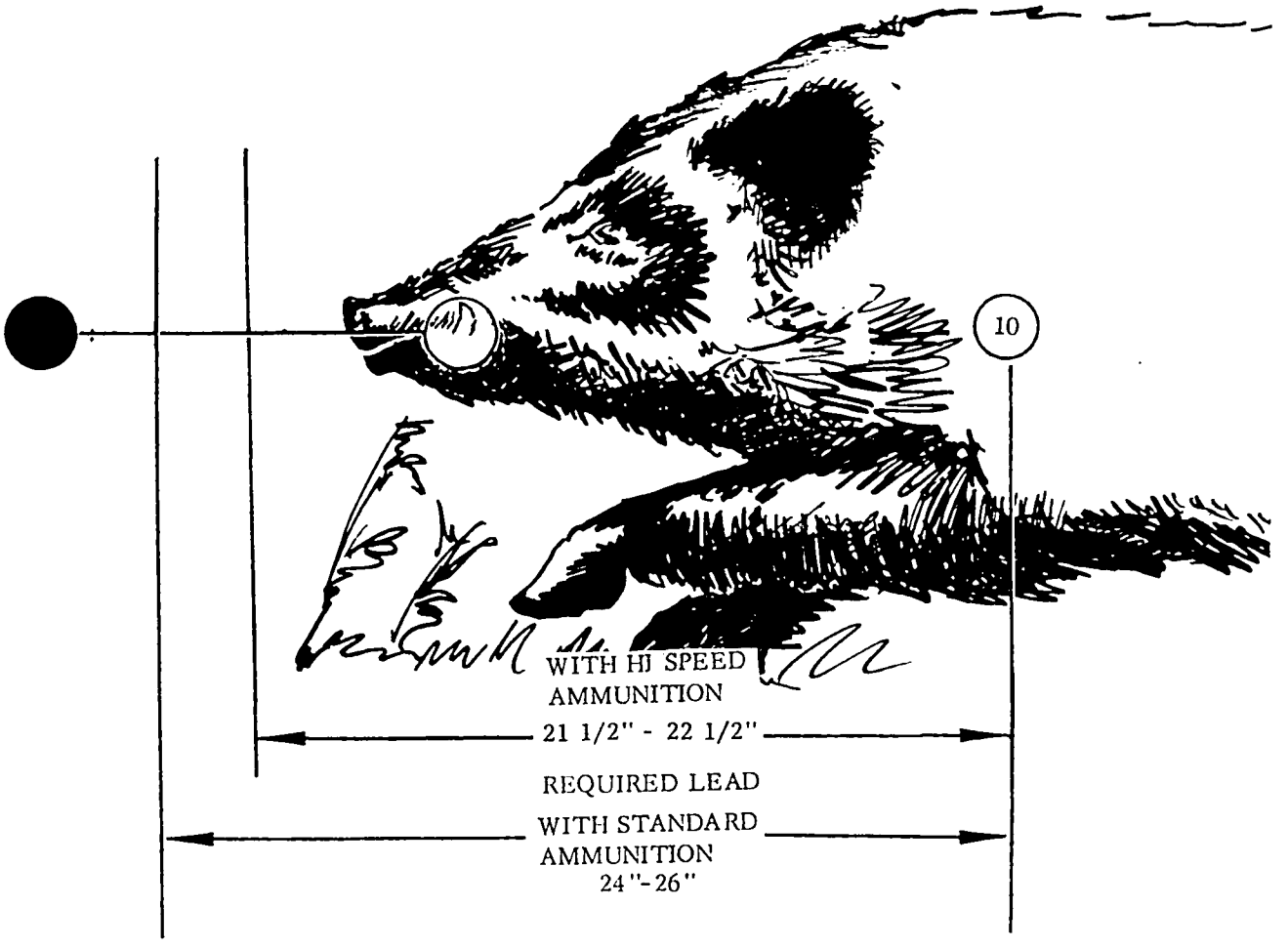


FIGURE 9B,

AMMUNITION VARIABLES (NOTE: ADD 24"-26" AS SHOWN)

a. Single Reticles (Figure 8a, b, c, d):

Selection of a single reticle requies one to hold on two different aiming points for the Normal and Fast run series. Many shooters may already have a scope with a single reticle that can be used. A single reticle can most always be ordered or purchased at a gun or hardware store making it readily available. When a user of a single reticle scope shoots on a range where the target speed is either slow or fast, he will have to hold ahead or behind his usual aiming point.

b. Multiple Reticles (Figures 8e thru 8m):

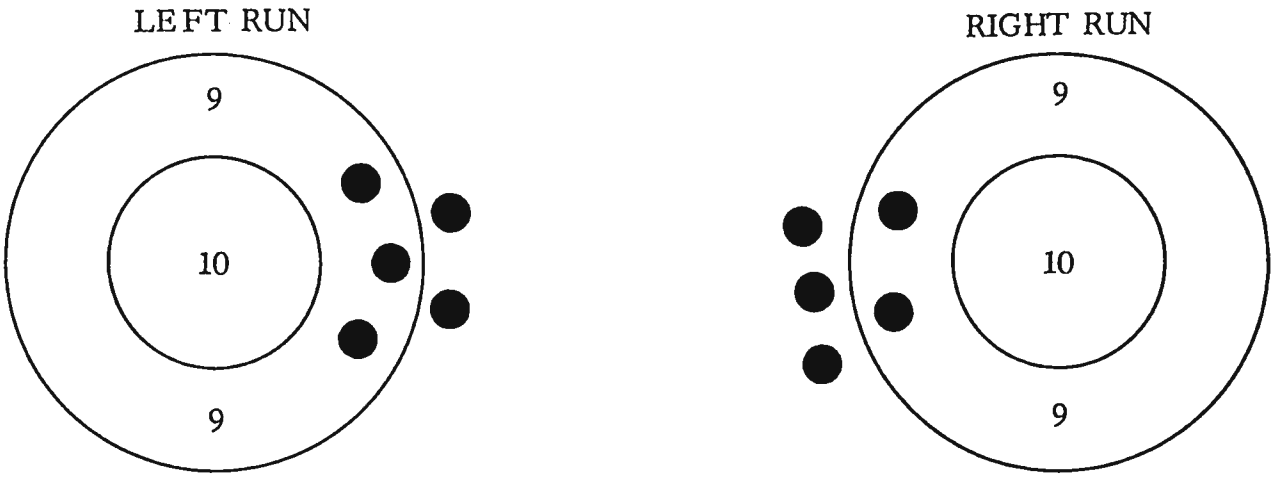
Scope systems with multiple dot combinations give the user certain advantages that a single reticle user does not have. Some shooters prefer to use only one aiming point for both the Normal and Fast runs. A multiple reticle can be made up to accomplish this requirement. One may prefer to have a multiple reticle of one vertical dot and two horizontal dots allowing the shooter to hold on two different aiming points with no zero change. We refer to dots mounted on the horizontal crosshairs as lead dots. These dots are mountd on the crosshairs to give built-in leads on the target. To clearly understand the use of lead dots, one must realize that when multiple reticles using lead dots are sighted in on a still target, they are sighted in using the center point of the reticle to hit in the center of the 10 ring. Thus the center point of the reticle is zeroed on the impact point. This puts the muzzle and the center of the reticle on the same plane and if we move the center point of the reticle out 6" from the 10 ring, then we are moving the muzzle the same distance, thus establishing 6" of lead on the target. Figure 9a illustrates how to compute in inches the location of the lead dot in order to utilize the tusk, as the aiming point, for a Normal Run series.
NOTE: In the above example 11 3/4" of lead is needed. If one is to compute how far the lead dots are to be mounted each way from the center crosshairs, in this example, measure from the center of the eye to the center of the tusk. The resulting answer is 4". (This will vary according to ammo velocity and/or target speed.)

After studying the example closely one can see how multiple reticles, with lead dots incorporated in the makeup, enables one to tailor a reticle system to use a specific aiming point. In most lead dot makeups, the lead dot is held on the aiming point in the direction the target is moving for the Normal Run series. For Fast Run series the trailing or rear dot is used on the aiming point because additional lead is required. By using the back dot in this manner, you are in effect moving the muzzle out for the correct amount of lead. Figure 9b will aid in the understanding of the use of trailing dots for the Fast Run series.
NOTE: This multiple reticle with two horizontal dots can be utilized using one aiming point for both the Normal and Fast Run series. This allows the user of this type reticle to train using only one aiming point instead of two.

One multiple reticle system is one dot located above the center crosshair on the vertical crosshair and with two lead dots mounted on the horizontal crosshairs. This reticle is shown under custom reticles (Figure 6g). It gives the user the advantage of using two different aiming points with no sight change necessary. In all other multiple reticles systems, elevation changes are necessary to center the standard and high velocity ammunition groups using the same aiming poit. Suppose that the lead dots will be utilized on the tusk in the Fast Runs, and the vertical dot on the eye in the Normal Run. To bring both types of ammunition to the same impact point in the 10 ring, compute it in this manner; shoot a five shot group aiming in the center of the ten ring with standard velocity ammunition (for Normal Run use). Then shoot a 5 shot group using high velocity ammunition and the same aiming point. The high velocity type should group above the standard velocity group. Measure the exact distance between the center of these two groups. Now measure the distance on the target from the center of the 10 ring to the center of the eye, and add the distance obtained from the 10 ring to the eye to the distance between the two groups. The measurement will indiacte in inches the distance to mount the vertical dot above the center crosshair. To clarify what was done, realize that in effect we are dropping the muzzle down below the standard velocity group just enough to allow both groups to be centered as one. When this reticle is made up correctly, the user does not normally have to make an elevaton change to shoot the complete course.

One particular advantage the multiple reticle user has over the single reticle user is eliminating the requirement to hold off his aiming point should target speed vary. If one goes to a match and finds the target speed on each run to be slower or faster than he is accustomed to, then the shooter has to make an adjustment in lead to center his groups. If one is using a single reticle he must hold either in front or behind his aiming point to adjust his lead. This may be difficult for some individual to do due to the fact it is not regularly practiced. When an individual is using a multiple reticle in a variable power scope, he can adjust his lead by increasing or decreasing the power setting on his scope and still hold on his aiming point. This involves mastering another facet of multiple reticle use. To further understand this point, refer now to Figures 10-13 and the notes accompanying them. The shooters firing targets in Figures 10-13 will be using a two dot multiple reticle in a 3X9 variable scope with the lead dot on the tusk in a Normal Run series.

EXAMPLE: A shooter using this reticle set on 6 power shoots a 10 shot series with this result:

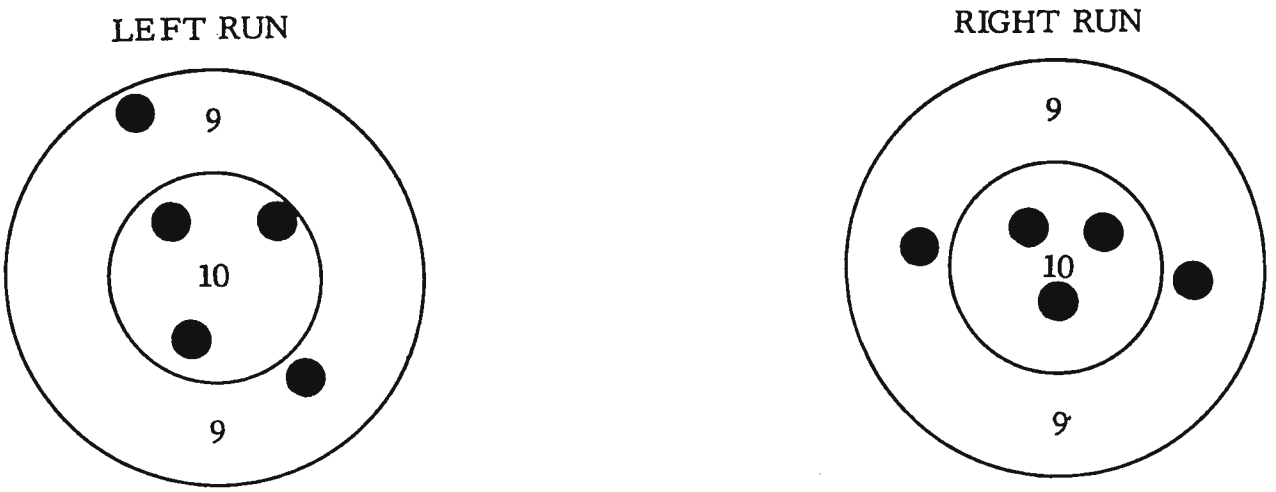


NOTE: GROUPS ARE BEHIND ON EACH RUN

FIGURE 10

The shooter checks the exposure time on the target and finds it to be faster than normal for the Normal Run (allowable limit 5.0-5.4 sec). He realizes he will have to increase his lead in order to center his group. He will have to learn and practice one of two rules that apply in his situation. When one is using a lead dot on an aiming point in the Normal Run and he wants to increase his lead on the target, he must increase the power setting (1/2-1 power at a time) in order to center his group on both sides. If the lead on the target is too great, decrease the power setting (1/2-1 power at a time) to center groups on both sides. When the shooter applied the increase power lead rule, the result is as shown in Figure 11.

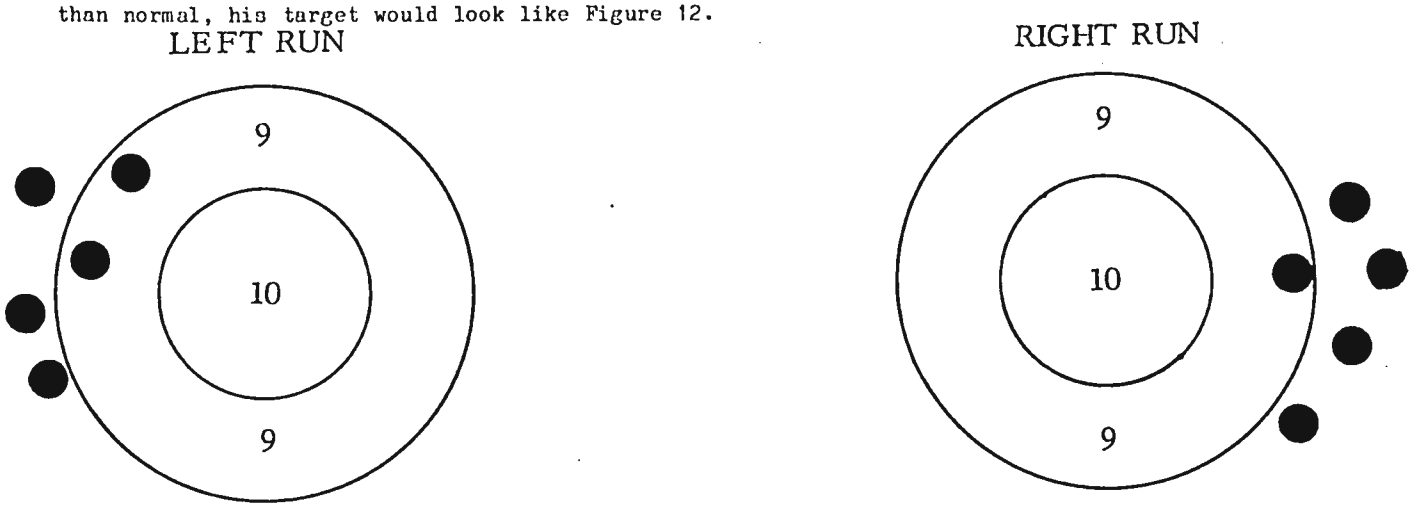
EXAMPLE: The shooter in Figure 10 needed to increase his lead on the target, so he changed his power from 6 to 7 power and this was the result:



NOTE: GROUPS CENTERED ON EACH RUN

FIGURE 11

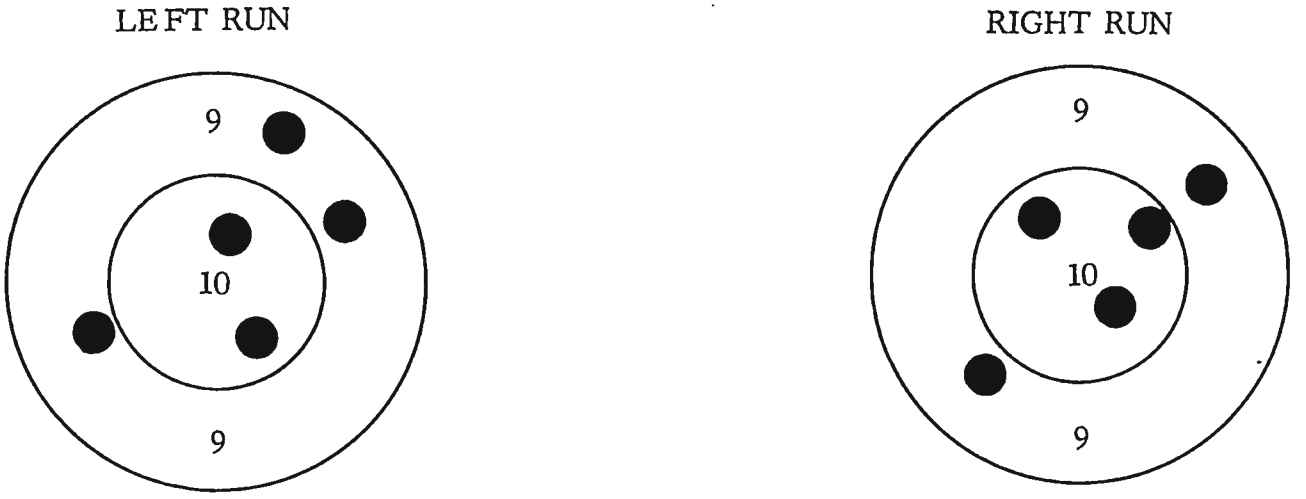
EXAMPLE: If this same shooter has shot a practice Normal Run string and the target was running slower than normal, his target would look like Figure 12.



NOTE: GROUPS ARE AHEAD ON EACH RUN

FIGURE 12

NOTE: In Figure 10 the shooter saw he must practice the rule for decreasing the lead while using lead dots on an aiming point in the Normal Runs. The shooter decreased his lead on the target by reducing his power setting from 6 to 5 power, the next string produced the results in Figure 13.

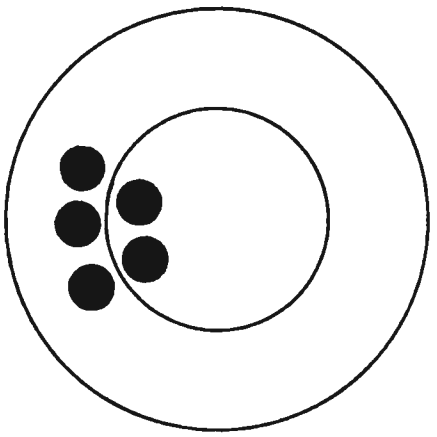


NOTE: GROUPS CENTERED ON EACH RUN

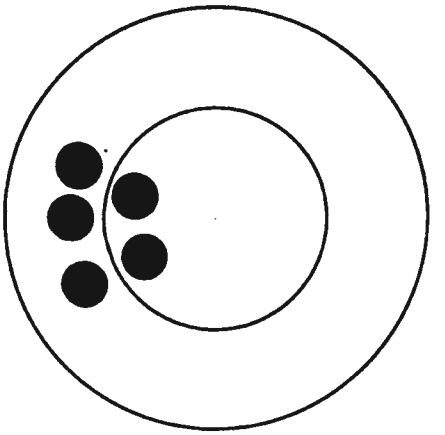
FIGURE 13

Many times the user of a multiple reticle gets confused on whether to change power on his scope or make windage changes on his sights. It is best to remember that when power changes are necessary groups will eithre be behind or ahead on both sides. A windage change is in order if groups are behind on one side and ahead on the other side, or ahead on one side and behind on the opposite side. (Figure 14)

LEFT RUN



RIGHT RUN



GROUPS ON SAME SIDE OF EACH TARGET - WINDAGE CHANGE NEEDED.

FIGURE 14

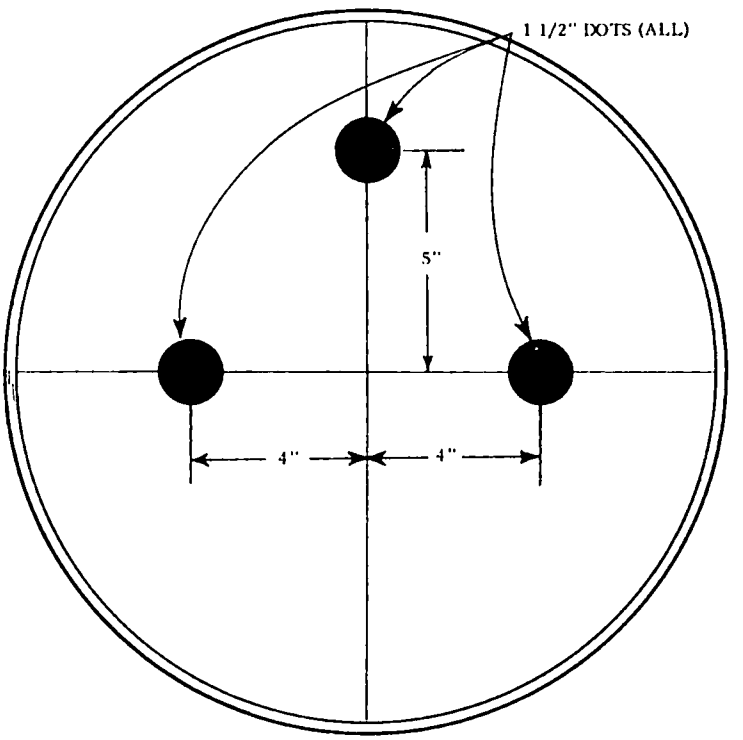
When using lead dots in the Fast Run role an opposite rule for changing leads takes effect. To increase lead using the trailing dot on a multiple reticle it is necessary to decrease the power setting (1/2-1 power at a time) until the groups are centered. To decrease the lead on the target, increase the power setting (1/2-1 power at a time) until the groups are centered. Making windage changes with the trailing dot is done by analyzing the targets and remembering that the same rule that applies to the lead dot use applies to one using the trailing dot in the Fast Run series.

When a multiple reticle system is selected for use, one factor to be determined is the power setting desired to use with this reticle. This is an important point to bring out because once a multiple reticle is made up for use at a certain power setting, it can only be used at this power setting. A reticle makeup involves the user of this reticle requesting the reticle to be made up with the lead dots spaced so many inches out on the crosshairs for specified power setting. If the reticle is made up at for example, 6 power, then the user of the reticle does not have the option to use this reticle at a lower or higher power setting due to the fact that the leads on the target would change. This is a limitation of a multiple reticle. On the other hand the user of a single reticle may change power settings at will with no lead changes.

When a shooter requests a multiple reticle be made, he must specify to the technician making up the reticle, the size of the dot in inches at the power setting he desires in the reticle makeup. Once the new reticle is made up with the size dots desired at a certain power setting, the dots can be changed in size by going up or down in power setting, causing the leads on the target to change.

One should request a multiple reticle makeup using this procedure: First consider what aiming point or combination of aiming points is desired. Next consider the preferred power setting to use. The size dots requested are to be for a specific size at the power setting selected. This information is assembled and put together for the order. Usually the order is accompanied by a simple diagram showing the reticle and specific dimensions and information to help clarify what is desired. Even abilities of technicians vary and it is possible to receive back an unusable scope. If the dots are not exactly the same distance from the center, the impact will be correct for one run, and off for the opposite. Some shooters can learn to compensate and live with this condition but if not able to, the scope should be returned to the factory for correction. Figures 15, a, b, c, and d illustrate diagrams for the makeup of multiple reticles with the pertinent information included.

The reader will probably agree that the beginning R/T shooter might elect to start out with a single reticle system because of the complexities involved with multiple reticle makeup and use. Multiple reticles do not allow the novice shooter the chance to practice and evaluate the various power settings and reticle size changes that take place as one with a single reticle goes up and down the power range of his scope. Evaluate the various reticle makeups before you buy.

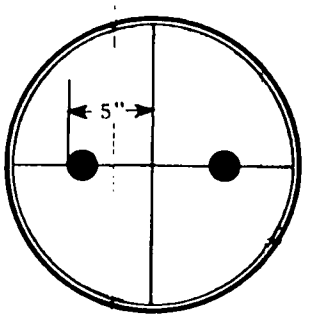


3 Dot Reticle Measurements

Figure 15

EXAMPLE OF RETICLE PLACEMENT

Dots 5 inches from center crosshair at 6 power at 50 meters
3/4 inch dots at 6 power at 50 meters in a 3X9 variable Scope



Ammo Type	Target Speed	Scope Setting	Aiming Point
Standard Velocity Match	Slow-5.0-5.1 Sec.	7 Power	Leading Dot on Tusk (Fig)
	Slow-5.2-5.4 Sec.	6 1/2 Power	
Standard Velocity Match	Fast-2.5	5 1/2 Power	Trailing Dot on Nose (Fig)
	Fast 2.6-2.7	6 1/2 Power	

In the Mixed Runs Standard Velocity Match Ammo is used with the scope set at 6 power. In the Fast Runs aiming point will be just on the tip of the nose with the trailing dot (depending on speed of target) (Fig 8l). In the Slow Runs aiming point will be just trailing the tusk with the leading dot (depending on speed of target) (Fig 8e).

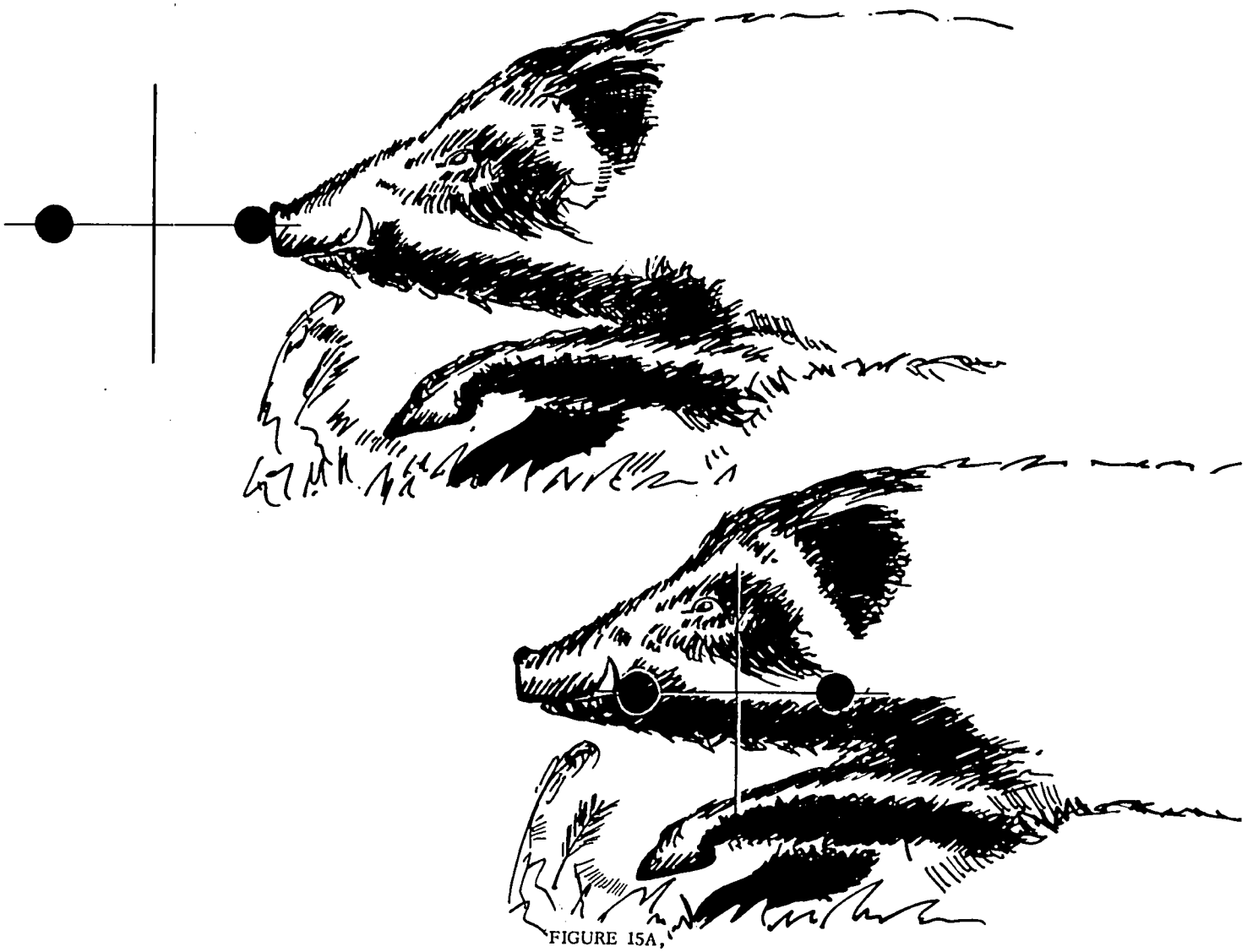
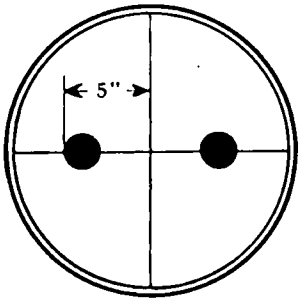


FIGURE 15A,

SEE TOP OF DIAGRAM

EXAMPLE OF RETICLE PLACEMENT



Dots 5 inches from crosshair at 9X at 50 meters
1/2 inch dot at 9X at 50 meters.

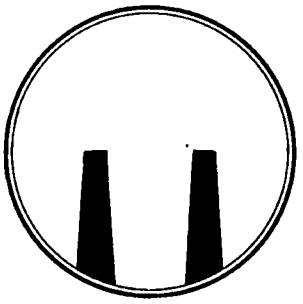
Ammo Type	Target Speed	Scope Setting	Aiming Point
Standard Velocity Match	Slow-5.0-5.2 Sec.	10 Power	Leading Dot on Tusk (Fig)
Standard Velocity Match	Slow-5.2-5.4 Sec.	9.5 Power	
High Velocity	Fast-2.5-2.6 Sec.	9 Power	Trailing Dot on Tusk (Fig)
High Velocity	Fast-2.6-2.7	8.5 Power	

In the Mixed Runs high velocity ammo is used with the scope set at 9 power. In the Fast Runs the aiming point will be the tusk with the trailing dot (depending on speed of target) (Fig 8h). In the Slow Runs the aiming point will be the end of the dark spot behind the tusk with the leading dot (depending on speed of target) (Fig 8d).

FIGURE 15B,

SEE TOP OF DIAGRAM

EXAMPLE OF RETICLE PLACEMENT



It is a single power scope with fully adjustable posts for lead and elevation. (Any ammo type can be used with any aiming point.)

Ammo Type	Target Speed	Scope Setting	Aiming Point
Standard Velocity Match	Slow		Leading Post on Nose (Fig)
Standard Velocity Match	Fast		Trailing Post on Nose (Fig)

In the Mixed Runs standard match velocity ammo is used with the leading post on nose (Fig 8m) in the Slow Runs and the trailing post on nose (Fig 8m) in the Fast Runs.

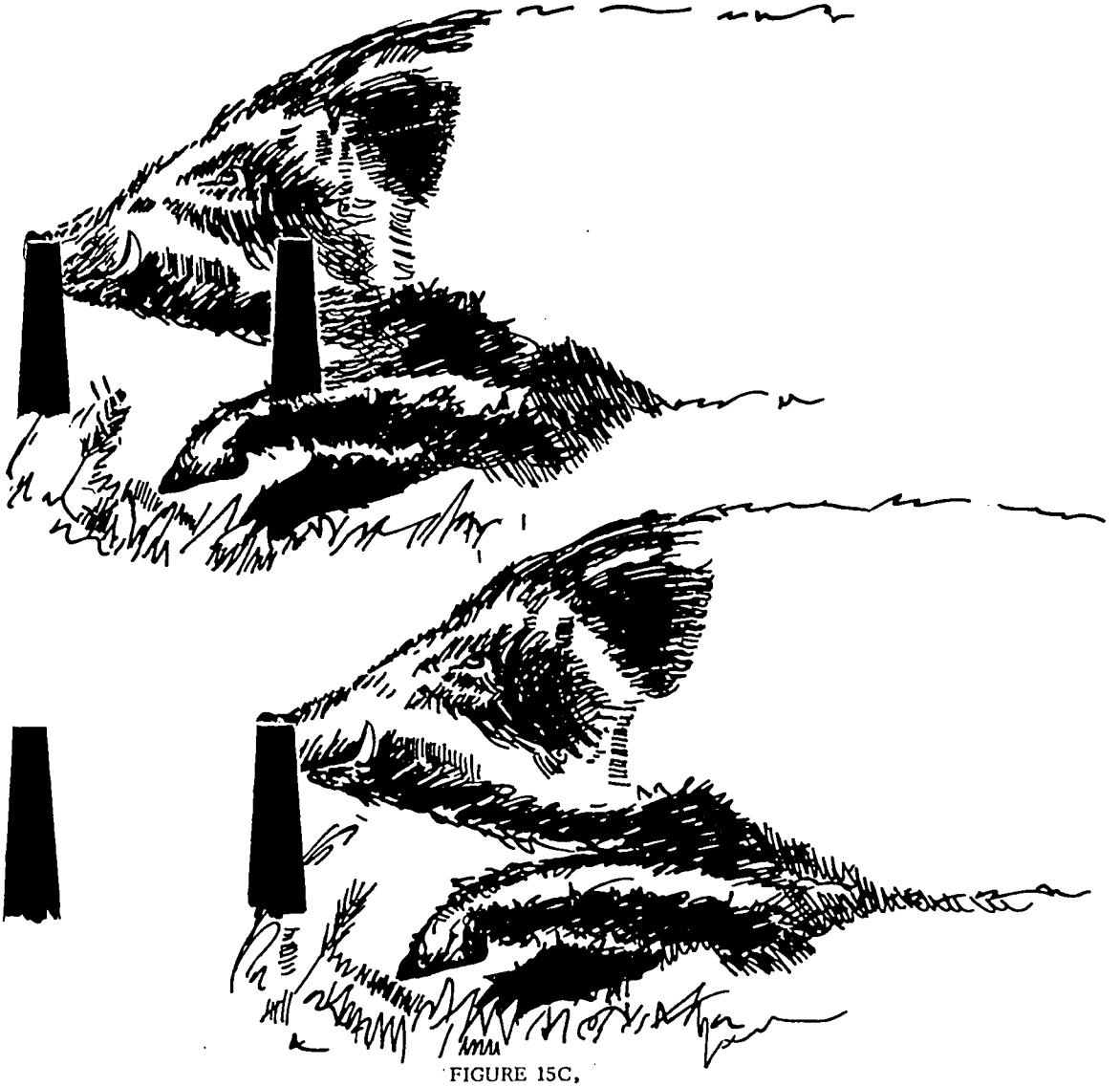
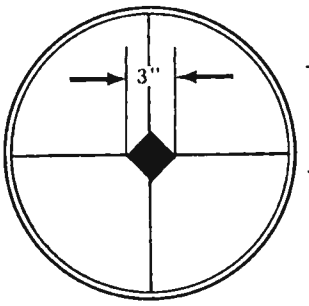


FIGURE 15C,

SEE TOP OF DIAGRAM

EXAMPLE OF RETICLE PLACEMENT



Diamond is 3" across at 7 power at 50 meters in a 3X9 variable power scope.

AMMO TYPE	TARGET SPEED	SCOPE SETTING	AIMING POINT
Standard Vel. Match	Slow 5.0-5.4	7X	Six o'clock on the eye-favoring left or right as necessary (Fig)
High Velocity	Fast 2.5-2.7	7X	Center diamond on the tip of nose favoring left or right as necessary (Fig)

In the Mixed Runs standard velocity match ammo is used with the scope set at 7 power. In the Fast Runs the aiming point will be approximately four inches in front of the nose in line with the top of the nose and the Slow Run aiming point is six o'clock on the eye (Fig 8b).

FIGURE 15D,
SEE TOP OF DIAGRAM

H. LEAD AND HOW TO DETERMINE IT:

When a hunter fires at moving game, he must instantly be aware of three factors. Range to the target, the speed it is moving, and according to the ammuniiton velocity he is using, how far ahead to lead the game in order to bring it down. The R/Target shooter encounters these same three factors when he attempts to put his shots into the 10 ring of the moving target. One advantage he has over the hunter is that he is shooting at a constant 50 meter range so this factor does not have to be estimated each time. The only factors he must cope with are the speed of the target and the velocity of the ammunition being used. To determine the required lead in the Normal and Fast run series with standard velocity or high velocity ammunition, follow this procedure: First, zero a .22 caliber R.F. rifle with scope in the center of the 10 ring at 50 meters range with the target stopped in the opening. Second, zero with the target moving at Normal Run speed and with standard velocity ammunition, holding on a fixed point ahead of the 10 ring in the direction the target is moving. (The eye is a good aiming point to use.) Third, measure from the aiming point on each target to the center of each group. This will give you the approximate lead in inches required to hit the 10 ring using standard velocity ammunition. Determining lead in the Fast run is a similar procedure, only more difficult due to the fact that the target speed is doubled and the ability of the inexperienced shooter is such that he can not always shoot a tight enough group to establish a correction. Due to the fast target speed, one should hold on a point farther out from the 10 ring such as the nose. NOTE: More lead is necessary when using standard velocity ammunition in the Fast run. USAMU R/Target team members determine leads for the Normal and Fast series using this procedure with both types of ammunition. It is necessary to know what lead to use and how to determine it accurately. As skill level increases, it may be desirable to have a custom reticle made. It is necessary to know the leads in inches so that the reticle can be made for the lead specifications. Proper lead for the ammunition selected must be known in order to place groups in the 10 ring. Determining the leads will aid in selecting these points called Aiming Points.

I. AIMING POINTS:

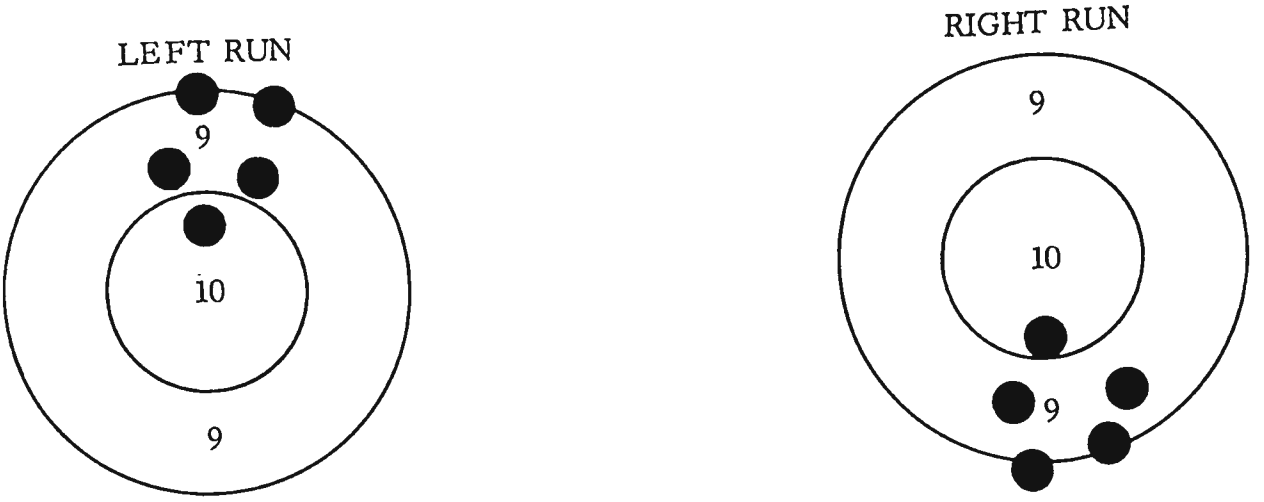
An aiming point is a fixed point on the target located ahead of the ten ring. It is desirable to select an aiming point that is clearly definable and the correct distance (lead) from the 10 ring for the type run being shot and ammunition used. To take advantage of the information gathered earlier on leads, one will find there are eight aiming points that can be utilized. They are the eye, the large dark area under the eye, the jaw, an area 2" behind the eye, the nose, an area 1 1/2-2" ahead of nose, and the tusk. For some of these aiming points to be used it is necessary to utilize a custom reticle. No one aiming point is any better than the other. Each should be tried and evaluated to determine the best for individual use. This is why many R/Target shooters use different or a series of aiming points. It is a personal choice. Aiming point preference will influence the reticle selected by the individual shooter. Figure 7 illustrated to you the eight most common aiming points and their respective distances in inches from the center of the ten ring. This information should prove helpful as it indicates many of the figures used in determining leads later in this chapter.

J. SIGHTING IN:

Sighting in a scoped R/Target rifle is best accomplished by following these simple steps: First run the target out to the center of the opening. Next use a bench or secure rest 50 meters in front of the target to shoot from. Select the ammunition (standard or high velocity) for the run (Slow or Fast) to be sighted in. Now move to the scope sight. Make sure the scope blocks are tight on the rifle and that the scope mounts are secure in the scope blocks. Loosen the scope mount retaining screws enough so that it can be moved in the scope rings. This accomplished, point the scoped rifle at the target from the rest, to check for correct focus of the reticle in relation to the target. If the reticle is sharp and clear to you and the target isn't, or vice versa, then the scope focus must be changed. In most all scopes this adjustment is made by loosening the ocular lens locking ring (to the rear of the scope) and screwing the ocular lens either forward or rearward to clear up the reticle and target. You should have as the result, a sharp clear reticle and target. Once this is done, lock down the ocular lens locking ring to the ocular lens, keeping the ocular lens tight. Rarely can another person make this adjustment for you, or you for them. Remember, restrict this adjustment to youself. The next adjustments to make are for cant and eye relief. They can be made concurrently by picking up the rifle and placing it to your shoulder using proper R/Target technique and position for firing. Without shifting your head position on the stock, look through the scope and see if you have a full field of view in the scope without changing the head position. Move the scope forwrad or back to attain this. Next look into the scope again to determine if the reticle looks straight to you, or canted one way or another. The reticle should be vertical to the target with the rifle to your shoulder in the firing position. Some shooters have a nautral cant. Do not make this adjustment from the bench since it will not accomplish your purpose. Once these two adjustments are made, rest the rifle on the bench and carefully tighten the scope ring screws. The adjustments made up to this point need only be accomplished in the initial sighting in period. The next steps will apply in the initial sighting in and in the zero check phase. If you are sighting in initially and have a dirt berm or object such as a clod, piece of wood or anything to show the impact, shoot a few rounds at these objects and make large elevation and windage changes if necessary. When you are hitting close to the point of aim, move to the target for the final sight adjustments. When you are just shooting your R/Target rifle for a zero check, go right to the target to check its zero.

Regardless of which aiming point you wish to use or which reticle you sight in with, the technique you use is the same for all. From a good solid position, preferably a bench, line up the reticle you are using, with the vertical crosshair passing through the center of the 10 ring and the horizontal crosshair through your aiming point. Now shoot a series of three shot groups until you are centered up in the ten ring. This will give you a still target zero. You are now ready to shoot a string for a moving target zero. Shoot a 10 shot ring at Normal or Fast run speed, depending on which run you are sighting in for. You may find that after firing your string that small elevation and windage adjustments are necessary to center the groups. If a multiple reticle is used initially you may have to make a small change in power setting to center your group.

For shooters using a multiple dot reticle, in the initial sighting in phase the place to determine the correct power for Normal and Fast runs is accomplished and checked in this manner: Suppose that you are using a 2 horizontal dot reticle and had requested it be made up for 6 power use on the tusk. After sighting in center, for instance on a 3X9 power scope, put the power selecting ring on 6 power and move a lead dot to your aiming point, the tusk. At 6 power the verticial crosshair should pass through or close to the center of the eye. If it does then your scope reticle has probably been made up accurately for use with standard velocity ammunition for the Normal Run series. If you chose to have the reticle made up for use on the Normal Run series with high velocity ammunition, then as you put the lead dot on the tusk, your vertical crosshair should be approximately 2" behind the eye. These are checks to be made with a multiple reticle scope. To quickly check the power setting for using the trailing dot on the tusk in the Fast Run series, put the trailing dot of the reticle on the tusk and go up or down in power from your starting point of 6 power. You desire the vertical line of the crosshairs to be 1 1/2-2" in front of the nose of the target when using high velocity ammunition. Now shoot a string of Fast Run and check your target. If small changes in power are necessary, make the changes until the groups are centered up. Upon examination of the targets, if the groups fired with a multiple dot scope indicate one side is centered but the other is not centered for elevation, then some additional adjustments to the scope may have to be made.



CANTED GROUP

FIGURE 16

Figure 16 indicates that the cant of the reticle must be changed. When this problem is encountered, the rule to use is this: Loosen the scope ring retaining screws, rotate the scope ever so slightly (1/32") at a time either right or left depending on the location of the displaced group. When the left run group is high on a normal run series and the right run target is below center rotate the scope approximately 1/32" to the right and tighten the scope ring retaining screws. This adjustment will move the left run back dot down as well as the muzzle (center of crosshairs). Rezero after this correction, then shoot another string. In effect moving the dot down has also moved the group down on that side toward the center of the 10 ring. For normal run series corrections, the lead dot used on the run target that needs an elevation correction is moved in the direction the group has to go to be centered on that run.

In the Fast Run series when the back or trailing dot in a multiple dot reticle is used on an aiming point, the back dot that is used on the left run target is used for making elevation corrections on the left run target, and the opposite is true for the back dot used on the right run target. Rotation of the scope is used exactly like it is used for the lead dot in a Normal Run series. Rezero and fire another fast run string. Both groups have to be centered vertically in order to be able to move both groups evenly should a sight change for elevation be necessary at any time.

Once this is accomplished, record the power settings for both runs on a piece of masking tape on your stock or socpe. Always record elevation and windage adjustments for both runs. Chances are if you are using the two speeds of ammunition mentioned there will be changes unless you use the same velocity type with the same aiming point for both the Normal and Fast Run series. It is best to check your zero prior to shooting each day. This saves ammunition and gives you confidence knowing that if you perform on a shot, you will get a ten!

Remember only with a correctly sighted in rifle will you have a true indication of your performance.

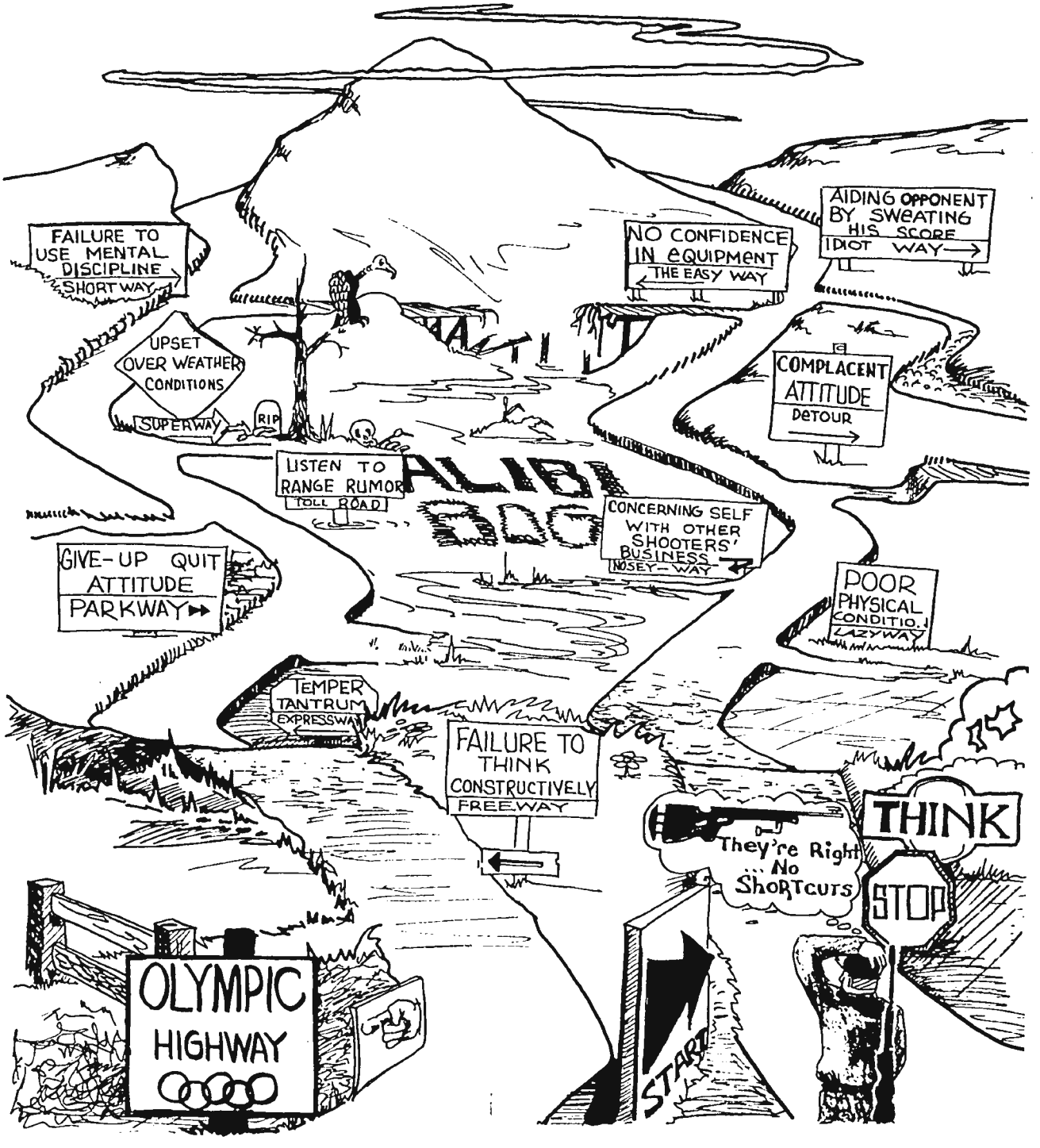


FIGURE 17,

ROAD TO SUCCESS

K. PHYSICAL CONDITIONING:

Physical conditioning is important for Running Target shooters as it is for any other type of shooting. This does not mean muscle building or rebulding one's physique but rather in keeping the muscles supple in order to make any movement smooth and fluid. This can be accomplished by a mild form of general conditioning such as running, swimming, or a combination of these, and dynamic tension exercises. This will also increase endurance and reduce pulse rate. As conditioning progresses, special attention can be placed on the muscles that support the weapon. By building a steady and strong musculature to support the weapon the vertical error is reduced, leaving as your chief concern lateral movement, which is accomplished by pivoting the body. (Also see Chapter 7, Physical Conditioning)

L. MENTAL CONDITIONING AND ATTITUDE:

1. Are nerves ruining your match scores? If so, be assured that you can control them. The techniques of exercising self control is based on fundamentals learned by match shooters as a result of experience and evaluation.

2. In shooting at a running target you will find that mental discipline is as important as manual proficiency. It requires the utmost in concentration. You shoot alone during the match with an audience watching each shot. This is a situation you can learn to cope with. You must control your nerves.

3. A match can be lost by letting your emotions get the best of you. Even though you shoot top scores during practice, you must overcome your fears during a match in order to be a consistent winner in the uncompromising reality of competition. Mastering mental processes separates the winner from the losers.

4. Match pressure affects shooters in varying degrees. It may manifest itself by nervousness, anxiety, apprehension, confusion or other stress factors. Some individuals are more successful than others in controlling or overcoming it. Concentrating on performance rather than results may assist some individuals to maintain control. Under no circumstances should one use alcohol, tranquilizers or other crutches in an attempt to suppress match pressure.

5. In shooting we want cmplete relaxation and must find our own individual method of achieving it. By careful self-appraisal and self-discipline we can rid ourselves of most of these fears. A factor that will help is to duplicte closely in practice the conditions that will exist in a match. For example, have as many people present at practice sessions as possible. Compete with your teammates. Endeavor to perform with flawless perfection every time in practice, then analyze and correct. Participate in as many tournaments as possible. Tournament conditions will harden you to cope wtih conditions of stress. By shooting good scores in tournaments, your confidence will begin to grow. Keep in mind during the touranment that other competitors are also feeling stress and emotional discomfort. Do not become discouraged. It sometimes takes many years of experience to acquire that hard shell of self-control that makes a winner. Some never acquire it. Don't fool yourself with practice scores when measuring improvement - use match scores to get the true picture. (Also see Chpater 6, Mental Discipline)

M. TECHNIQUE OF SHOOTING RUNNING TARGET:

1. R/T Daily Checklist (sheet of paper):

a. Check zero daily before firing course if possible.

b. Set power on scope for target speed.

c. Check sight adjustments for target speed.

d. Select the correct ammunition for the run being fired.

e. Check position for natural point of aim and correct feet placement.

f. Remember the option available to stop the target after the two sighting shots runs if a sight adjustment is deemed necessary.

g. Follow through - unload - reload - look at scoring marker, mentally check call in relation to the hit - be ready for next run.

h. Shoot each shot individually - do not add up your score as you shoot.

i. Rest the rifle on the bench between shots to allow the muscles in the hands, arms, and shoulders to relax. Stretching the arms downward or letting them hang loosely at the sides relaxes shooter's tension.

2. Ready Position:

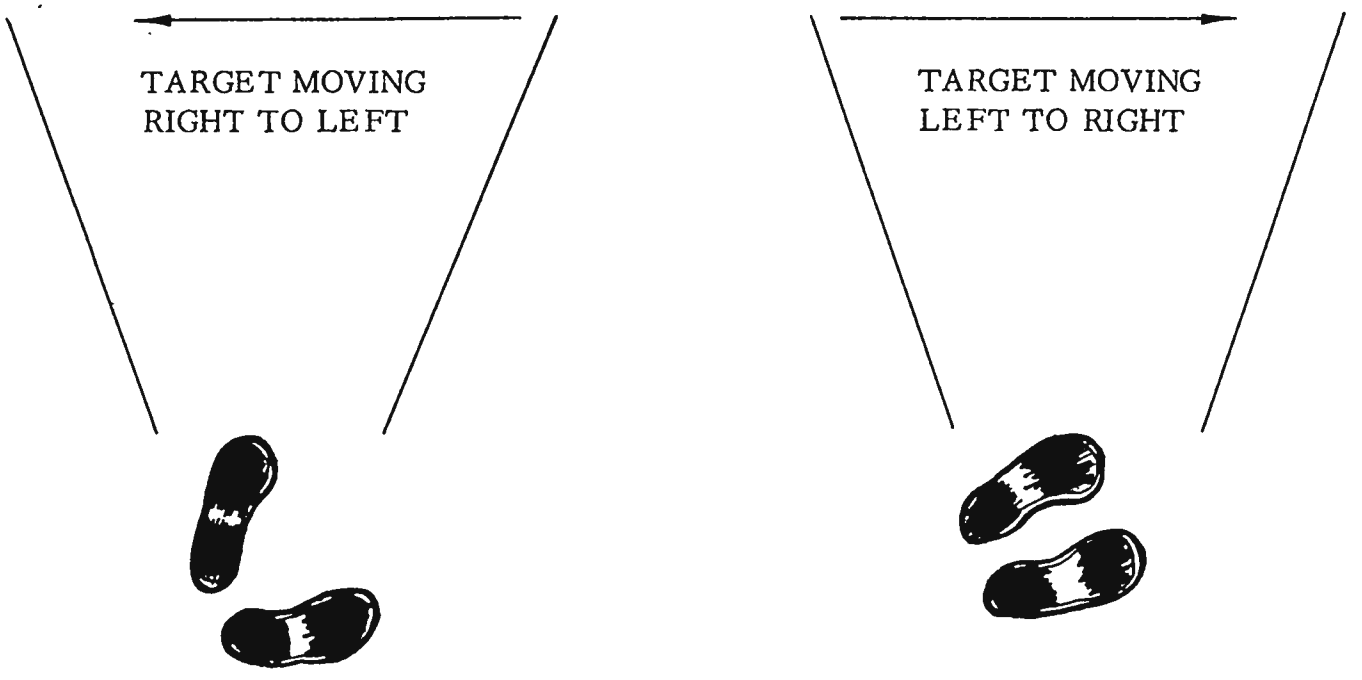
The left arm (for right-handed shooters) must be away from the body, the elbow cannot touch the hip or the side. The butt of the rifle must be visible below the elbow with the arm hanging in a normal position and touchng the hip. The rifle may not be brought to shoulder until the nose of the running target appears. (See Figues 18a and b) NOTE: Grips of left hand are different.

FIGURE 18A
Ready Position - Hand Forward

FIGURF 18B
Ready Position - Hand Back

3. Shooting Position:

The ideal position allows one to track evenly in both directions without moving the feet position although there are shooters who change their positoin slightly for each run. (Figure 19)



FOOT POSITION

FIGURE 19

The left hand should grasp the stock (for right-handed shooter) the distance forward that gives best vertical support for the weapon that is comfortable. For some this could mean the end of the forearm or slightly back (Figure 20a and b). The right arm (for right-handed shooters) should be at a natural angle from the body. Bring the rifle into this position after the nose of the target appears. It is smoothly brought to the shoulder while concentrating on the aiming point. Do not jerk into firing position. Sudden jerky movement cause a backlash when slowing down to the speed of the target. It is highly desirable for all movements to be as smooth and fluid as possible. Once into position, a slight pull to the rear with one or both hands will help attain a smooth track. One should strive to be on or close to the aiming point when the weapon reaches the shoulder. Position of the rifle on the shoulder varies according to individual preferences. Some shooters place the butt of the rifle high on the shoulder (Figure 21a) to suit their particular build compared to placing the stock fully into the shoulder (Figure 21b).

All lateral movement starts from the waist and is carried down to the ankles. The upper torso pivots as a solid unit. One method of tracking the aiming point is to start slightly behind the aiming point and then when approaching the aiming point, increase the pressure on the trigger, breaking the shot as reticle touches the aiming point. Concentration MUST be on the AIMING POINT, not the reticle.

The grip of the hand on the pistol grip should be firm and secure but not tight. When held tightly it will make the trigger feel lighter and may cause early shots to be fired. When either or both hands are used to pull the rifle into the shoulder, it will slow down tracking of the target by binding the body. When correctly held it is only firm enough to prevent the butt from slipping on the shoulder. Correct feet location with respect to the target is attained by standing comfortably while facing the center wall on the left side, then back to the right, to a point beyond the wall on the right side. This is a natural point of aim check and will indicate if the feet position is correct. If you track freely to the left side but wind up going to the right side, then you should open up your stance toward the binding side. After shooting a few strings you will be able to evaluate your feet position. It is best to place your feet as close as possible to the same position for each run. Excessive feet movement may result in misplaced groups because you are changing your natural point of aim from shot to shot. Correct head positon on the stock is important because you do not have time in the Fast Run to reposition your head on the stock each time in order to view through the scope. You want the rifle to meet the cheek coming up with little or no movement down on the stock. The rifle must fit correctly to do this. A higher or lower scope mount or trimming of the stock may be necessary. The head is usually tilted slightly downward to meet the stock as it comes up (Figure 22a and b). To build a good shooting position takes a lot of time and effort on the shooters's part. Techniques tried should be used long enough to evaluate them. Apply proven techniques toward your shooting positions. This in turn will improve your position and overall performance.

FIGURE 20A
Shooting Position - Hand Forward

FIGURE 20B
Shooting Position - Hand Back

Figure 21A
Rifle Butt - High Firing Position

FIGURE 21B
Rifle Butt - Low Firing Position

FIGURE 22A
Head - High Firing Position

FIGURE 22B
Head - Low Firing Position

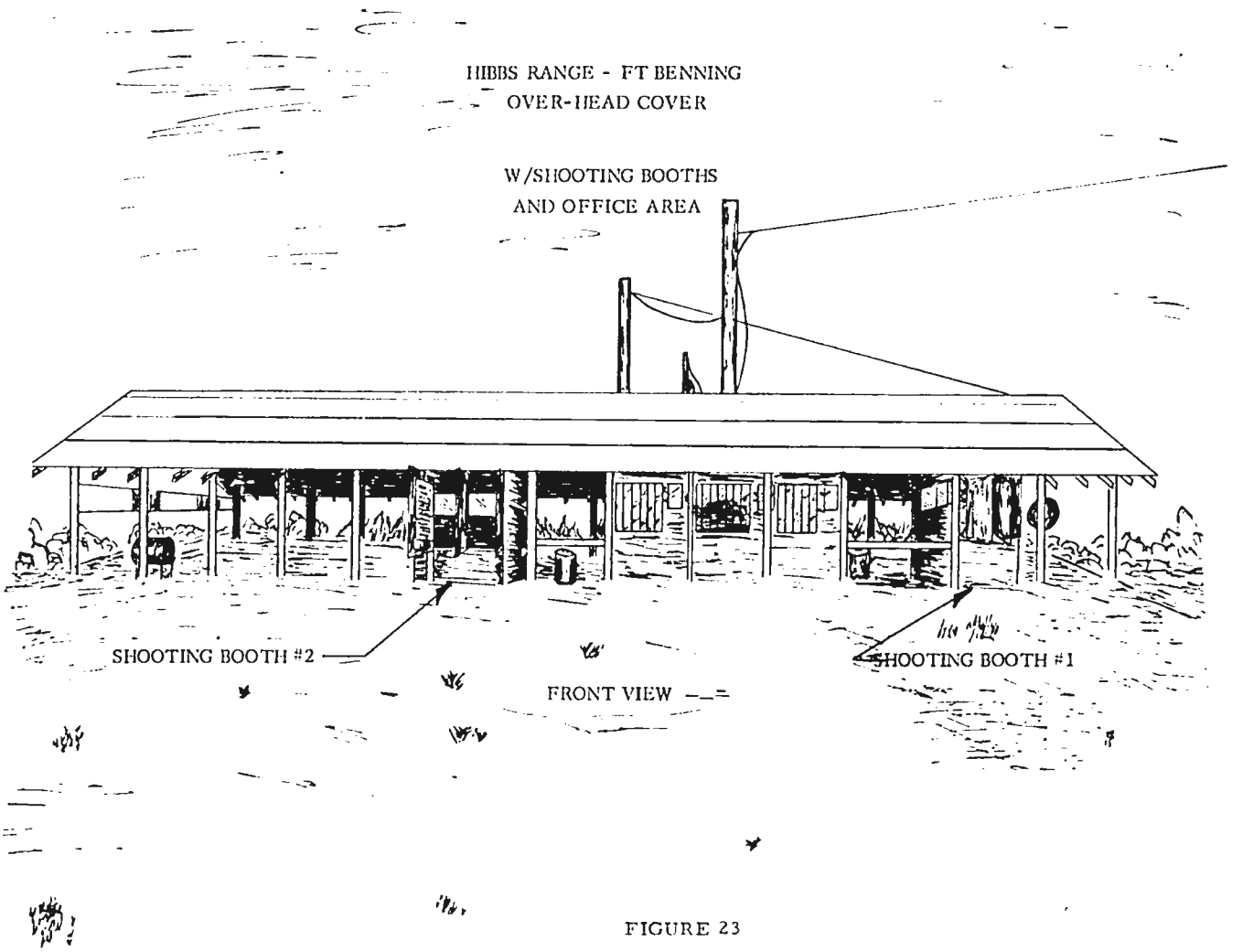

HIBBS RANGE - FT BENNING
OVER-HEAD COVER
W/SHOOTING BOOTHS
AND OFFICE AREA
SHOOTING BOOTH #2
SHOOTING BOOTH #1
FRONT VIEW

FIGURE 23

FIGURE 24
Shooting Booth

FIGURE 25
Hibbs Range - Ft Benning, Georgia
Target Running

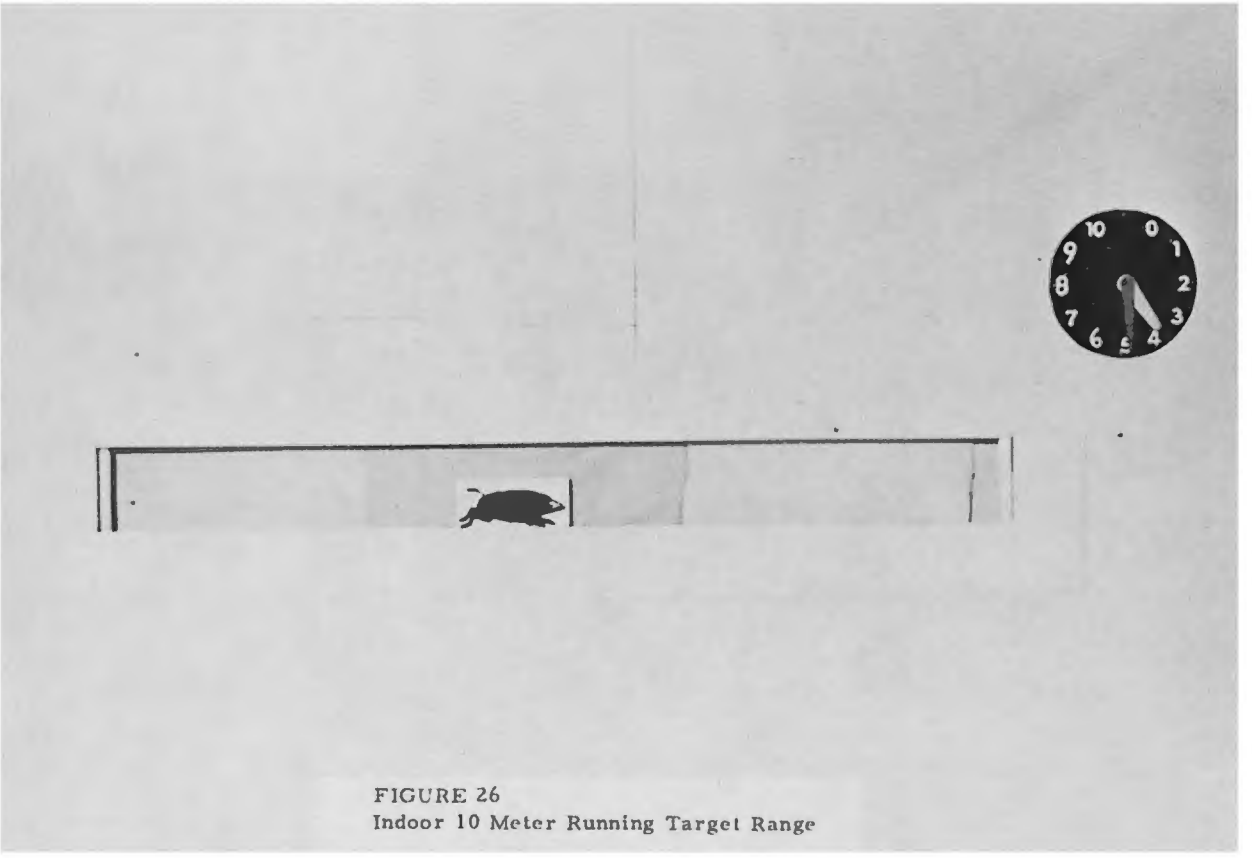


FIGURE 26
Indoor 10 Meter Running Target Range

CHAPTER V

10 METER AIR RIFLE RUNNING TARGET

The ISU is considering establishing a 10 meter Running Target competition for the Olympics and World Championships. At this time there are no regulations, rules, or techniques for Air Rifle Running Target.

Testing and evaluation is presently being conducted by the USAMU Running Target Branch to prepare competitors for eventual introduction of International 10 Meter Running Target Competition. This new Running Target discipline will allow more shooters to participate throughout the world where 50 meter ranges are not available. Because of its portability, the system can be carried anywhere and used both indoors or outdoors.

This new concept however poses some technical problems to be resolved and include varying velocities, different aiming points and lead distances, different telescopes and number of shots per target.

Varying velocities from one type of air rifle to another affects the aiming ponts in relation to the scoring rings. With a scaled down version of the old 50 meter target to 10 meters (figure 27) the air rifle velocities do not allow a shooter to use his normal aiming points (i.e., eye, jaw, tusk, nose). The 10 meter distance with air rifle velocities requires less lead. There have been many suggestions, such as to move the position of the scoring rings forward toward the head so that a normal aiming point can be used. Another suggestion is to have a scope with two leading dots or posts as used in smallbore.

The scope most competitors will probably use (if there is no ISU rule against it) will be around 6X-10X. There are no commercial scopes at the present that will focus with that power at 10 meters. The scope will have to be custom focused for 10 meters at the factory.

The course of fire may be a 10 shot series. However 10 shots on one target will be a problem to score. The target may either have to be changed at least twice or a double target allowing five shots on each side which would be easier to score. Another alternative would be a flip target mechanism that would allow only one target to be visible for each run. Use of experimental target (Figure 28) illustrates the possibility to practice with basic equipment.

Another suggestion is that a barrier on each end of the opening be used to house a "pit crew" who would operate a clock system similar to the 50 meter range operation and change each target while the shooter was reloading. Changing the target after each run would alleviate the problem of scoring a target with "key-hole" groups.

Figure 29 illustrates a simple construction for a 10 meter running target range. A 2X8 sheet of soft fiber board outlines the range opening and provides a safe impact area for stray shots. The fiber board is backed with plywood and the plywood nailed to a 2" X 6" X 10 foot shelf. The bullet trap is a metal wall divided suspended from the ceiling and angled to deflect the pellets to the floor. Target cloth suspended in front prevents pellets from bouncing back. Target cloth may be used to separate a double range and improve the overall appearance.

There are a few commercial 10 meter running target ranges being made. Someone with an electrical background can build a suitable homemade range. For example, a self-reversing electric train and track has been used for a makeshift target carrier although the reversing speed may vary. The basic components are similar to the 50 meter range: a motor drive with variable speed and reversing capability; a track; target carriers; control box; and limit switches.

Another consideration is to use a 50 foot indoor smallbore range and scale down the 50 meter running target range to 50 feet for use with .22 caliber rimfire rifles. No experimentation has been done as yet with this concept but the following might be used as a guide for developing such a range (see Annex B).

CAUTION: All safety considerations must be taken to prevent ricochets.

FIGURE 27
Scaled Down 10 Meter Target

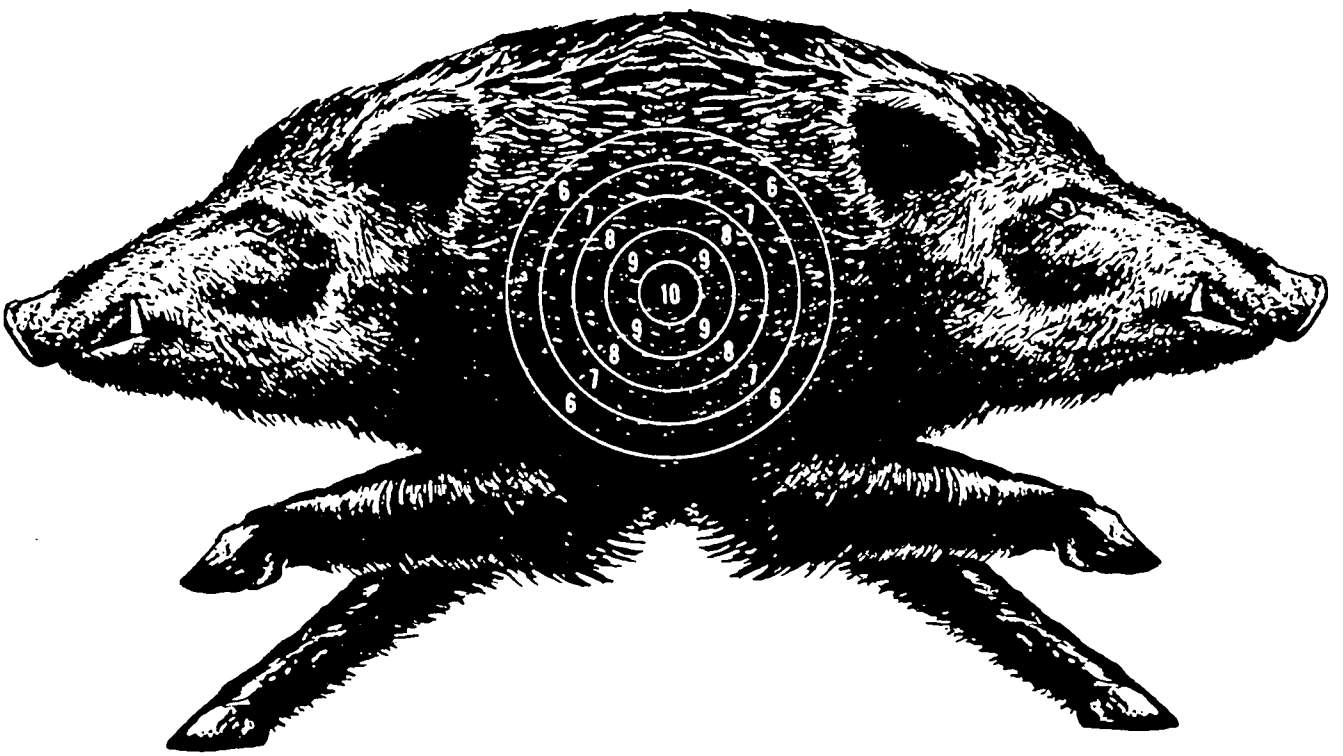


FIGURE 28
Experimental 10 Meter Target

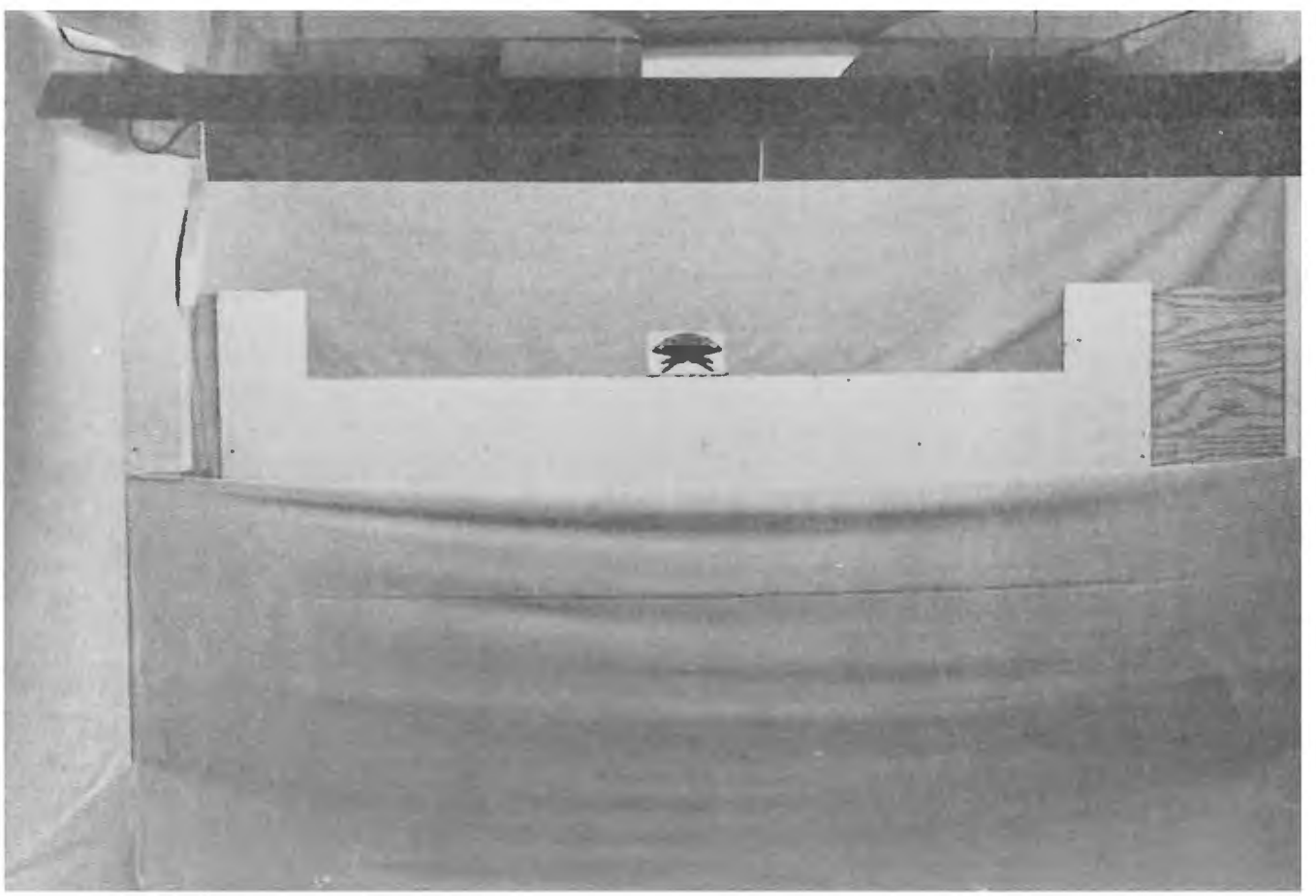


FIGURE 29, 10 METER RUNNING TARGET RANGE

CHAPTER VI

MENTAL DISCIPLINE

A. PURPOSE:

The purpose of this chapter is to acquaint you with the need for and the method of controlling your mental and emotional processes and extending your span of mental concentration while under conditions of competitive stress.

B. GENERAL:

Mental discipline is the broad term used in describing the shooter's actions and reactions when facing competitive pressure. This chapter includes: reasons why mental control is essential, developing mental discipline, the dangers of negative thinking, the nature and control of match pressure, and how to reduce the effects of normal tension. A distiguished feature of successful competitive shooting is that it is associated with overcoming obstacles and difficulties which require the utmost exertion of a person's mental capacity. Therefore you as a shooter must make determined efforts to acquire qualities of strong will. You must learn to fight fatigue and hardship and to bear up under stress for a long period of time. By the force of your will you must shoot well when under pressure without letting your score be affected. By determined effort, you must maintain your emotional equilibrium. If you fire poor shots, do not give way to disgust and irritation, but take yourself in hand and bring up your performance by exertion of intestinal fortitude. The ability to keep control of oneself, to force oneself to overcome difficulties, and to maintain presence of mind in a difficult situation is a necessary human quality. Without this resource you will not shoot consistent high scores in competition. To sustain mental discipline, you must have high moral qualities, a sense of duty and responsibility to the team, and a sense of honor. These honorable traits are a source of the inexhaustible will to win. In moments of crisis, they help you to mobilize all your resources for victory. Experienced coaches give much attention to instilling high morals and disciplinary qualities in a shooter.

No person is born with these essential qualities. They are partly developed in the course of the shooter's life and the activities of daily living. The development of the major part of the desirable traits depends upon the quality of marksmanship training.

C. AN ESSENTIAL OF MARKSMANSHIP:

1. Mental control is essential to marksmanship. Mastery of the physical skills alone does not provide the uniform, precise control of performance necessary to compete at the highest level. Emphasis must be placed on how and what to think. The capacity for intense concentration will provide for exacting control. Coordination of the essential factors is necessary for the delivery of an accurate shot on the target.

2. Mental discipline provides the control you must have of your mental faculties to maintain the confidence, positive thinking, and to sustain the ability to duplicate a successful performance. Mental discipline will help you to avoid overconfidence, pessimism and withstand conditions that may disrupt your mental tranquility.

3. Mental discipline provides the emotional stability necessary to the development of the champion shooter. Confidence in his ability to successfully employ the basic skills of marksmanship produces a dependable performance under all types of stress.

D. DEVELOPING MENTAL DISCIPLINE AND CONFIDENCE:

The continously repeated, successful execution of a completely planned shot, results in the gradual development of mental discipline. If your mental discipline is functioning correctly, you will be able to control your thoughts and concentration. Your preparations and shooting routine will always be the same.

1. Response to a problem. Psychologists have determined that there are four basic methods of responding to a problem. Two methods are positive and classified as direct or indirect. Two methods are negative, classified as retreat or evasion.

a. Positive Response.

(1) The direct, positive approach. This is the self-sufficient, self-confident, direct, positive attack. You realistically face the facts, analyze them, identify and evaluate the obstacles to a successful solution. You know what you want to accomplish and you take direct steps to attain it.

(2) The indirect, substitute or compromise approach. This is the small, diffident, tentative, indirect action. Side stepping leads to seeking short-cuts. When the probable solution is tried, there is much fervent hoping that the fates are on your side. You are only hinting and probing

instead of establishing definitely what you need to do.

b. Negative Response.

(1) The negative retreat. The failure to give the honest try to see what you are capable of accomplishing. Surrendering without a sincere effort. The flight habit can become chronic. This is the man that cannot accept the responsibility for a mistake or failure. A bad shot produces excuses.

(2) Evading the issue. Evasion is the lack of incentive. "Why?" is the approach. Why do I have to do better than anyone else? If the desire to excel is not there, you will never aimlessly or otherwise achieve the degree of accomplishment that crowns the champion.

2. Analyze the problem.

a. Psychologists have discovered that one of the chief reasons for difficulty in the solution of problems is the inability to soundly analyze. Pose a clearcut plan of action in full array. Face the specific difficulty and make a determined effort to break it down. If it can be identified, there is a solution for it. There are shooters on your team or some other team that are operating without this specific problem putting a brake on their performance. Talk it out. A communal pondering session will break it wide open.

b. There is a four-point system of analyzing and solving specific problems. It reduces the whole big problem to many specific small ones. Head four columns on a sheet of paper with the following titles: one, 'STEPS IN THE PLANNING,' two, 'SPECIFIC DIFFICULTIES,' three 'SUCCESSFUL SOLUTIONS,' four 'DOUBTFUL OR NO WORKABLE SOLUTION.' An example follows of reducing a major problem such as the delivery of an accurate shot into many smaller, specific steps.

POSITIVE RESPONSE TO A SHOOTING PROGRAM

STEPS IN THE PLAN	SPECIFIC DIFFICULTIES	SUCCESSFUL SOLUTIONS	DOUBTFUL SOLUTIONS OR NO WORKABLE SOLUTION
1. PREPARATION			
a. PHYSICAL			
(1) PERSONAL			
(2) CLOTHES & SHOES			
(3) LIMBER UP EXERCISES			
(4) FIRING CONDITIONS			
(5) CORRECT SQUAD POSITION			
(6) CHECK WEAPON			
(7) AMMUNITION			
(8) STANCE & POSITION			
(9) BREATHE DEEPLY			
b. MENTAL			
(1) STIMULATE CONFIDENCE			
(2) THINK SHOOTING METHOD; MENTALLY REVIEW			
(3) BREATH CONTROL			
(4) FINAL BREATH			
(5) AIMING POINT AT TARGET			
(6) TRIGGER CONTROL			
(7) FOLLOW THROUGH			
2. PLAN THE SHOT			
a. STANCE			
(1) STABLE BALANCE			
(2) HEAD POSITION			
(3) UNIFORMITY			
(4) POSITION OF FEET			
(5) BODY ERECT			
(6) SHOULDERS LEVEL			
(7) HIPS LEVEL			
(8) HEAD LEVEL			
(9) PIVOT FROM HIPS			
b. GRASPING WEAPON			
(1) NATURAL SIGHT ALIGNMENT			
(2) FIRM TO PREVENT SHIFT			
(3) UNCHANGING TIGHTNESS; LIGHT PRESSURE ON FOREARM; LEGAL LOW GUN POSITION			
(4) INDEPENDENT TRIGGER FINGER			
(5) COMFORTABLE			
c. BREATH CONTROL			
(1) SYSTEMATIC			
(2) OXYGEN RETENTION			
(3) MINIMIZE MOVEMENT			
(4) RESPIRATORY PAUSE			
(5) COMFORTABLE			
3. RELAX BEFORE SHOT			
a. NECK			
b. SHOULDERS			
c. ARMS			
d. ABDOMEN			
e. BACK			
f. BUTTOCKS			
g. UPPER LEGS			
4. DELIVER THE SHOT (SHOT SEQUENCE)			
a. LOAD			
b. PROPER GRASP OF WEAPON			
c. WATCH FOR TARGET SIGNAL			
d. FOCUS EYES HALFWAY AT TARGET PATH			
e. FINAL BREATH			
f. UNIFORMLY MOUNT GUN			
g. CONCENTRATE FOCUS ON AIMING POINT			

h. SMOOTH SWING PATH
i. TRACK AIMING POINT
j. PULL TRIGGER
k. FOLLOW THROUGH
l. UNLOAD

5. ANALYZE THE SHOT
   a. GOOD HIT
      (1) SMOOTH SWING
      (2) CORRECT FOCUS
      (3) PROPER AIMING POINT
      (4) GOOD FOLLOW THROUGH
   b. BAD SHOT
      (1) ERRATIC SWING
      (2) COULD NOT FIND AIMING POINT
      (3) NOT FOCUSED ON AIMING POINT
      (4) IMPROPER AIMING POINT
      (5) REACTION SHOT
      (6) IMPROPER GUN MOUNTING
      (7) POOR FOLLOW THROUGH
      (8) IMPROPER POWER/RETICLE USED
      (9) RAN OUT OF TIME
   c. WHY?
      (1) A GOOD SHOT
      (2) A BAD SHOT

6. CORRECTION INCLUDED IN PLAN FOR NEXT SHOT
   a. MAKE ANY SIGHT OF POWER CHANGES
   b. RELOAD
   c. POSITION
   d. BREATH CONTROL
   e. WATCH FOR TARGET SIGNAL
   f. FOCUS HALFWAY TO TARGET
   g. MOUNT GUN
   h. FIND AIMING POINT
   i. TRACK - FIRE - FOLLOW THROUGH

3. Confidence. Confidence results from repeatedly bringing under control all the factors that create conditions for firing an accurate shot. An accurate shot is one that hits the center of the target. People have been telling you for years that you must have confidence to shoot well. Confidence in what? How do you get it? How do we keep it once it is obtained?

a. First and foremost you must have confidence in the fundamentals. You must be convinced that if you control their employment correctly, you will achieve excellent results. The techniques of employment of the fundamentals that you have proven to be sound and dependable by experience are not going to change suddenly to unreliable factors because of match pressure.

b. Confidence in your ability to execute these proven fundamentals correctly. You will have proven your ability to do this in your practice sessions. Go ahead and do it in the big match. To the timid and hesitating, everything is impossible because it seems so.

c. Think big! Think positive! "I will do it," and you will succeed. However, as soon as you admit the slightest possibility of failure, your chance of success is questionable.

d. It has been said innumerable times that a shooter must have an open mind, implying that we must have the ability to accept new ideas. What we should also strive for is a mind that is open to positive thoughts and completely closed to negative thoughts. You have heard so many times "Don't stop your swing." True as this axion may be it is of no advantage to have this thought enter your mind when you are trying to get off a shot. It is negative, it implies failure. Such thinking continually occupies your mind with something you don't want to do, rather than something you should do. Would it not be more advantageous to think, "I must watch the aiming point and follow through, for when I do this, I will get a ten." The positive side of the picture implies success. It gives you something that you should do rather than something you should not do.

What the shooter needs is a mind full of positive "do's" and "will's." There is no room or necessity for those distracting "don'ts" and can't's." However just thinking positively is not enough, we still must have definite ideas of how we are going to employ these positive thoughts. There is no room for vagueness or vacillation.

A confident attitude adversely affects your competitors. A match is generally conceded to a small number of confident individuals who expect to win. Confidence is contagious and favorably afects your teammates.

e. Smile. Give no comfort to your competition by revealing by word or by act that anything is wrong that might affect your winning the match.

4. Channeled mental effort resists the tendency of the mind to drift during the period when intense concentration on aiming point and moving the gun and firing is essential.

a. Channel Mental Effort relentlessly toward the final act of holding on the aiming point until the trigger pressure releases the firing mechanism.

b. Complete Exclusion of Extraneous Thoughts for a brief perod (three to six seconds) is necessary for controlled delivery of the shot.

c. Prior Planning of the Sequence of Action is necessary to deliver a controlled shot on the target. This gradually enables the shooter to sustian concentration for a longer period.

d. Careful Planning of a Sequence of Events closes the mind to the other thoughts. Example: If a prior plan is made to apply maximum focus on the target, it becomes almost involuntary that you will have a smooth swing through the target travel path.

e. Coordination of Thought and Action is the result of experience obtained through extensive practice and match shooting where the same satisfactory plan of action is followed repeatedly.

f. Precise Coordination is absolutely necessary in controlling the delivery of each shot during the entire match.

g. Split Second Coordination and Timing are Maintained by frequent practice. When the practice time is limited to less than sufficient, do not be overconfident and expect to be able to sustain your coordination completely through prolonged match shooting conditions.

E. WHY CAN"T YOU BE A WINNER? The danger of negative thinking.

1. Who won the last match in which you particiated? If you didn't win, what was the reason?

Why is it so difficult to shoot championship scores? It isn't that most of us have not been taught the fundamentals of shooting. The fault usually lies in that we open our minds up to

thousands of negative rasons why we cannot shoot good scores.

The following is a discussion of each of the reasons that induce poor performance, and what can be done about them:

a. When the weather is bad, it is simple to say "It's raining, snowing, the wind is blowing. All my scores are going to be bad." THis may be a true assumption. You can follow this vein of thought throughout the match but you probably will contnue to shoot just average scores as compared to your competitors.

Why not think and convince yourself that good scores have been and will be fired under the same bad conditions. Positive application of the fundamentals has produced good results in spite of the numerous difficulties. If your thoughts are directed strongly enough towards planning and executing a controlled performance, you will not have time to worry about the weather.

b. Don't "Sunday--morning-quarterback" the operation of the range. In most instances, all it takes to change an inefficient situation is to have your coach bring the deficiency to the attention of the Chief Range Officer, Executive Officer, or Referee. If the condition continues to exist, then convince yourself that "As long as there is a target to shoot at and I have the proper amount of time to shoot, I will shoot good scores."

c. Have you ever asked youself, "Why do I have to shoot exceptional scores?" The answer to this question will naturally vary with each shooter. You must be motivated to constantly improve your performance or else you should change to a less demanding endeavor. THe most common excuse for not trying your best is lack of incentive because there is no competition. A tendency to drift aimlessly through a match becomes a habit. You tolerate a substandard performance without becoming alarmed. The point here is: regardless of the competitive ability present for this particular match, you must employ the fundamentals to the utmost of your ability. You must retain the desire to win and set new records at all times. Failure in this area too often will cause a decline into a habit of treating your shooting as a daily task instead of a challenging adventure.

d. How often have you beaten yourself by allowing yourself to think that the cause of your poor performance was due to poor equipment? Or thought that the competitors who beat you had better equipment than you? How can we keep such thoughts as these from entering our mind? The main components necessary to shoot championship scores are an accurate gun, good ammunition, an individual with the ability (physical and mental), and the desire to be a champion. Therefore every time you let the thought of inferior equipment enter your mind, STOP! Think: This gun and ammunition will shoot tens if I control it."

e. "The competition is too tough" "Nuts!: If you will look at these indivudals who now seem to look like supermen, analyze a few of them and compare their attributes with yours. Here's what you'll find in the majority of the cases. They are built just like you, have approximately the same physical ability, hands about the same size, etc. What then, is the determining factor?" The potential winner is thinking about applying his plan of action and not about how he is going to beat you. He knows that most of the other competitors are beating themselves with their own unctrolled thoughts. You can be one step ahead of all your competitors by directing your mental effort toward your plan of controlling each shot.

f. There's a first time for winning in shooting as in everything else. A first time for a national champion to be beaten, and a first time for you to become a national champion. You may have never won a major championship. Was it because you didn't have the ability, or was it because you sought excuses and conceded your chance of winning? You have probably won individual matches but that's as far as you have allowed your mental capability to carry you. Now if you really want to win, you can. The best way is to believe you are as qualified to win as anyone else. Make up your mind that you are going to shoot your next tournament as one big match. Let the individual stages and aggregtes take care of themselves. A good performance on each individual shot is now your aim. Don't let the possibility of winning one little match shatter your composure.

g. Do you expect that you will inevitably commit a stupid act in every match you fire, thereby forfeiting any chance of winning? Carelessness is a state of mind that overwhelms an individual who is aimless and haphazard in his approach to a challenging task. Organization of all the factors having a bearing on the task to be performed will in most instances assure that the action will be successfully executed.

h. Overconfidence dulls your normal responses. You ignore or are unconscious of the development of unfavorable conditions. False assurance can upset the sensitive balance on which your optimum performance depends. Do not relax your determination to work hard even if competition is not keen. Strive to reach a happy medium between overconfidence and pessimism.

i. Pessimism detracts from your ability to concentrate. Anxiety over possible failure undermines the ability to control the shot. Impatience and uncontrolled actions are the results. A negative approach hampers the repetition of a uniform, satisfactory performance.

j. Avoid distracting conditions which you know will upset your mental control. Avoid emotional upset such as anger, worry, giving up under adverse conditions or after unsatisfactory shots. Ignore boasts, rumors, misinformation, and snide remarks. Ignore other competitors scores. Resist concern over the final results. Dismiss concern over the slight advantage of superior equipment. Avoid adding up individual shots as the buildup to the final score.

F. MATCH PRESSURE:

If you think that you and you alone have the problems of match pressure, look around: we all have it. The man who has never experienced match pressure has never been in a position to win a match. Where is the difference? Where is the dividing line between champion and plinker? Both may shoot comparable scores in practice, yet one is invariably at the top of the bulletin and the other on the second page. The dividing line is clear and obvious; the ability or lack of ability to control their thinking. Mental discipline. Some have learned to control their emotions and anxieties and go right ahead and perform within their capabilities. Others, even with years of experience, and also with a wealth of doubts and negative thoughts, pressure themselves out of the competition every time they step up to the firing line.

1. First, in our treatment of match pressure, we must find what causes it. Without knowing the rasons, we can never combat it. Match pressure is the direct result of the fear of failure and the loss of self esteem. Are we afraid of winning?" If this were the real cause, we would have no desire to win or to perform well and there would be no pressure. No, it is not the actual winning we are afraid of. We are afraid of losing. This factor generates our fear of performing poorly and having our fellow competitors see our poor performance.

2. What happens to us physically when we are subjected to all of these mental gymnastics that result from match prssure? First and most prominent, we shake, we drop our ammunition and our hands perspire. In short, we commit what seems a series of asinine mistakes that normally never occur. Unfortunately, this problem has not been approached on a truly scientific basis. The main thing that will help a shooter is experience and practice in tournament participation against the best competition. The champions, in spite of their nervousness in match competition, mobilize all their energies and resources and on occasion, do even better in a match than in practice.

All emotions are nervous processes arising in the cortex and subcortex of the brain. When you are experiencing nervousness, changes take place as a result of the imbalance of the exciting and depressing processes in the nervous system. One factor becomes dominant in the various parts of the brain. If the exciting processes are dominant, agitation in one's movements is observed. You may walk about nervously before your relay is called, unable to find relaxation. Sometimes the reverse is true, the depressing nervous processes are dominant. This results in low spirits, indifference, sluggishnss, and sleepiness. This condition is kown as "pre-tournament apathy." When agitation is the result of the disruption of the nervous processes in the subcortex actions of the brain, certian changes take place in body activity. The cardio-vascular system undergoes change. The pulse is faster and may at times reach 120 beats per minute. The breathing is fast and shallow. You become hot and perspire. Nervousness is reflected in the tone of your muscles and in the erratic manner in which you move parts of your body. This aggravates the situation still further because you become aware that you have lost the steadiness of the hold. The coordination is upset. This makes itself felt in the form of indecisiveness. A feeling of concern arises for the value of the score. Under such a condition you may deliver a shot without assurance and precision.

The emotional and physical upsets of competitive stress are experienced differently by different persons. The condition varies for every shooter both in its character and in its intensity. However regardless of your experience or your ability to exercise self-discipline, you are to some degree nervous in competition. The better you are trained, the more confidence you will have. If you have trained under conditions approximating match conditions and have participated in many tournaments in the past, you will be less nervous. At the beginning of a shooting season, even with experience, you may be somewhat nervous. It is important that you not remain passive to these disturbances. Do not let yourself become a victim of your emotions. Resist stubbornly and force yourself to shoot to win. If you feel that nervousness in competition is unknown to you, you may be indifferent to the best interests of the group. You may lack an elementary understanding of pride in doing a job well. You are showing indifference to one of the strongest, natural excitments which present a challenge to the human animal. When anxious, you add to your distress when you feel that everyone is watching your stupidity. Yet with al this, our counterpart, the champion, appears to be calm and enjoying himself. Let's face it, he is.

3. There are difinite advantages to match pressure. Many of your senses are more acute. You see better, and your sense of touch is more exacting. Your awareness of the passage of time becomes more vivid. Don't believe it? What about the time anxiety you feel just before you shoot the last round of a match? All of these factors added together, make us more exacting and consequently better our performance.

4. How do you control match pressure? First, realize that it can be controlled and actually used to your advantage.

a. Prior Mental Determination. This is the most helpful factor that is available to you. By thinking through the correct procedure for firing each shot before you shoot, you can virtually eliminate distractions in the actual execution. If you fail to do this and approach the shot without a preconceived plan of attack, your results at best will be erratic.

b. Channel Your Thinking to the More Important Fundamentals. You must continually think fundamentals and review them in your mind. Train yourself so that as many of these fundamentals as possible are executed automatically without tedious effort on your part. When you do this, you have only the most difficult fundamentals to contend with in the actual firing. This will enable you to direct all of your mental and physical efforts toward keeping your eyes focused on the aiming point and completing your swing-through smoothly.

c. Establish a Routine. From routine comes boredom. What is boredom? The lack of excitement. What are we trying to do? Keep from becoming excited. In establishing a routine, you eliminate the possibility of forgetting some trivial item of preparation or technique that may throw you off balance.

d. Work on Each Shot Individually. Each shot must be treated as an individual task. In reality there is no reason to believe that because your first shot was a miss, your next one will be the same. Nor is it logical that if your first three shots were hits, you have a guarantee that those to follow will also be hits. Each one is merely a representation of your immediate present ability to apply the fundamentals correctly or incorrectly. Your performance will vary considerably if you let it.

e. Win the Aggregate not Just One Match. Why should you become excited or worry when you have fired a possible or won a daily match? Go right ahead and shoot each target one shot at a time. You must train yourself and strive to become the tournament Champion.

f. Train Yourself to Think Performance rather than Score. Employing this technique, a 98 or 97 becomes not a series that subtracts two or three points from your aggregate but one or two shots where you allowed yourself to deviate from proper employment of the fundamentals. Rest assured that if you perform properly in the firing booth the score will take care of itself.

g. Relax Your Mind. From the time you get up in the morning, nothing will put you in a greater state of mental agitation than to have to rush through breakfast, rush to get to the range just in tme to make your relay. If this happens, your score is ruined at about the third red light you hit. Take it easy. Shooting is fun, enjpy it.

h. Practice Tranquility. Are you the guy that loses his temper every time you have a bad shot? With whom are you mad? You are doing nothing more than admonishing yourself for your vacillation in the execution of a shot. If you had worked a little harder on applying the control factors, the shot would have been better. On the other hand if you do everything within your power to make the shot good and for some reason or other it isn't good, you should have no cause for undue irritation. Although you must exert all of your mental and physical abilities toward shooting a good score, infrequently you will fail to do this. Needless to say that when this happens, if you chastise yourself severely or fall into a fit of depression because of a poor score, you will hurt your performance for the rest of the match. It is not intended that you laugh off or treat lightly a poor performance however you must possess the presence of mind to accept the bitter with the sweet. Preparing, planning, relaxing, care in delivering the shot, careful analysis and positive corrective measures is the cycle of action you must force yourself to conform to without deviation. You can then be assured that the next shot can be delivered under the most precise control you are capable of exerting.

i. Match Experience. Without question, competitive experience is one of the ingredients necessary in the making of an accomplished competitor. However, experience alone is of no value. You must flavor your experience with an accurate and honest evaluation of your performance. You must experience an increasing degree of mental control. It is often left out of training until your physical ability to shoot far exceeds your ability to exercise control when the chips are down.

j. Physical Conditioning. There is no doubt whatsoever that you can shoot better if you are in good physical conditon. Your ability to control the weapon for example, is no better than the ability of the muscles of your arms to do this for you. Your ability to endure the physical stress of match conditions is in direct proportion to your physical condition.

k. Argue With Your Subconscius. Not only argue with it but win the argument. Even as you are reading this you are hearing that little voice in the back of your mind that keeps saying "Yes, this sort of thing may work for Joe but I know damn well I'm going to goof the next time I get close to a winning score." Whose voice is this? Where did all these ideas come from in the first place? Where did this little guy get all his knowledge? Let's be realistic. Your conscious mind puts these ideas into your subconscious, so don't ever believe that you can't overpower it. It's not easy. He's been saying what he pleased for years and now he isn't to be routed easily. But don't give in to him and eventually you will find that the subconscious mind is not in conflict with your conscious efforts.

1. Now with all of this emphasis on the positive approach you are going to get two big "don'ts."

(1) Don't expect spectacular results the first time you try mental discipline. There is coordination of employment of the fundamentals to be mastered. There are no hidden secrets. All that we gain is the direct result of hard work. If you find that you exercise satisfactory control only for a short period of time, work on extending this period by practicing and perfecting your system. Remember that your returns are in proportion to your investments.

(2) Lest there be any misconception, one way you cannot control match pressure and still shoot well is by the use of alcohol or drugs. True enough, either one or both of these may control some of the symptoms brought about by match pressure. However, in doing so they incapacitate you in other ways that will prevent good sustained performance. If drugs were the answer undoubtedly our national champion would be a doctor or a pharmacist. There are occasional rumblings to the effect that you saw John Doe win a match when he was so tight he had to be led to the firing line. How did he do in the grand aggregate? If the drunk won it, where was the range safety officer?

G. REDUCING TENSION AND ATTAINING RELAXATION: The fear of failure to perform up to your known capability will gradually generate increased tension.

1. Types of Tension. Normal tension is a blessing to mankind. Without tension most problems would not get solved; the world's work would not get done and championship scores would not be fired. Normal tension is the prevailing condition of any organism when it is mustering its strength to cope with a difficult situation. All animals, including man, tense in situations which involve the security of themselves and their loved ones. But there is a kind of tension that is bad for you: Pathological tension. This is an exaggeration of normal tension and fairly rare. This type of tension usually requires that the subject be put under the care of a physician. The vast majority of people who worry about tension have nothing more than normal tension. All they need is a technique for relaxing. You should know what tension is and a few hints on how to minimize it's effects.

Pathological tension is not only hard to terminate, your whole body over-reacts as if the difficulty confronting it were a life or death matter. It's the kind of reaction a normal person would have only in a dangerous situation. In pathologicl tension, blood pressure, heartbeat and pulse go way up and stay up. Excessive adrenalin may result in jitteriness, flushing and trembling. The digestive actions of the stomach usually stop entirely and will not resume, causing loss of appetite or indigestion. Muscles tense for action but may end by cramping. There is rapid, shallow breathing to the point of dizziness. The inevitable and often swift result is a sense of deadening fatigue. Normal tension may make you feel exhausted too, but not to this degree.

What happens to you when you are faced with a challenging situation in shootig? Psychologically you become slightly anxious. This is a highly civilized counterpart of the "flight or fight" reaction of the primitive animal when it perceives danger. This reaction is not anxiety in the pathological sense.

In normal tension your body undergoes certain definite changes. Adrenalin pours into your bloodstream and your liver releases sugar, giving a plentiful supply of energy to your muscles. Your entire nervous system shifts into high gear. It causes your sense of smell, hearing and sight to become sharpened and all your mental faculties to become razor keen. Your stepped-up nervous system also causes the large voluntary muscles of your legs, arms, and torso to contract, ready for action. The involuntary muscles of your digestive tract cause your digestion to slow down for a while. Your chest and arterial muscles contract so that your breathing becomes shallower and your blood pressure increases. When all these things are happening, you are experiencing normal tension. Most of us experience this kind of tension one or more times a day. When the problem which caused you to be tense has been solved, your tenison will subside and you will return to a normal state of relaxation. It may leave slowly but it will leave. Normal tenison is self-limiting, it does not continue unbated after you need it. The simple tension-ending techniques described below apply only to reducing normal tension.

2. Tension Reducing Techniques:

a. Take a Breather. Breathe deeply, three times, very slowly, at the end of each exhalation, hold your breath as long as possible. When you have finished, you should feel noticeably relaxed and much calmer.

Here's what has happened. By forcing yourself to breathe deeply, you break the tension of your voluntary breathing muscles. This causes the involuntary muscles of the lungs, gastro-intestinal tract, and heart to relax too. This is the simplest method for relaxing. For some it can be used to end tension completely. It can be used by others for temporary relief when they do not wish to "let down" completely.

b. Let Go. Sit down and let your head droop forward. In about a minute raise one arm and dorp it in your lap as if it were a limp rag. Do the same with the other. Now let your legs go completely

limp; now your stomach muscles. Stay in this position for at least ten minutes. This technique is aimed at first relaxing the voluntary muscles. It is especially effective when you've had to maintain normal tension for several hours on end.

c. Shift into Low. When you have been overstimulated by highly demanding, protracted mental exertion, taper off at the end of the day by becoming involved in a diverting activity. If you like handiwork, pick a kind which is interesting but not too creative. Soap sculpture, finger painting, woodworking, and gardening all are excellent low-gear activities that will help you to simmer down. This kind of tension-remover is aimed at changing your mental set. It is helpful for those who have to operate at top capacity such as the better shooters and those people who are in enforced contact with others all day long. After stimulation, a part of your mental capacity will continue to be aroused. To slow you down when you're in this state of mind requires something which is engrossing but which demands nothng of you intellectually. Television entertainment and simple handicrafts are ideal.

d. Take a Break. This is a "Remote Control" technique for dealing with normal tension. Simply take a break for ten full minutes every hour. You may find that this allows you to ease out of your working tension more quickly and easily when the day is over. Since you have not allowed tension to develop fully, your organism doesn't have so far to go on the road back to normal relaxation.

e. Stop and Think. When the tension-making job allows a respite, sit down and calmly review the things in your life that you value highly. Think of the long range purpose of your life, of the people you love, the things you really want. In a few minutes you may notice that you have involuntarily taken a deep breath. This is a sign that tension is dropping away rapidly. When you tense to face a difficult situation, you tend to exaggerate its importance. Judgment and reason can quickly change this mental state when it's time to relax again.

These techniques are based on the fact that tension can be ended in two distict ways: Through the relaxation of your voluntary and involuntary muscles and by changing your mental "set." If you achieve either, you set off the other and hasten the process of normal relaxation.

H. YOU CAN WIN!

1. Confidence furnishes the alloy to stiffen the will to win and not give up or compromise. Confidence is based on a full grasp of the complete technique of controlling employment of the fundamentals. Confidence combined with knowledge, exacting skills, good physical condition, and a seething, consuming determination to win, will provide you with an edge from which you can deliver a shattering blow to the composure of the competiion. When your competitor realizes his maximum effort is falling short of that necessary to win, the result is no contest.

2. Be a hungry shooter. The slashing onslaught of a voracius appetite for victory from the first shot onward destroys the resolve of the lesser competitor.

3. The crushing effect of steamroller technique. Your opponent will sense the approach of disaster. To know that your best effort is not good enough to win is a demoralizing experience.

4. A Chance at greatness lies in each man's grasp. Performing at or beyond your potential will catapult you into the lead. Retain the lead by counting on your competitor's inevitable mistakes and gaps in his knowledge of controlled shooting techniques. You must have confidence that you are capable of a performance exceeding any previous level of personal accomplishment.

CHAPTER VII

PHYSICAL CONDITIONING

A. OBJECTIVE.

The split-second timing required in moving target shooting is dependent upon mental alertness, keen reflexes, and muscle tone. The objective of physical training is to condition the shooter to withstand competitive pressure and to develop consistency of performance through mental alertness and coordinated physical response.

It is desirable that a competitive moving target shooter possess the following characteristics:

1. An adequately developed muscular system and good muscular control.

2. The endurance to fire many rounds under a variety of conditions without perceptible change in timing or gun swing.

3. Good reflexes.

4. A well developed sense of equilibrium.

B. PHYSIOLOGY OF EXERCISE.

1. Regular exercise is essential to achieve and maintain physical fitness. Physical condition is improved whenever the body is exercised over a period of time at ever-increasing degrees up to the level of optimum efficiency (this level will vary according to individual physical potential). Thus progressively more strenous exercise improves the ability to withstand increasingly heavy work loads. Body structure and functions show marked improvement under controlled exercise. Muscles become firm, tough, and strong. The heart strengthens, slows its beat, and can handle greater strain. The lungs and chest expand. In turn, other parts of the body are conditioned and strengthened to meet increased activity.

2. The amount of physical development obtained through exercise bears a direct relationship to the demands made on the body system. Strength, endurance, agility, and coordination can only be increased through increasing these demands. Effective application of this principle requires moderate, progressive increases in physical activity sustained over long periods. Sudden, intense physical activity alternated with periods of relative inactivity achieve no lasting results and may be harmful.

3. Once an individual reaches a desired level of physical condition, the same principles apply in a leeser degree.

C. FACTORS INFLUENCNG PHYSCIAL FITNESS.

1. The degree that muscular and organic power are developed through regular exercise is influenced by the following factors:

a. Type of body.

b. Diet.

c. Presence or absence of disease.

d. Rest and sleep.

2. Heredity and health affect the type of body and hence determine the top limits to which physical capacity can be developed. This potential physical capacity varies among individuals. it is essential that the daily physical activity selected be geared to the type of body and the desired physical capacity to fit the job. However selected physical activities should require expenditure of energy above the level required to perform normal daily tasks.

3. Diet determines the degree to which nutritional requirements are met. Over-eating of high-calorie foods results in overweight when unaccompanied by sufficient exercise. Overweight can be prevented by reducing the amount of high-calorie foods and by increasing physical activity through regular exercise. Overweight impairs physical efficiency and health. It requires a high degree of personal discipline to prevent such a condition, especially among those who easily exceed normal weight limitations.

4. Rest, sleep, and the absence of disease contribute to a high state of physical fitness. Alertness to the effects of fatigue and short illnesses is essential in the prevention of injury when following any exercise program. This is particularly true in the older age groups. If, for any

reason such as illness, an individual is forced to stop regular exercise, he should resume exercising at a level and rate below that previously attained.

5. Physical training and sports are the best means of developing desired physical qualities in a shooter and will also aid in developing self control and confidence.

6. The Effects of Alcohol, Coffee, Tobacco and Drugs.

The habitual use of alcohol, coffee, tobacco and various drugs is harmful to the average person and in no way promotes better performance. We can be easily fooled by misleading information that such things are helpful. For example, someone may tell us that cigarettes are an aid to digestion. Cigarette smoking after meals does cause the saliva to flow more freely and the heart to beat faster, aiding digestion. But this may also result in overwork for the salivary glands and the heart. In like manner many people may believe that a cocktail at the beginning of a meal promotes digestion because of the greater flow of the digestive juices that alcohol causes. Tea is no different in caffeine content than coffee but possesses increased amounts of tannic acid. Any drug which causes the body organs to perform their work at a greater rate than normal, fatigues them sooner and causes them to age more rapidly. Stimulants and depressants overwork many vital organs, often when their best performance is needed for accelerated body requirements.

a. Effects of Alcohol on the Human Body. Alcohol taken into the body passes through the walls of the stomach and the small intestine and thence into the blood stream. It is rapidly distributed through the body and promptly affects the brain by the decreased ability of the blood to take up oxygen. Inhibitions and the corresponding cautions are removed, reactions are slowed, coordination is impaired. The senses become less acute, particularly that of sight. Even a small percentage of alcohol in the blood may sometimes cause remarkable effects. The field of vision is reduced-ordinary objects become darker and indistinct-poorly lighted objects are lost entirely. Reactions are slowed down and concentration becomes difficult.

Experimental research scientists using delicate tests and sensitive instruments have been able to demonstrate the adverse effect of even small amounts of alcohol on various isolated bodily functions such as sensory perception and discrimination, reaction time, fine coordination, judgment, alertness, and efficiency of dexterity. The changes observed have no apparent difference in quality, magnitude or expression from those due to fatigue, hunger, distraction and a host of other environmental factors. These facts establish that one small drink of intoxicating beverage places the shooter under a handicap. The false feeling of well-being is deceptive. Alcohol and gun powder do not mix.

b. Effects of Coffee on the Human Body. Many coffee drinkers say they can't do without it as a pick-me-up during the day. But let us see what really happens after that coffee break. Dr. Rolf Ulrich, in his book, "Coffee and Caffeine," reports that after coffee consumption, mental tempo rises first and speed of association increases, but there is a notable decrease in the quality of work being done. In test examinations it was seen that the subjects finished more quickly but that false conclusions were more frequent. Reliability and accuracy definitely took a beating as a result of a coffee pep-up.

The physical result is the same. Caffeine raises muscular output temporarily, but in severe physical demands of longer duration, the muscular output decreases. As a famous scientist has said "Coffee acts like a spur, which drives a horse to do its best, but cannot replace oats." That's the whole problem in humans-many of them do expect coffee to take the place of "oats." They pass up a solid breakfast because they can get by with coffee. The stimulating and exhilarating effects coffee produces is quickly followed by mild fatigue and unsteadiness. No matter how we look at it, coffee takes more from the body than it gives. All coffees contain caffeine but in varying amounts. Fresh ground coffee is the most potent in caffeine. Instant coffees contain half as much and decaffeinated coffees contain about one third as much. It is imperative that a shooter refrain from drinking coffee before and during the shooting session and be moderate in coffee consumption when not firing.

c. The Effects Tobacco has on the Human Body. Nicotine is a powerful alkaloid poison. Being a volatile substance, it is carried along with the burning smoke of the tobacco. In cigarettes, about 61 percent of the nicotine is burned and destroyed, 27 percent is ordinarily exhaled, and about 12 percent is absorbed by the smoker. The absorbed nicotine specifically affects the nerves that regulate the heart rate and the size of the blood vessels and therefore, alter the pulse rate and the blood pressure. For about 10 minutes after smoking is begun, the pulse rate is slowed about five beats per minute because of an increased stimulation of the nerves that slow the heart beat. After this temporary slowing effect, nicotine depresses these same nerves. This results in an increased pulse rate that lasts for two or three hours. The increase, for the average person, is from five to ten extra beats per minute. One cigarette after breakfast will step up heart beat for half the shooting day. With the damage already done, abstaining for the rest of the days' shooting is to small avail. The work of the heart is affected not only by the increased pulse rate but also by the decrease in size of the arteries. Both of these factors raise blood pressure.

The carbon monoxide which is also present in tobacco smoke will, if inhaled, reduce the capacity of the hemoglobin of the red corpuscles to carry oxygen. This is due to the fact that hemoglobin

absorbs carbon monoxide about 300 times faster than it does oxygen with which it ordinarily combines. Therefore as the blood takes on carbon monoxide it cannot, in that same proportion, carry oxygen. This results in "cutting the wind," or breathlessness, whenever there is exertion.

These combined effects of nicotine and carbon monoxide explain why the shooter must avoid smoking if he is to shoot with the greatest possible skill. This conclusion does not mean than an individual or a team whose members smoke may not win if it is competing against inferior opponents. The top competition today does not allow a margin of indulgence if you expect to win. Denying yourself a quick drag on the weed is not a sacrifice. It is a necessity for victory.

d. Effect of Drugs on the Human Body. Some shooters have probably tried a sedative drug or tranquilizer to see what effect it would have on their shooting. Drugs affect people in different ways, so dosage would be a problem in addition to accomplishing the desired reduction in anxiety, nervousness, etc. Also, any time medication or drugs are used that affect the body functions, the side effects may do more harm than good to the shooter's performance.

Some shooters no doubt prescribe certain remedies for themselves when they have a cold, a stopped-up nose, or a headache. Most of the effects are not conducive to good shooting. In no way do we wish to imply that any shooter would resort to narcotics.

(1) A depressant slows reflexes, lessens the desire to win, promotes carelessness, causes loss of concentration, and coordination.

(2) A stimulant causes nervousness, hypertension, increases heartbeat, loss of sensitivity in the touch of the hands, trembling, etc. Most drugs are habit forming and all are a deterrant to good health if used frequently without proper medical advice. There is no substitute for a healthy body and just plain GUTS!

D. THE PHYSICAL TRAINING PROGRAM.

1. The end result of any physical training program is that a shooter achieves a good all-around physical condition. Physical training should not be haphazard. It should be conducted regularly between shooting seasons and during the principal training period before tournament participation. Exercises which strengthen the muscles and increase body flexibility are most desirable in the marksmanship physical training program. A good rule to follow in determining the number of exercise repetitions is to exercise until a feeling of exhilaration is obtained. As the shooter's physical condition improves, the number of repetitions may be gradually increased. Whenever a shooter exercises, he must put maximum effort into the exercise to get results. Merely going through the motions of an exercise is of no advantage. Physical conditioning is a gradual process and results will not be immediately apparent.

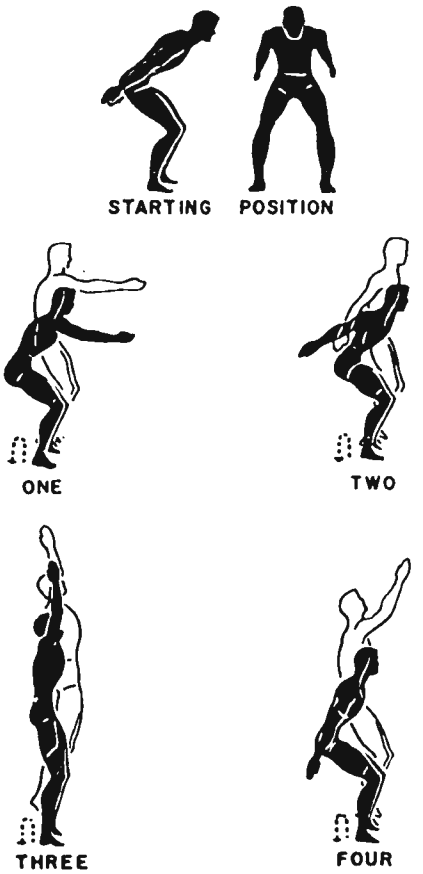
2. In addition to exercises, it is desirable for the shooter to compete in team sports. Fast moving games that are not especially tiring are best from the shooter's standpoint. Of these games volleyball is probably the most valuable. The game is not physically tiring, but it requires mobility, fast reflexes, precision and team work, all of which are valuable to the marksman. Other good sports are swimming, softball, tennis, handball, rowing and bowling.

3. Heavy exercises such as weight-lifting should be discouraged during tournament participation. Exercising during matches, except for light warm-up exercises, should be avoided.

4. Eating heavy food, smoking and drinking liquid of any kind within 30 minutes before going to the firing line are considered harmful. Exceptions: a chocolate bar, a small amount of honey, or similar energy sources may be beneficial if the shooter feels tired.

The development of regular sleeping habits are particularly desirable during the training period and should be followed during competition.

5. The following daily dozen exercises have been utilized by the US Army International Moving Target Teams to develop and maintain tone of the muscles used in target shooting. The diagrams (Exercises 1 through 12) will assist in understanding how these exercises are performed.



a. Exercise 1 - HIGH JUMPER.

(1) STARTING POSITION. Feet spread shoulder width apart; knees flexed, body bent forward from the waist. Head and eyes straight to the front.

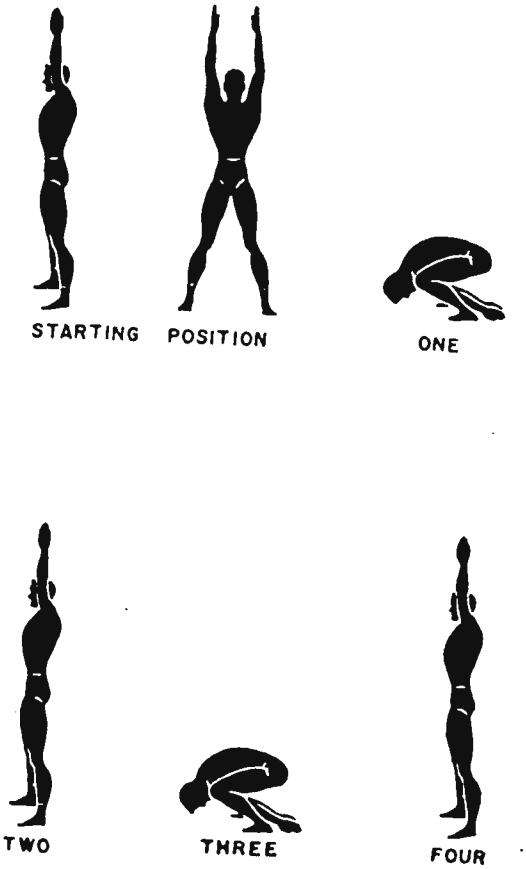
(2) CADENCE. Moderate.

(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Slight jump into the air swinging the arms forward and up to shoulder level.

(b) TWO. Slight jump into the air swinging the arms backward, returning to the starting position.

(c) THREE. Vigorous leap into the air, head skyward and swinging the arms to an overhead positon. On returning to the ground, the knees are flexed, head and eyes returned to the front.



b. Exercise 2 - BEND AND REACH.

b. Exercise 2 - BEND AND REACH.

(1) STARTING POSITION. Feet spread more than shoulder width apart. Arms overhead, elbows locked, palms facing.

(2) CADENCE. Moderate.

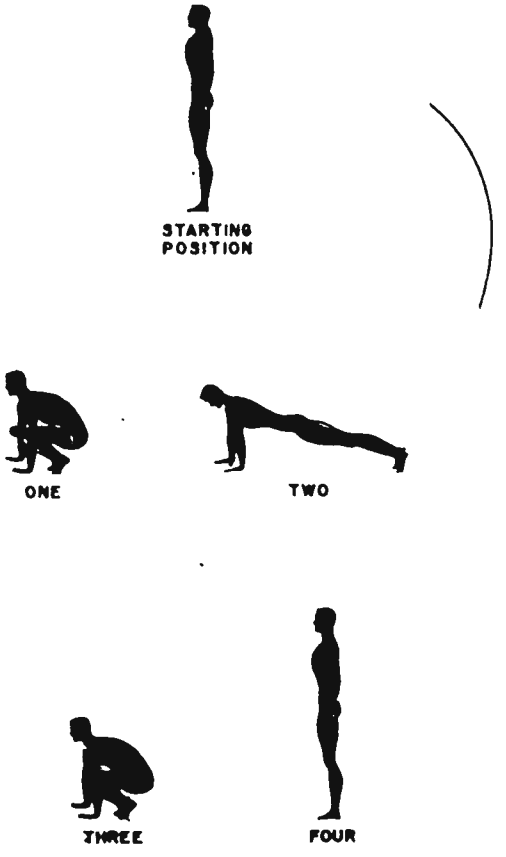
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Bend at the knees and waist, swing the arms downward reaching between the legs as far as possible.

(b) TWO. A sharp and vigorous movement returning to the starting position. Elbows locked throughout.

(c) THREE. Repeat count ONE.

(d) FOUR. Repeat count TWO.



c. Exercise 3 - SQUAT THRUST.

(1) STARTING POSITION. The position of attention.

(2) CADENCE. Moderate.

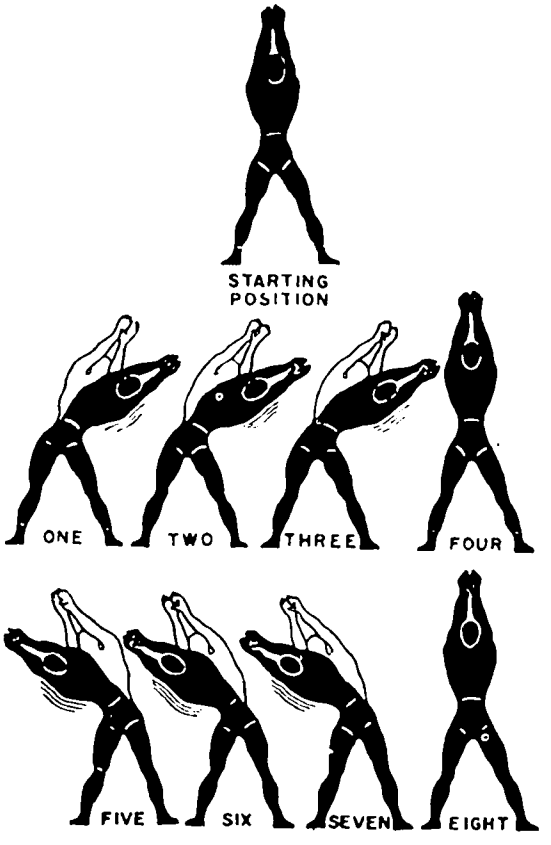
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Assume the squatting position, hands on the ground, inside the knees, shoulder width apart.

(b) TWO. Thrust the legs rearward, toes and heels together assuming the leaning rest position.

(c) THREE. Return to the squatting position.

(d) FOUR. Recover with a snap to the position of attention.



d. Exercise 4 - SIDE BENDER.

(1) STARTING POSITION. Feet spread more than shoulder width apart. Arms raised in an arc, sideward and overhead. Thumbs interlocked, palms to the front. Elbows are locked.

(2) CADENCE.

(3) MOVEMENT. An 8-count exercise. At the count of:

(a) ONE. Bend to the left as far as possible, recover slightly, keeping the knees and elbows locked.

(b) TWO. Repeat movement ONE.

(c) THREE. Repeat movement ONE.

(d) FOUR. Recover sharply to the starting position.

(e) FIVE. Bend to the right as far as possible, recover slightly, keeping the knees and elbows locked.

(f) SIX. Repeat movement FIVE.

(g) SEVEN. Repeat movement FIVE.

(h) EIGHT. Recover sharply to the starting position.

STARTING POSITION

ONE 

TWO 

THREE 

FOUR 

e. Exercise 5 - PUSHUPS.

(1) STARTING POSITION. The front leaning rest position, legs rearward, toes and heels together with body weight supported on the hands and toes. Hands flat on the ground directly below the shoulders. Body straight from head to toe.

(2) CADENCE. Moderate.

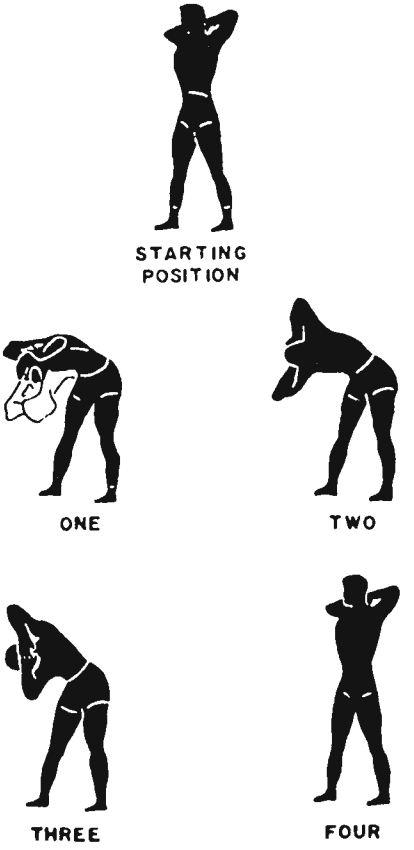
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Lower the body, keeping it straight until the chest touches the ground.

(b) TWO. Raise the body to the starting position, elbows locked and body straight.

(c) THREE. Repeat movement ONE.

(d) FOUR. Repeat movement TWO.



f. Exercise 6 - TRUNK TWISTER.

(1) STARTING POSITION. The feet are spread more than shoulder width apart. Fingers are laced behind the neck with the elbows back.

(2) CADENCE. Slow.

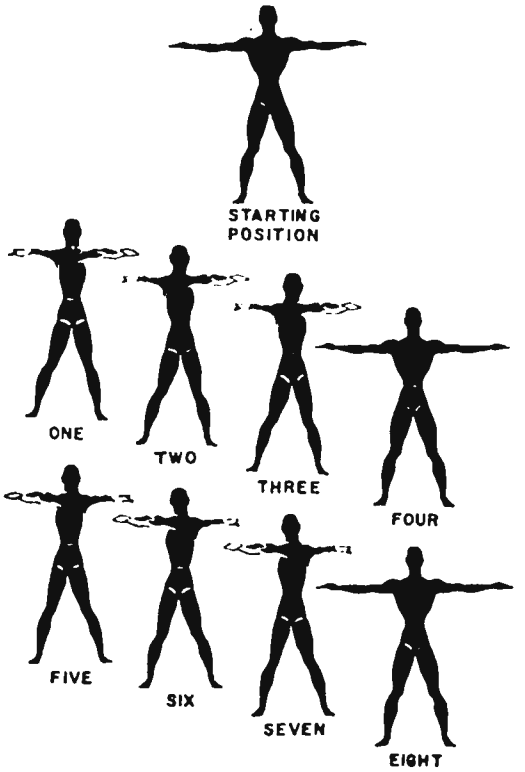
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. With the knees locked and body straight, bend forward slightly from the waist, twist the trunk vigorously to the right with the right elbow pointing toward the left knee.

(b) TWO. Recover with a snap to the starting position, elbows well back.

(c) THREE. Repeat movement ONE, but reverse trunk twist to the left elbow pointing toward the right knee.

(d) FOUR. Repeat movement TWO.



g. Exercise 7 - TURN AND BOUNCE.

(1) STARTING POSITION. The feet are spread more than shoulder width apart arms sideward at shoulder level, palms up. Head and hips remain to the front throughout the exercise.

(2) CADENCE. Slow.

(3) MOVEMENT. An 8-count exercise. At the count of:

(a) ONE. Twist to the left as far as possible, then recover slightly. Elbows and wrists remain locked, arms parallel to the ground.

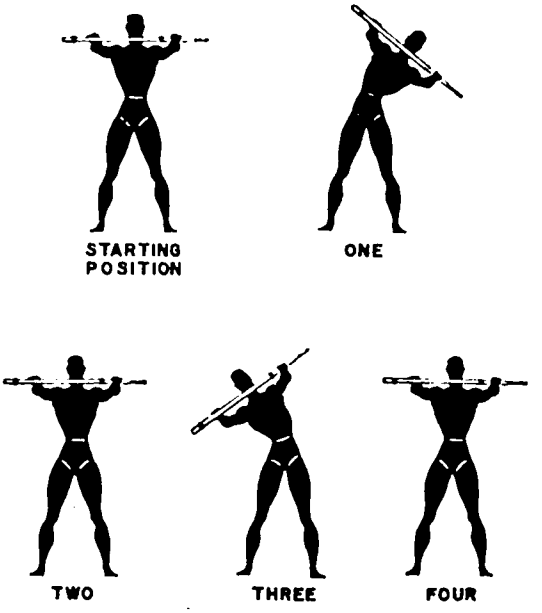
(b) TWO. Repeat movement ONE, endeavoring to twist more to the left.

(c) THREE. Repeat movement TWO, endeavoring to twist more to the left.

(d) FOUR. Recover sharply to the starting position.

(e) FIVE - EIGHT. Repeat movements ONE - FOUR, twisting the trunk to the right.

The remaining five exercises are performed using the weapon as illustrated in figures.



h. Exercise 8 - ARMS FORWARD SIDE BEND.

(1) STARTING POSITION. Side straddle, regular stance, weapon forward.

(2) CADENCE. Moderate.

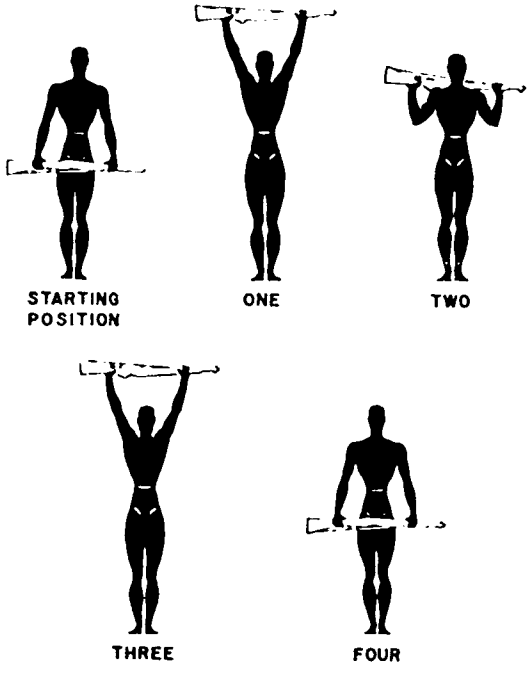
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Bend the trunk to the left. Keep the knees straight.

(b) TWO. Recover to the starting position.

(c) THREE. Bend the trunk to the right. Keep the knees straight.

(d) FOUR. Recover to the starting position.



i. Exercise 9 - FOREUP, BEHIND BACK.

(1) STARTING POSITION. Weapon downward, feet together.

(2) CADENCE. Slow.

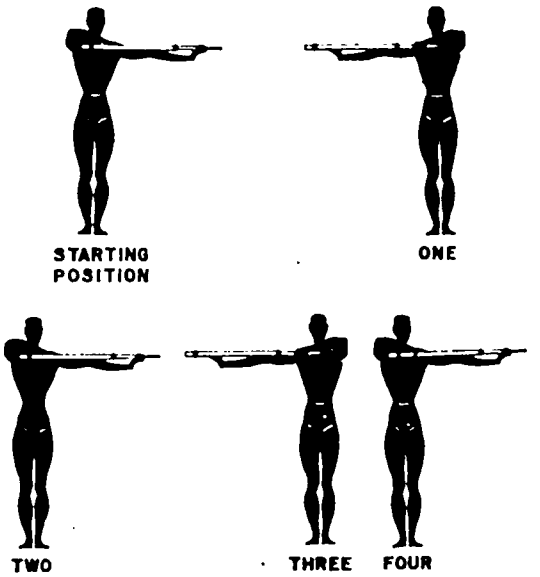
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Swing the arms forward and upward to the overhead position. Inhale.

(b) TWO. Lower the weapon to the back of the shoulders. Exhale.

(c) THREE. Recover to the first position and inhale.

(d) FOUR. Recover to the starting position and exhale.



j. Exercise 10. LEFT AND RIGHT FORWARD.

(1) STARTING POSITION. Weapon horizontal at the left side, the right hand in front of the left shoulder, the left arm sideward to the left. The feet are together.

(2) CADENCE. Fast.

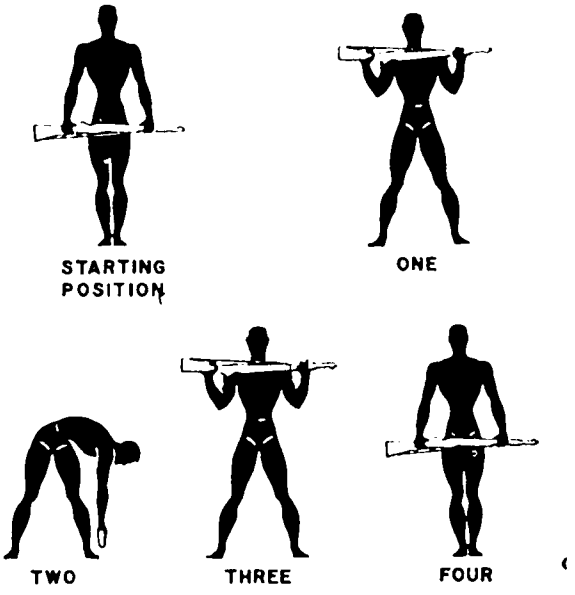
(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Swing the arms sideward to the right, through a front horizontal to the right side horizontal.

(b) TWO. Recover to the starting position.

(c) THREE. Repeat count ONE.

(d) FOUR. Recover to the starting position.



k. Exercise 11 - STEP, TURN, & BEND.

(1) STARTING POSITION. Weapon downward, feet together.

(2) CADENCE. Moderate.

(3) MOVEMENT. An 8-count exercise. At the count of:

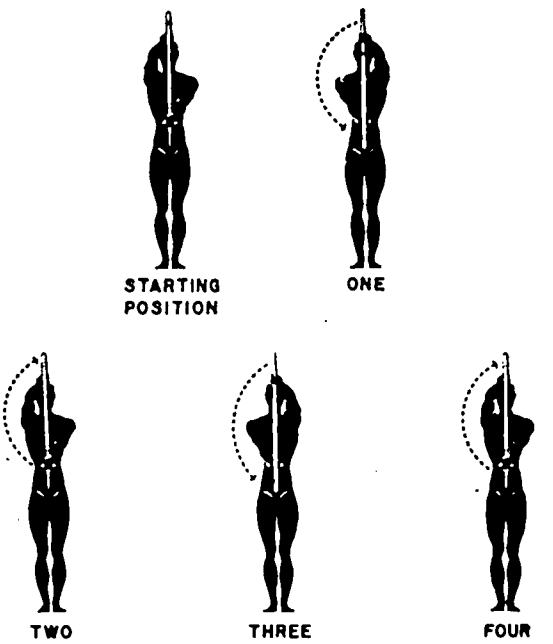
(a) ONE. Flex the elbows to the thrust position and step sideward with the left foot.

(b) TWO. Turn the trunk to the left and bend forward over the left hip, thrusting the weapon downward to a low side-horizontal.

(c) THREE. Recover to the first position.

(d) FOUR. Recover to the starting position.

(e) FIVE thru EIGHT. Repeat on right side.



1. Exercise 12 - TWIST AND TWIST

(1) STARTING POSITION. Weapon at the front perpendicular, butt upward, feet together.

(2) CADENCE. Fast.

(3) MOVEMENT. A 4-count exercise. At the count of:

(a) ONE. Reverse position of the arms so that the right hand is downward and the left hand is upward.

(b) TWO. Recover to the starting position.

(c) THREE. Repeat movement ONE.

(d) FOUR. Recover to the starting position.

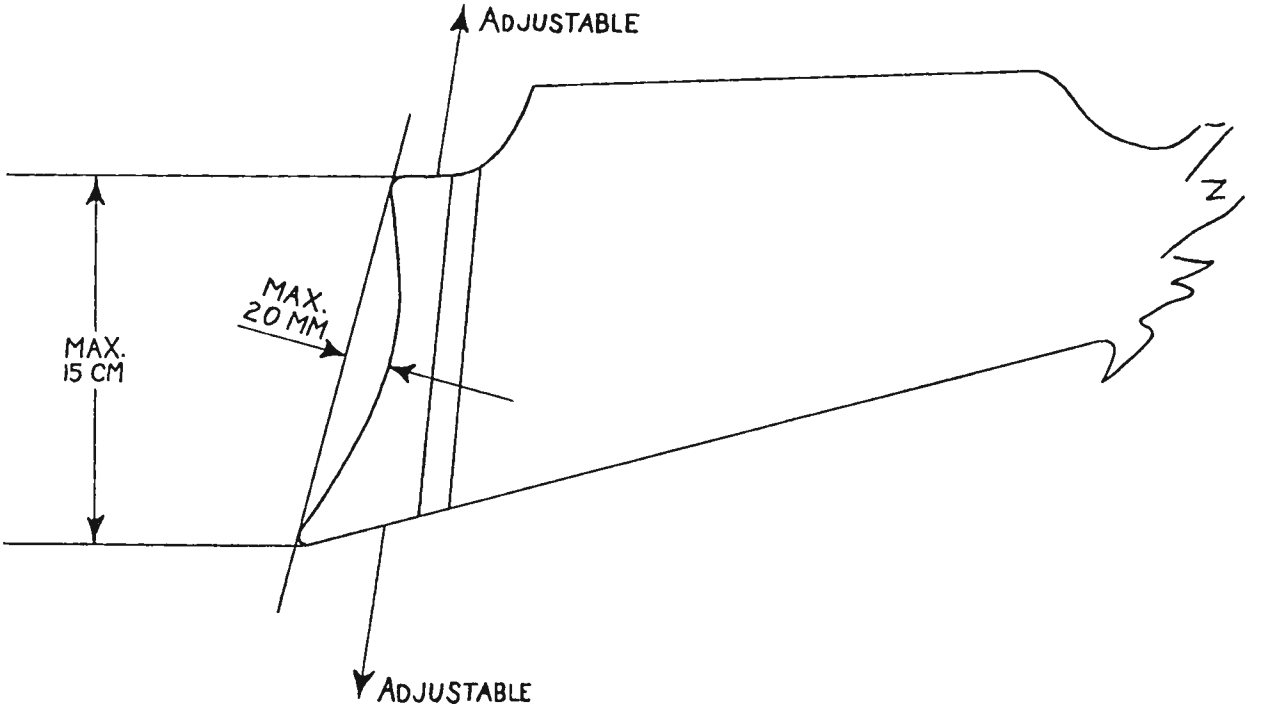


FIGURE 30
ISU Running Target Regulations
Adjustable Butt Restrictions

FIGURE 31
50 Meter Running Boar Target

CHAPTER VII

INTERNATIONAL SHOOTING UNION REGULATINS

A. REGULATIONS FOR RUNNING TARGET:

1. General

1.1 Application and scope of the technical regulations: At competitions where world records may be established, and which come under the supervision of the ISU, the regulations must be strictly adhered to.

1.2 The ISU recommends that at smaller tournaments, such as regional and national competitions, those courses of fire which are contained in the program of the ISU should similarly be carried out in accordance with the rules of the ISU.

1.3 The ISU attempts to achieve uniformity in the conduct of shooting competitions all over the world. This lies in the interest of further development of the shooting sport and of the shooters.

1.4 During competitions the Jury and/or the range officers shall decide all cases which are not provided for in these regulations.

1.5 Organization and execution of the competitions: For the general preparation and execution of shooting competitions, an organizing committee shall normally be formed, which shall consist only of representatives of the host country. It may, however, contain one or several representatives of the ISU as technical adviser(s) without voting rights.

1.6 The technical aspects of the individual events shall be the responsibility of a chief range officer, who shall have assistant range officers at his disposal.

2. Public Affairs

2.1 Promotion and publicity shall be given all due consideration: Press, radio, and television personnel shall be given every cooperation and the necessary office equipment. Communications facilities and rooms shall be made available for them. Care must be taken that film shooting, interviews, etc., should whenever possible, take place during training or after the competitions so that the shooters are not disturbed.

2.2 The target control office shall draw up a correct placing list which, above all, shall be placed at the disposal of the press.

2.3 When it is possible and necessary, the shooters should wear starting numbers on their backs to aid in identification.

2.4 Large scoreboards should be used to inform the public and the press constantly on the situation prevailing in the competition. These boards should be erected at a short distance away from the competition range.

3. Equipment and Ammunition

3.1 Any type of rifle is permitted which fulfills the following requirements:

a. The weight of the rifles as used in the competition must not exceed 5 kilos.

b. The trigger shall have a minimum pull of 0.5 kg measured with the rifle held in vertical position and muzzle up.

c. An adjustable buttplate may be fitted. Any curvature shall not exceed a depth of 2 cm or a length of 15 cm measured across the arc. Figure 30.

3.2 All types of sights, including telescopic, are allowed. Except in the case of damage, mechanical or optical failure, sights must not be exchanged between slow and fast runs. Adjustment to the sights is allowed.

3.3 Only rimfire ammunition of caliber .22 long rifle is permitted.

3.4 The same rifle including sights, trigger system and other arrangements shall be used for slow as well as fast runs of the match.

3.5 In the shooting position the buttplate must be in contact with the shoulder.

3.6 It is recommended that an easily visible mark is made at the center of the buttplate to

assist the referee and Jury in enforcing Rule 5.1a.

4. Targets

4.1 Common Regulations.
The target shall be of the type that at the actual occasion is approved by the International Shooting Union and be made of paper or plywood or wallboard of similar material. The following official target will be used.

4.2 The Running Boar target printed for left and right direction runs will be used. Figure 31. For each of the targets a repair center may be used in all competitions. The repair center must be matched to the target on which it is to be used both for direction of run and accuracy of dimensions. Small centering marks must be printed on targets and repair centers to aid in positioning. Targets printed in one color only are allowed. For International matches, World Championships and Olympic Games and all other competitions where official records are registered, the repair center shall include the nose, head, and all scoring rings.

4.3 Scoring rings with the value 1 to 10 must be clearly printed on the target. Ring values will be printed in diagonal column. The outside diameter of the rings will be:

10 ring 60-mm $\pm$ 0.2-mm
9 ring 94-mm $\pm$ 0.4-mm
8 ring 128-mm $\pm$ 0.6-mm
7 ring 162-mm $\pm$ 0.8-mm
6 ring 196-mm $\pm$ 1.0-mm
5 ring 230-mm $\pm$ 1.0-mm
4 ring 264-mm $\pm$ 1.0-mm
3 ring 298-mm $\pm$ 1.0-mm
2 ring 332-mm $\pm$ 1.0-mm
1 ring 366-mm $\pm$ 1.0-mm

The thickness of the rings will be 1-mm $\pm$ 0.01-mm.

All shots within the scoring rings will be counted. It is not permitted to trim the frame to the shape of the animal.

4.4 There can be different methods for indication of value and position of hits. However, for the shooter and the spectators there must be no uncertainty as to value and position of hit.

4.5 Television or similar means of marking may be permitted and are recommended if the conditions laid down in 4.3 are achieved.

4.6 At international competitions members of the Jury or controllers appointed by the Jury shall be stationed to the right and to the left of the opening and shall decide immediately on any shot which may be disputed and referred to the Classing Committee.

4.7 When using center parts which are replaced after each series, the bullet holes shall be covered with transparent tape. Only the outer part of disputable bullet holes may be covered in order to disturb the work of the Classing Committee.

4.8 Trial shots shall always be covered with tape having the color of the target.

4.9 Should there be too many bullet holes in the target, the shooter shall have the right to re-shoot immediately and from the same side if it cannot be established which is the last hit. On re-shooting he may not be credited with more than the best or less than the lowest of the disputable hits.

4.10 When attaching a new center part the utmost care shall be taken to get the scoring rings and lines to coincide with those of the original target.

4.11 When determining the value of a hit a scoring gauge having a diameter of 5.6-mm shall be used.

4.12 Oval bullet holes and ricochets are counted as misses if the length of the bullet holes exceeds 8-mm.

4.13 A hit is scored to the higher value if the outer side of a line or a circle is touched by the bullet or if a small portion of the line is covered by the scoring gauge. When the value of a hit is difficult to determine, it shall be examined and decided upon by the controller appointed by the Jury. The controller may replace the target and send it to the Classing Committee for further control. Provision must be made for a rapid replacement of targets.

4.14 All shots which have hit the target are counted as hits. Hits outside the target are scored

as "X." If the shooter has not fired this is registered as "__."

4.15 If special controllers of the scores are appointed, provisions shall be made so that the controllers have no knowledge of what shooter's target they are scoring.

5. Positions

5.1 The shooting position is standing without support. The rifle shall be held against the body and supported only by the hands of the shooter. The left arm (the right arm for a left-handed shooter) must not rest on the hip or the chest. The shooter shall take such a position in relation to the bench or table and the wall that it is clearly visible that they do not give any support whatsoever. The use of rifle sling is not permitted.

a. Until any part of the target is visible the competitor shall adopt the "Ready Position" holding the rifle with both hands so that the buttplate touches the hip or abdomen below his waistline. (See also Rule 3.6)

6. The Shooting Range

6.1 An international 50-m running target shooting range shall be so arranged that the target may be moved horizontally in both directions with a constant speed across an open space. This space in which the target may be fired at is called the "opening." The movement of the target across the opening is called a "run."

6.2 On both sides of the opening there shall be a vertical wall for the protection of the operating personnel and scorers.

6.3 The targets are placed on a trolley or similar arrangement constructed in such a way that the two targets (one running to the left and one to the right) can be alternately shown. The trolley runs on rails or cable or corresponding arrangement and is driven by some type of driving unit which can be closely regulated for speed.

6.4 Behind the opening there shall be an embankment and in front of the opening a low wall to protect the equipment behind.

6.5 The opening shall be 10 meters in length, seen from the shooter.

6.6 The protecting walls on both sides of the opening shall be of such a height that no part of the target is visible until it reaches the opening. The edges shall be marked with a color different from that of the target.

6.7 Two speeds are used - slow runs and fast runs. For a slow run the time shall be 5.0 seconds (+0.4 sec.) and for a fast run the time shall be 2.5 seconds (+0.2).

6.8 The timing of a run, i.e., the time the target is visible when passing the opening, shall start when the target appears and stops when the leading part of the target reaches the opposite wall. Timing shall preferably be accomplished by using an electric watch which is started and stopped by switches mounted on the rail. If this method cannot be used, timing shall be accomplished with 3 stop watches of reputable quality by 3 different persons simultaneously and the average of the 3 times shall be counted. If this time is found to be less or more than is stipulated for the event, the shoot management or the Jury shall attempt to regulate the time within the allowed timing.

6.9 The distance from the shooting station to the target, when the target is in the mddle of the opening, is measured from the edge of the bench or table nearest to the shooter.

6.10 It is desirable that the shooting station is arranged in such a way that the shooter is visible for spectators. The shooting station shall have ample protection against rain. It is also preferable that the shooter is protected against sun and wind, if this can be achieved without preventing spectators from seeing him.

6.11 In order to save time two shooting stations can be arranged and used alternately. In such a case the two shooting stations must not be placed further apart than is allowed by the permitted horizontal deviation from the horizontal line through the center of the target at right angles to its travelling direction.

6.12 The distance shall be minimum 50 meters and maximum 52.5 meters. The position of the shooting station must not deviate more than 2 meters laterally and vertically from the horizontal line through the center of the target at right angles to its travelling direction.

6.13 Shooting Station.
The shooting station shall be situated directly opposite the opening and at about the same level.

6.14 In front of the shooter shall be a bench or a table 80-100 cm high. Behind the shooter there shall be a place for the referee and at least one member of the Jury. The register keepers shall have their places either behind or at the side of the shooting station.

7. Courses of Fire

7.1 Running Target, 50 Meters.

a. For each run there will be fired one shot.

b. For International competitions the program shall be:
2 trial shots plus 20 shots slow
2 trial shots plus 20 shots fast
2 trial shots plus 10 shots slow
2 trial shots plus 10 shots fast

Where a competition lasts more than one day each competitor will fire the same number of series on each day and if two ranges are used the same number of series on each range. If the facilities consist of three ranges the program may be fired in 10-shot series. Participating countries will be informed at least three months in advance which program is to be used.

8. Running Target, 50 Meters (Mixed Timing Runs)

a. For each run there will be fired one shot.

b. The competition is performed in series of 20 runs. There shall be 4 trial runs, one slow run from each side and one fast run from each side.

c. Each series shall contain 10 slow and 10 fast runs arranged in such a way that the shooter will have to fire equal number of runs from each side. The runs shall be mixed in such a way that it is unlikely that the shooter can foresee whether the next run is slow or fast. However, there must not be more than 5 continuous runs of the same speed.

9. Competition Regulations - Range Operations

9.1 Rules of Conduct
The participant must report at the time announced, ready to shoot and carrying all necessary equipment.

9.2 All rifles whether loaded or unloaded, shall be handled with the utmost care and shall be carried with the breech open. When a shooter puts his rifle aside, also then unloaded and with the breech open, it must be placed vertically in a rifle rack or similar place for this purpose. It is forbidden without permission to touch another competitor's rifle.

9.3 The shooter may only load when he is standing on the shooting station with his rifle pointed towards the opening and a signal is given that he may load.

9.4 The shooter shall be alone on the shooting station without assistance and may not be disturbed as long as he complies with the regulations.

9.5 No shot may be fired until the shooter is in turn to fire and the target appears in the opening. Check shooting of rifles may only take place with the consent of the referee or at his order and then at a place indicated by him.

9.6 The shooter shall leave the station without order and immediately after the marking of his last shot. He shall remove all his equipment and make sure that no cartridge has been left in his rifle.

9.7 Sighting exercises may only be practiced if the shoot management has provided a special area for that purpose.

9.8 Shooting Rules.
Before each series the target is shown for two runs, during which the shooter is allowed to fire the number of shots the actual series occasions.

9.9 Before commencing the shooting the shooter shall place at least the number of cartridges to be fired in the actual series on the bench or table in front of him.

9.10 When the shooter is ready to shoot, he calls "ready" whereupon the referee immediately orders the target to be started. If the target does not appear in 4 seconds after the order has been given or after the marking has been performed during a series, the referee shall order an interval in the shooting and when he has made sure that the target and shooter are ready, give a new order to start. If the target should be started before the shooter has called "ready" he shall refrain from

shooting. However, if he fires, the result is to be counted.

9.11 Should the referee find that the competitor delays unnecessarily before calling "ready," the referee may if the time is up, give the shooter further 30 seconds, and then order the target to be started.

9.12 The first run shall always be started from the right. As soon as the control and marking has been finished, the target shall be started in the opposite direction and the shooting continue without interruption or commands until the series has been finished. The shooter may, however, have the target stopped for a reasonable short interval after the second trial run for readjusting his sights. This target shall then be started according to 9.10.

9.13 If the target is started from the wrong side or tail first, the run shall be cancelled and repeated, even if the shooter has fired.

9.14 In case anything should occur likely to be dangerous or disturbing the shooter or else interfering with the competition, the referee shall call off the shooting. Should the shooter fire at the moment of the order, he is entitled to have the run cancelled, if he so requests, before having learned the score.

9.15 If a series should be interrupted for more than 5 minutes, the shooter may ask for 2 trial runs. In such a case, the referee shall distinctly announce "trial runs." If no trial run has been requested, the series is continued where interrupted.

These trial runs must begin from the side at which the series was interrupted.

9.16 If a shooter should be unable to fire during a run, a miss shall be scored unless it is a case where the rules laid down in 9.14, 9.15, 9.18 or 9.21 apply and which entitle the shooter to re-shoot.

9.17 If the referee neglects to stop the shooting to which 9.10, 9.12 and 9.15 apply, the shooter may raise his arm and call "stop" provided he has not caused the situation himself. The target shall then be stopped. If the referee finds his action justified he shall proceed according to 9.10 and 9.15 respectively. If not, the referee shall order the shooting to continue and penalize the shooter by deducting 2 points from his score.

9.18 Misfire.
If the shooter experiences any technical trouble with rifle or ammunition, making him unable to shoot, he shall place his rifle on the bench or table without further touching it and call for the referee by reporting "misfire." The referee shall immediately order the shooting and marking to be interrupted.

9.19 If the reason for misfire is considered as not caused by himself, the run will be repeated and the shooter will not be penalized.

9.20 If the reason for misfire is considered as caused by the shooter, a miss is counted.

9.21 The shooter shall not be considered to be at fault if the breech is found in discharged position, the chamber is found to contain a cartridge of the same type as the shooter's ordinary ammunition and that the cartridge has a clear impression in the primer and the bullet of which has not left the barrel.

9.22 The shooter shall not be considered to be at fault if the reason for not shooting is caused by some malfunction of the rifle which is not likely caused by himself and could not reasonably have been prevented by him.

9.23 The shooter shall be considered to be at fault if:

a. he has not placed the rifle on the bench or table as per 9.18 or if he before placing it there has altered anything on the rifle.

b. the safety catch has not been released.

c. the rifle is unloaded, or

d. the rifle is loaded with the wrong type of ammunition.

9.24 If repeated disturbances due to malfunction of the rifle or to faulty ammunition jeopardize the normal carrying through of the program, the referee may order repair of the rifle or a change of ammunition. If the malfunction thereby can be remedied within 5 minutes, the shooting may continue. If the repair will take longer than 5 minutes, the shooter has the right to continue the shooting immediately with another rifle, else the next shooter shall take his place. The referee will then

decide when the shooter may continue his series, either with the repaired rifle or with another rifle if a repair is impossible. Anyway the series shall be continued when interrupted and the shooter shall have the right to get 2 new trial runs.

9.25 Penalties.
Every participant must know the contents of the general rules and regulations of order and conduct established by the ISU and the IOC as well as these rules and regulations as far as they apply to the shooters. By entering the competition, he agrees to be subject to any proper penalty imposed for violation of these rules and regulations.

9.26 Should a competitor not report at his appointed time the referee shall call his name out loud three times within one minute. If the competitor still fails to appear he shall have a new shooting time set by the Jury and have two points deducted from his total score. If however the Jury decides that the reason for lateness was outside the control of the competitor no penalty shall be enforced.

9.27 If the shooter is using a rifle or ammunition not in accordance with the regulations, all shots fired with such a rifle or such an ammunition shall be counted as misses. Should however, the equipment have been in due course examined and should the Jury find that the shooter has been in good faith, they may approve of the series that has been fired with the faulty rifle or faulty ammunition or allow the shooter to re-shoot. His score in the re-shoot may, however, not be counted higher than his original score.

9.28 Violation of the rules laid down in Art. 5 normally incurs a warning in the first instance. Upon repeated violations the Jury may decide that the shot(s) shall be counted as miss(es).

9.29 A competitor who behaves in an unsporting manner or violates the rules laid down in 9.2, 9.3, 9.4, 9.5 and 9.6 will in first instance be given a warning. Upon repeated or more serious transgressions the jury shall penalize him by deducting 2 points from the score of the series during which the transgression occurred or by disqualifying him the series in progress or from the entire competition. A warning may be given by the referee, but must be reported to the Jury. It shall be worded so that the competitor fully realizes its implication.

9.30 A competitor who violates the general rules of order and conduct established by the ISU and the IOC may by the Jury be immediately disqualified from the competition in progress and be ordered to leave the range.

9.31 Order of Shooting.
The order of shooting for the competitors shall be listed by the drawing of lots at the time announced in advance. At international competitions the participants from the different nations shall be squadded according to a prearranged plan. If the competitions lasts for more than one day and/or is performed on more than one range, all participants shall fire the same number of series each day and on each range.

10. Officials

10.1 Referee and Jury.
The shooting shall be conducted by a referee who shall possess a referee's license.

10.2 The referee shall give the signals to start and stop the target, perform or control the roll call for competitors, inspect rifles, ammunition and shooting positions, supervise the register keeping and give all necessary commands regarding the shooting and the conduct on the ranges. He shall also, if necessary, after conferring with the Jury, make decisions when disturbances in the shooting have occurred.

10.3 International and other bigger competitions shall be supervised by a Jury, the duties of which are:

a. to control before the beginning of the competition the compliances of the ranges with these regulations and that arrangements in general are suitable and effective.

b. to control obedience to regulations and inspect shooting positions and arms, etc., during the competitions.

c. to arrange for timing of the runs and, when necessary, take steps in accordance with 6.8.

d. to supervise the marking, either personally or through specially appointed controllers, and decide immediately about doubtful bullet holes.

e. to decide, together with the referee, what action shall be taken in case of technical difficulties or other disturbances in the shooting.

f. to handle reports of offense against the regulations and deal with protests.

g. to decide on penalties in case a competitor fails to observe the regulations or obey the referee's order or else behaves in an unsporting manner, and

h. to agree on such a disposition of the work that one member of the Jury is always in contact with the referee and so that a Jury meeting can be arranged within 30 minutes.

10.4 There is no right of appeal against the decisions of the Jury, unless a separate Jury of Appeal has been elected for the competitions.

11. Tie Breaking Rules

a. Individual - All ties through the 10th place will be broken in the following order:

(1) By the highest score of the last 10 runs (Mixed Timing Runs 20 runs), working forward by 10-run strings (20 runs) until the tie is broken.

(2) By the highest number of 10, 9, 8, etc., and determining the winner as the one that has a shot closest to the center.

b. Other ties for 11th place and below will be listed in equal rank with appropriate number of spaces left vacant below the tied position before the next score is numbered.

c. Teams.

(1) Ties in team events for 1st through 5th places will be broken by totalling the results of all team members and following the procedures specified in paragraphs a. (1) through (3) above.

(2) Ties for 6th place and below will be listed in equal rank with appropriate number of places left vacant below the tied position before the next score is numbered.

12. Protests

12.1 Should a competitor or a team captain find that the announced result is incorrect, he shall immediately and not later than 2 hours before the prize ceremony and not later than 2 hours after the score is officially announced make a protest to the referee, who shall then, in the presence of the plaintiff, control the marking or the scoring and make his decision. There is no right to appeal against the controller's decision as to a value of a hit.

12.2 Should a competitor or a team captain find that any decision or action made or taken by the referee does not conform to the regulations, he may immediately address a short written protest to the Jury and at latest within 2 hours after the incident has occurred. If the protest refers to shooting then in progress it shall immediately be reported verbally to the referee or a member of the Jury. In such cases the referee may order a short interval in the shooting (Cf. 9.16).

12.3 Should anybody otherwise observe anything that violates the regulations and that might be penalized, he shall report at once to the referee or to a member of the Jury but it is not allowed to interfere with the shooting.

13. World Championship

13.1 The ranges shall be open for practice (or shooting for badges) during at least three days prior to competition for the championship and at least for 4 hours each day.

13.2 The Jury shall be appointed in the same way as is instituted for other events of the World Championship competitions. Its decisions shall be subject to consideration of the Jury of Appeal if one has been named.

13.3 When the Union has appointed a technical representative to World Championships, Olympic Games or other international championships, he shall confer in advance with the Organizing Committee on the general arrangements and the drawing of lots, etc. He shall also fulfill the functions of the Jury as stated in 10.3a) until the Jury can begin to function.

13.4 If nothing to the contrary has been published in the program or has otherwise been announced to all participating nations, the articles under 13 apply also for Olympic Games, Continental, Regional and other international competitions.

13.5a Running Game, 50 Meters.

A World Championship competition consists of the following series:

Slow runs: 30 runs

Fast runs: 30 runs

The first 20 slow and first 20 runs will be counted as the team competition.

b. In the competition each country may enter a team of four (4) competitors and the aggregrate of their scores shall count as team score. The score obtained by each shooter in the team competition shall count in the individual competition consisting additionally of:

10 slow runs and 10 fast runs to be fired as a final shooting for the 15 best shooters and those shooters with equal score as 15th.

c. The names of the competitors shall be given preliminary in writing on a date fixed by the organizers.

13.6 Running Game, 50 Meters (Mixed Timing Runs).

A World Championship competition consists of the following series.

20 + 20 irregularly mixed runs.

These 40 runs will be counted as the team competition as well as for the individual competition.

In the competition each country may enter a team of four (4) competitors and the aggregate of their scores shall count as team score.

NOTE: These are 1974 Regulations. Changes should be posted when they appear in the ISU Journal or Errata Sheet.

FIGURE 32, RUNNING TARGET RANGE - QUANTICO USMCB, VA

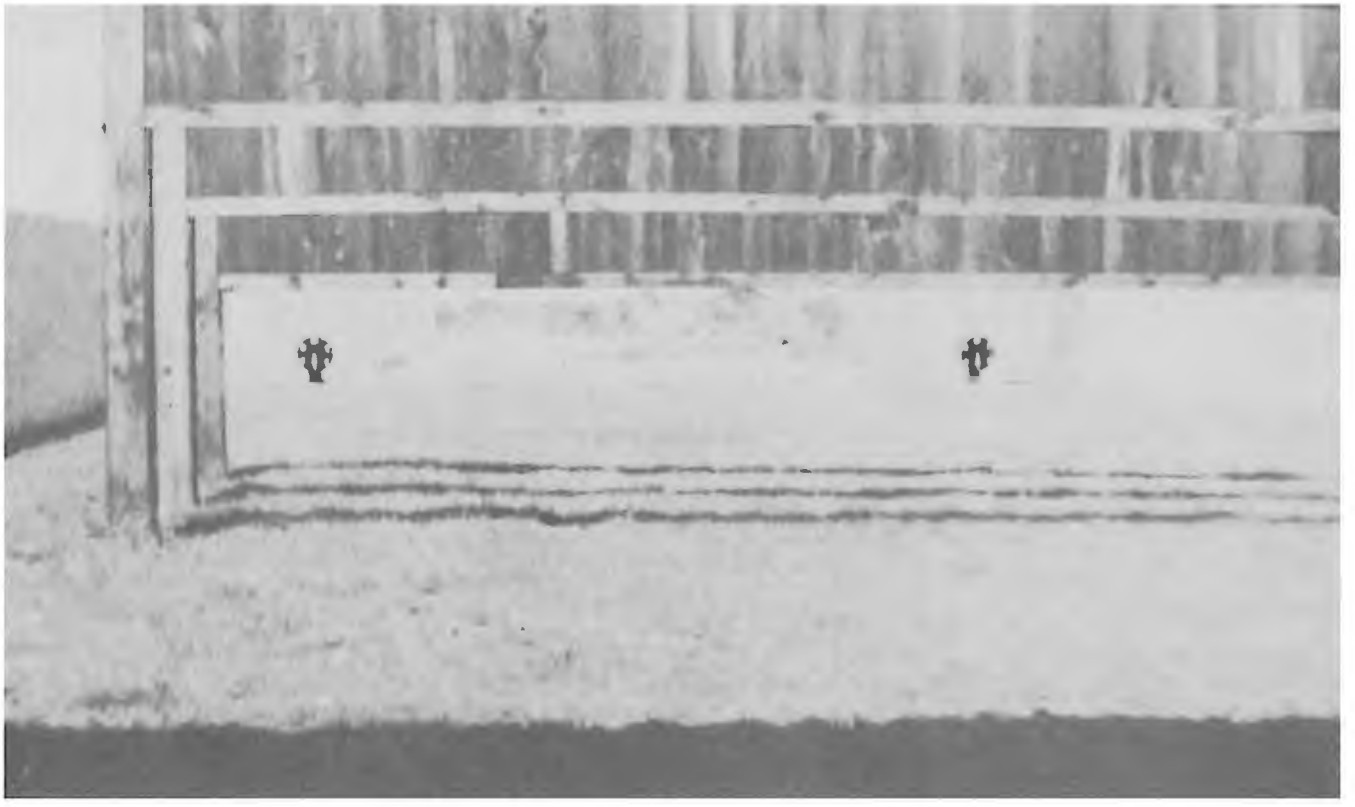


FIGURE 33, RUNNING TARGET RANGE - MEXICO CITY

FIGURE 34, RUNNING TARGET RANGE - BAYAMON, PUERTO RICO

FIGURE 35, RUNNING TARGET RANGE - HAMBURG, GERMANY

FIGURE 36, RUNNING TARGET RANGE - MOSCOW, RUSSIA

FIGURE 37, RUNNING TARGET RANGE - ESKILSTUNA, SWEDEN

SUPPLEMENTAL INFORMATION AND ANNEXES

Perhaps one of the greatest drawbacks to promoting running target competition is the initial investment for range construction.

Since no official range plans are available, other than the ISU Regulations for dimensions or distances and target exposure times, range design is left to the imagination, resources, available real estate and equipment that the club or individual can assemble.

The present running target range at Fort Benning had for its origin a concrete floor and overhead cover from the running deer range. Today it is probably the finest running target range in North or South America.

Other ranges throughout the world reflect concepts and ideas of other nations' shooters (Figure 32 through 37).

Any range that meets the requirements for ISU design, safety, and dependability is suitable.

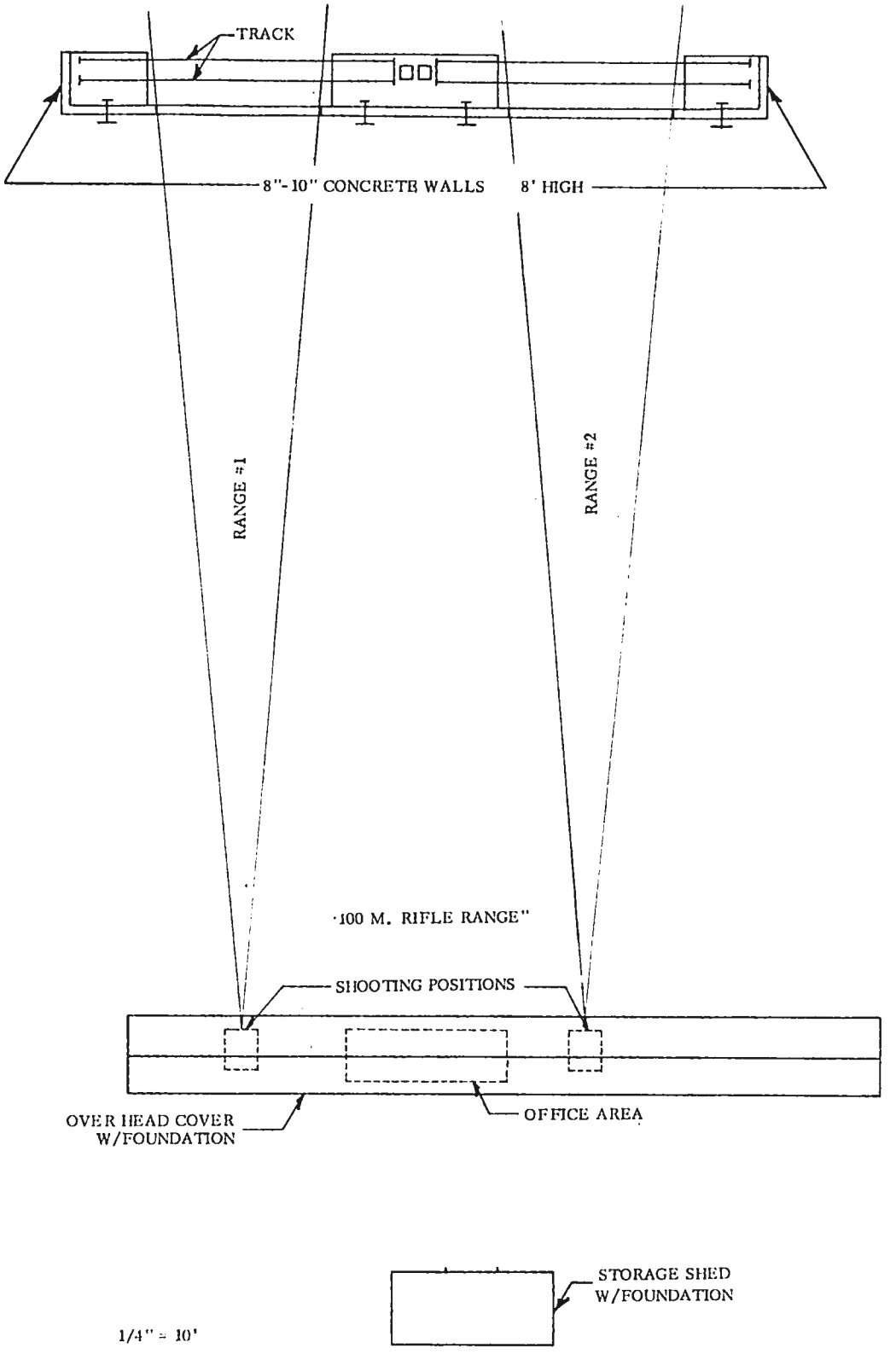
Development and improvement to championship level remains within the grasp of any shooter with the equipment and ammunition available today provided he is willing to devote the time and energy for such improvement. It is up to him to supply the attitude and control that makes a consistent winner. This usually comes after much work, practice, and many competitions.

Annexes "A" through "G" show some of the designs, ideas, and results obtained over the years by USAMU Running Target shooters. However do not accept this manual as the ultimate answer. You may come up with an idea or procedure that will push the scores even higher.

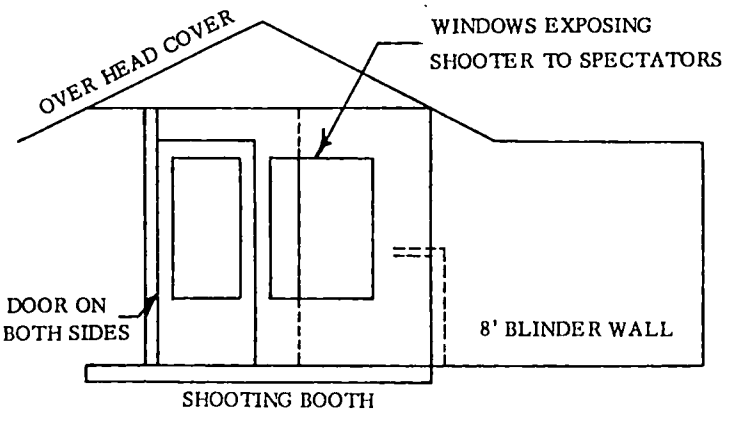
"Good shooting" in a most enjoyable and challenging sport.

DOUBLE RUNNING TARGET RANGES

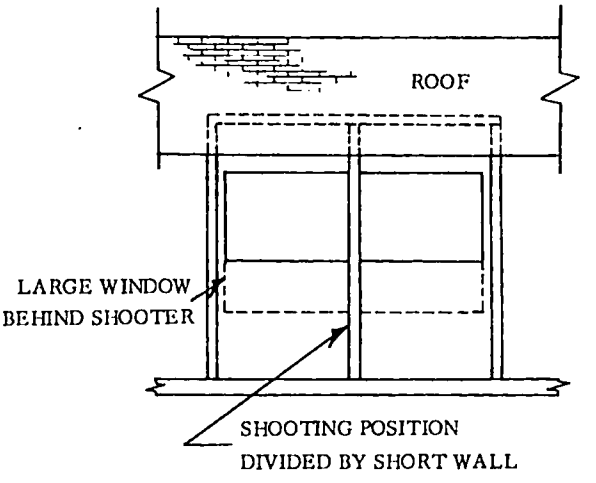
W/FOUNDATION



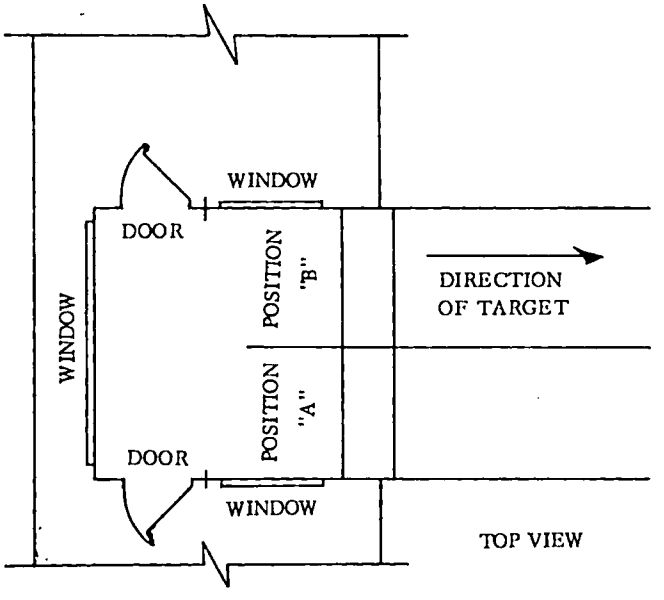
Annex A - Double Running Target Range Layout



SIDE VIEW



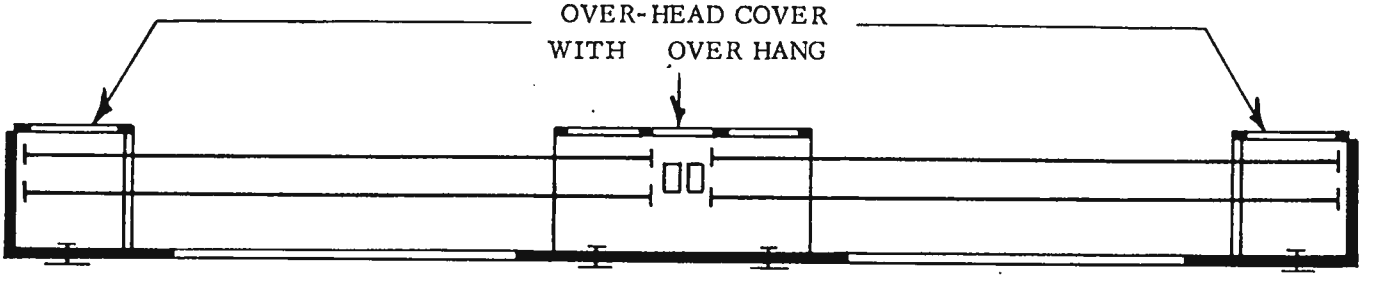
FRONT VIEW



TOP VIEW

Annex B - Top, Side, and Front Views of Firing Booths

DOUBLE RANGE



TOP VIEW

FRONT VIEW

Annex C - Top and Front View of Pit Area

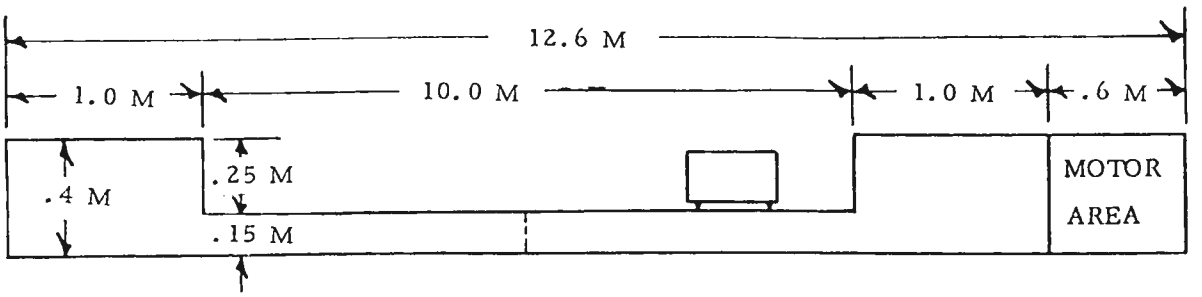


FIG. #1

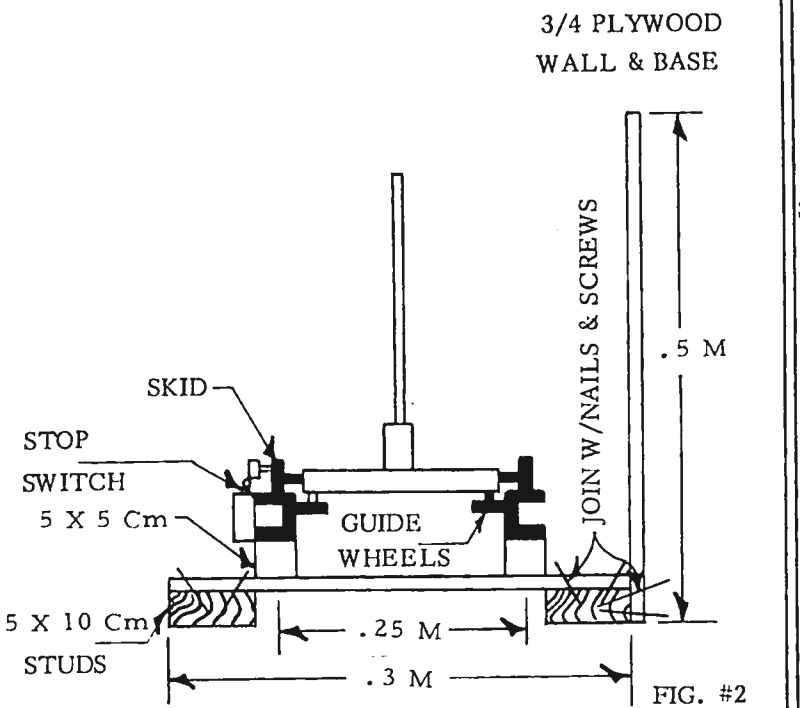


FIG. #2

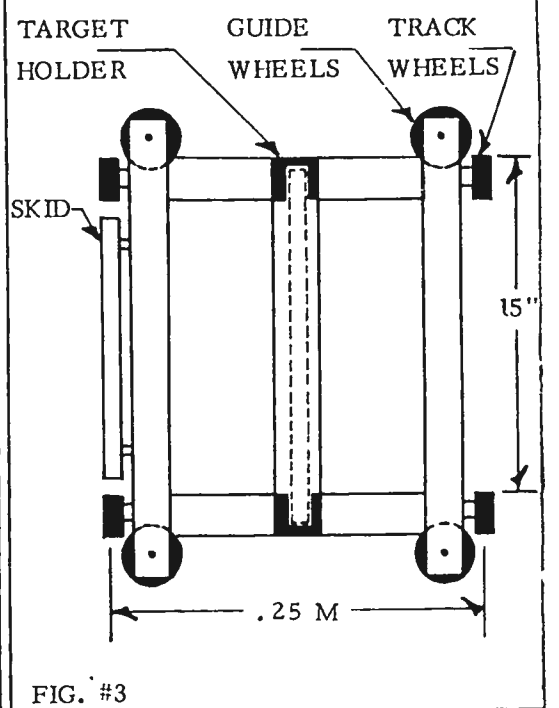


FIG. #3

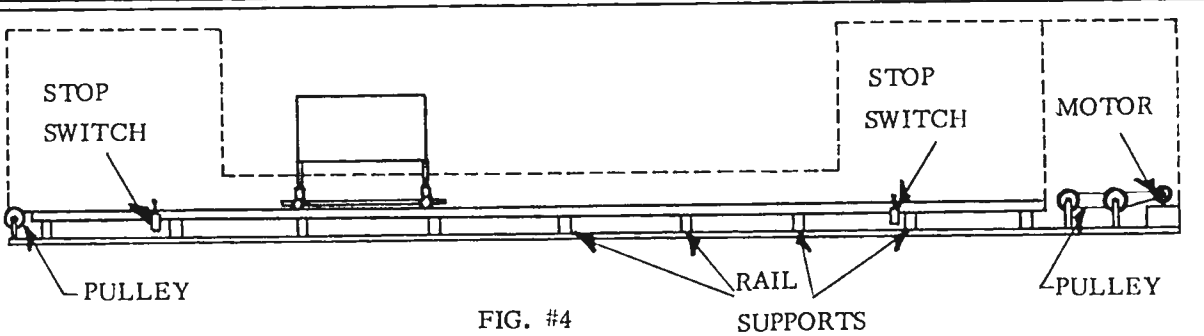
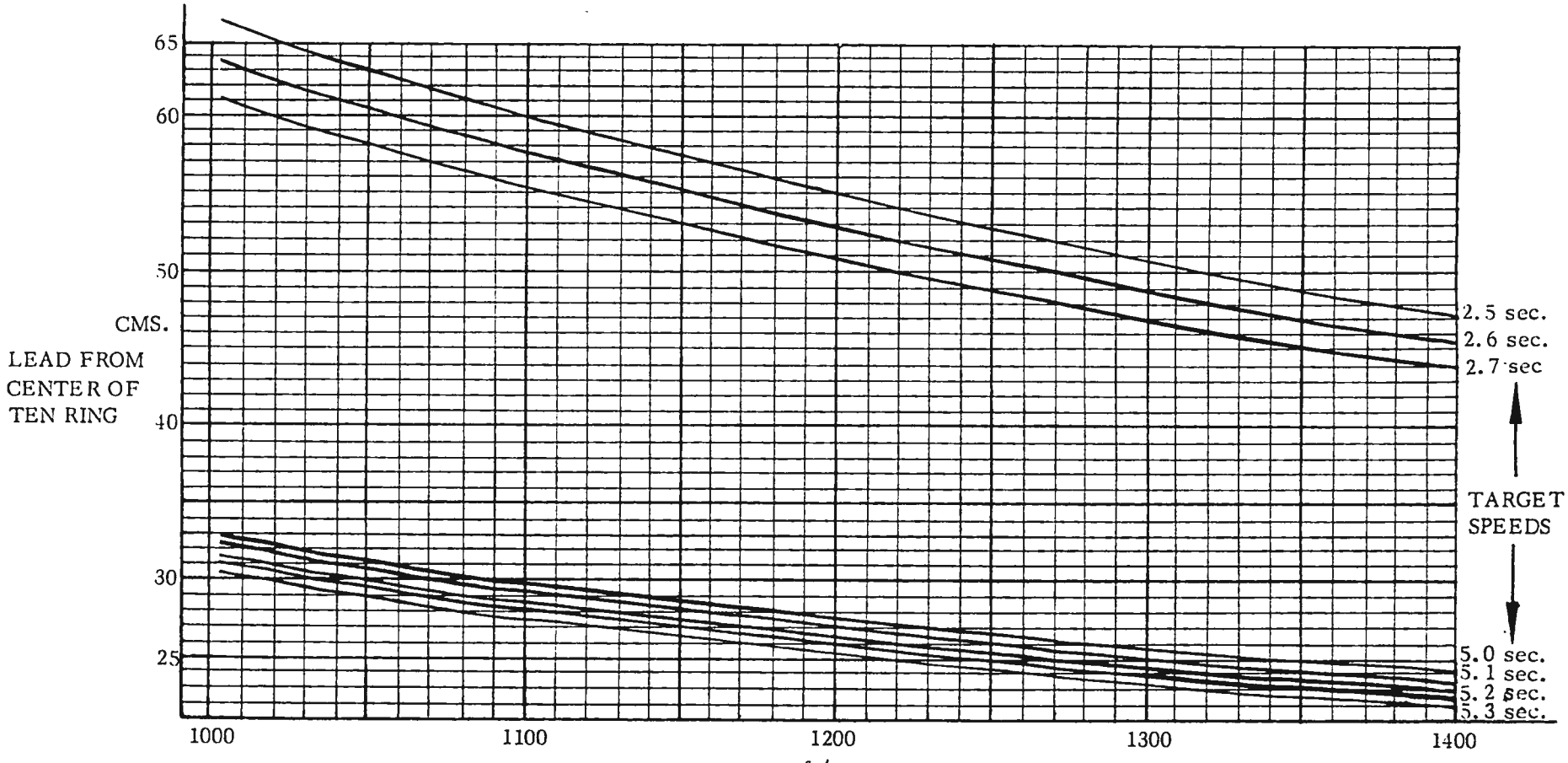


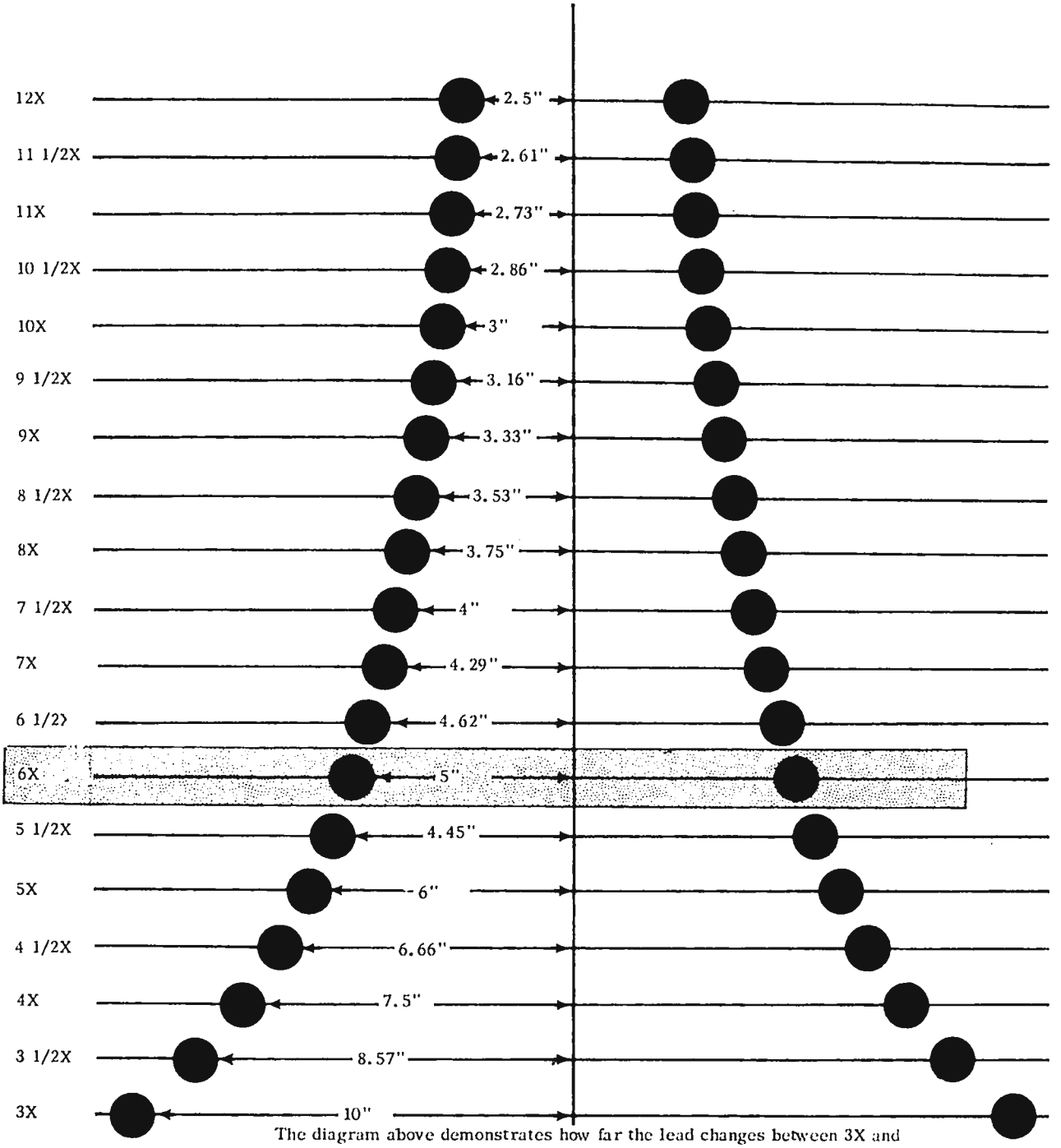
FIG. #4



AMMO VELOCITIES

MATHEMATICALLY CALCULATED

ANNEX E



The diagram above demonstrates how far the lead changes between 3X and 12X. Note that the half power changes from 6X toward 12X barely average a quarter of an inch. Whereas changes of a half power from 6X to 3X average over a full inch. This diagram is based on a scope reticle made for a 5" lead at 6X at 50 meters with a 3/4 inch dot at 6X at 50 meters.

Annex F - Lead Distance Changes by Varying Scope Power

Annex G

MASTERING THE SELF - THE PSYCHOLOGY OF COMPETITIVE SHOOTING

The shooting sports involve the rapid propulsion of a projectile through space in an attempt to hit a target. The projectile may vary from a large calibre bullet, an air-gun pellet or a change of shot; the target may be as large as a barn door, a pig on rails or a whistling clay disc. Certain principles remian constant in these brother sports.

Although shooting proficiency was originally related to warfare, law enforcement and hunting, there is no compulsion for the competitive shooters to be active in any of these fields. Shooting may indeed involve a symbolic regression to a time when the mastery of weapons was a vital factor of daily living, but atavistic regression can be healthy recreation, as anyone who walks barefoot on a beach will know.

Our detractors say that we are violent people, insecure and compensating for feelings of inadequacy. From what I've seen, my fellow shooters are about as violent as the average Sunday School Superintendent, and if we compensate, isn't that better than remaining inadequate? Competitive shooters seem conspicuously absent from the court pages of our local newspapers, and the level of gun safety at most shooting clubs is above reproach.

The obsession to master the use of a firearm may involve more than the skill and proficiency demanded by sports such as darts or bowling. The firearm is a potentially lethal weapon, its inherent design is to kill at a distance, and the person who learns to use it safely, skillfully and wisely on targets rather than on other living creatures is demonstrating his maturity and responsibility.

In Canada, firearms and patriotism have never been closely linked. Historically, we've been lucky enough to have law enforcement officers to bear the brunt of our needs for self-protection. This may not always be so. One old-timer in the U.S. forces asked if that was my son he saw shooting skeet. I acknowledged it was. "That's good," he growled, "teach him about rifle and pistol shooting too. He might need it some day to defend his life or his country." No government in history has been successful in imposing tyranny upon a people who have the right to own and use firearms.

However, for most of us the firearm is, and hopefully will remain, a vehicle for recreational use only.

To move on, the remainder of this article will duscuss more of how we shoot rather than why. How does one shooter consistently go home with all the trophies? Shooting success may be about ten percent ballistics, ten percent physical control and eighty percent mental. How does the expert conceptualize his shots?

The youth has keener eyesight, better coordination and quicker reflexes than his elders. Yet young people are rarely outstanding in shooting. Only after they have been seasoned by match experience do they learn to hold steady under pressure, and the maturation process may take years of anguish, frustration and disappointment.

What is that elusive mental control which comes to some with maturity and match experience, and which others never find in a lifetime of shooting? Of course, experience teaches the technicalities about the weapons, equipment and the rules of the game. It should also teach much more.

The successful shooter develops a keen analytical ability with each shot. At the precise instant the shot breaks and for a moment thereafter, he concentrates on what he saw, felt and sensed, and he learns to tell the difference between the feel of a successful shot and a failure. He uses positive self-criticism. Probably the commenest non-technical expression overheard at a shooting facility is "Aw, shit!" Shooters are impatient and frustrated by their failures to execute perfect shots. Your anger and annoyance will not improve scores. The shooter who wants to improve utilizes this self-criticism; to stress the positive in his own mind. He avoids anger which only causes more bad shots. He eschews the "what if" game (e.g., "What if I flinch again?") and merely shoots the next one to the best of his abilities. A miss can tell you what you did wrongly. You must translate that information to tell yourself what to do rightly.

One can develop a faith in attaining all the possibles. "Psychocybernetics," an outstandingly successful book by Maxwell Maltz, advocates a positive conceptualization of each move, whether in sports, business or daily living. "What if I do this like last time and miss," can be converted to "I know now how to make this shot correctly, and I probably will." Then the successful moves one learned in training occur almost automatically, guided by the imprinted reflexes. The "control" is merely to gain enough concentration to exclude distractions and negative thoughts. Then you don't force performance, you allow your body and firearm to react together to give the performance for which they're patterned.

An ancient Chinese proverb tells of a herbalist healer who sold a nostrum to an ailing patient with the admonitin, "This medicine will cure your illness unless you think of a tiger when you take

it, in which case it will be ineffective." Of course, the poor patient could think of nothing but tigers as he took the medicine, and went on ailing. Many shooters, too, clutter their minds with all the things which can go wrong, thus blocking successful performance. After a miss at skeet some years ago, I turned to a veteran shooter and asked, "Was I behind that bird?" He answered with "Shoot a little more ahead of the next one." All good coaches accentuate the positive.

"Be confident." "What the shooter needs is a mind full of positive do's and will's." "Exclude extraneous thoughts." "Practice Tranquiliy." 'THINK this gun and this ammunition will shoot possibles." There are definite advantages to match pressure. Many of your senses are more acute." "Argue with your subcoscious...and win." These admonitions are taken from U.S. Army Marksmanship training manuals. They stress the importance of a positive attitude.

Some shooters concentrate on winning. They resolve that they are capable of winning, and "pysche themselves up" to do it. While there's no arguing with success, I wouldn't advocate this for the majority of shooters. The upcoming shooter will not win at first. Then every match becomes a failure; he hasn't accomplished his goal of winning. It's very difficult to keep a positive mental attitude in the face of such failures. An alternative is to see each shot as a separate entity. The majority will be successful shots thus reinforcing one's abilities to succeed. The new failures can be easily forgotten, or better, used as corrective feedback as to what to change to make a good shot.

If you shoot your own targets and ignore the scoreboard, you'll be more able to duplicate the good shots you made in practice once again in a match.

It's of supreme importance to keep your shooting in perspective. It is, after all, a form of recreation. You're supposed to be enjoying yourself! Suppose you have a bad day, miss repeatedly, flub the easy shots. Does your life depend on it? Your sense of honor? Your income? The birds still sing and the world still turns. And if you emerge champion, you still have to pay for your coffee at the corner restaurant, and contend with taxes, traffic and your in-laws. I call this mental process "getting your ego out of the way." It's paradoxical, but the less you care about winning, the more likely you are to win. Naturally you must want to shoot well. But if you enjoy making each shot to the best of your ability with a relaxed and confident attitude, I'll assure you now that the winning will take care of itself.

As Eugen Herrigel observed in "Zen and the Art of Archery," a sport ideally reflects the general harmony of a person's life in the Universe. Shooting well is a manifestation of composure, tranquility, and true self-esteem mixed with proper humility. You don't need to achieve Nirvana to shoot successfully, but you won't be a champion unless you learn to eliminate disruptive egotism.

The shooter must become somewhat of an expert in technicalities and ballistics. But too great a reliance on technical gadgets represents a superstitious, neurotic belief in magic. Of course certain firearms shoot more accurately than others, certain types suit your anatomy better, and certain ammunitions will out-perform others. But one highly successful lady rifle shooter won a national match believing that a rear sight adjustment somehow moved the flight of the bullet in the direction she clicked it. And one European skeet champion, when asked what cartridge he used, replied, "I don't know mate, they're all just shells in a box to me."

Remember, it takes excessive stupidity to complicate a simple matter, and it takes less mental energy to make a good shot than a poor one. Enlightenment will eventually come with the right mental approach. Eugen Herrigel, after more than a year of constant practice at Japanese archery writes;

"Bow, arrow, goal and ego, all melt into one another, so that I can no longer separate them. And even the need to separate has gone. For as soon as I take the bow and shoot, everything becomes so clear and straightforward and so ridiculously simple."

"Now at last," the Master broke in, "the bowstring has cut right through you."

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