

CHAPTER 4

MARKSMANSHIP TRAINING

Section I. GENERAL

63. Introduction

Field firing develops individual proficiency and teamwork for all phases of combat. The unit is conducted through a series of exercises simulating battlefield conditions as nearly as possible. The situation for each exercise is given by the instructor who acts as umpire. Unit commanders direct and control their units in the actions required. At the completion of each exercise, a critique is held by the umpire.

64. Exercises

Where possible, the terrain is varied for each exercise so the unit is presented with a new situation. The following paragraphs are given as a guide for the preparation of such exercises.

65. Direct Fire

a. Purpose. To give the squad leaders practice in control of their units as they engage various types of targets. Direct fire teaches members of the crew selection of positions, use of individual cover and concealment, ammunition supply, and technique of fire.

b. Unit. One 90mm rifle crew.

c. Situation. Crew is located in an assembly area and is issued ammunition. The squad leader is given pertinent portions of an operation order

to include position areas, sectors of fire, and location of friendly troops.

66. Method

The squad leader selects his route of approach and his crew's position. He issues necessary orders to place the crew in action. When a target is indicated, the squad leader issues fire commands, opens fire, and adjusts the fire. Neutralization fire is not a part of these exercises. As soon as the fire of the crew has been adjusted, duties of individuals in the crews are rotated and a new target is designated. The squad leader is prepared at any time to displace forward to an alternate or supplementary position or to withdraw to a covered area.

67. Critique

At the completion of each exercise, the instructor conducts a critique covering the following points (care is taken by the officer conducting the critique to avoid confusing effectiveness of fire with overall unit performance):

- a.* Reconnaissance.
- b.* Actions and orders of unit leaders.
- c.* Suitability of observation posts.
- d.* Suitability of firing positions.
- e.* Suitability of alternate positions.
- f.* Use of cover and concealment.
- g.* Technique of fire.
- h.* Ammunition resupply plans.

Section II. QUALIFICATION AND FAMILIARIZATION FIRING

68. Qualification Courses

Three qualification courses are prescribed for the 90mm rifle. These courses consist of various combinations of the tables outlined in paragraph

69. The course used will normally be determined by the facilities available.

a. Fundamentals. Fundamentals emphasized in the qualification courses are:

- (1) Rapid estimation of range, apparent speed, and leads.
- (2) Rapid and accurate firing of the initial round.
- (3) Rapid and accurate adjustment of fire.
- (4) Rapid engagement of successive targets.

b. Conduct of Fire. For safety precautions, range procedures, and operational instructions, see chapter 3.

c. Courses of Fire. The courses of fire are organized as shown below.

Table	Course A ¹ Instruction record		Course B ² Instruction record		Course C ³ Instruction record		Instruction course (modified)
I.....	Fired once...	Not fired...	Fired once...	Not fired...	Fired twice...	Fired twice...	Fired once.
II.....	Fired once...	Not fired...	Fired once...	Not fired...	Fired twice...	Fired twice...	Not fired.
III.....	Fired once...	Fired once...	Fired once...	Fired twice...	Not fired...	Not fired...	Fired once.
IV.....	Fired once...	Fired once...	Fired once...	Fired twice...	Not fired...	Not fired...	Not fired.
V.....	Not fired...	Fired once...	Not fired...	Not fired...	Not fired...	Not fired...	Not fired.
VI.....	Not fired...	Not fired...	Not fired...	Not fired...	Not fired...	Not fired...	Fired once.

¹ Used if facilities are available for service firing.

² Used if midrange subcaliber range is available, but service range facilities are not.

³ Used if neither midrange subcaliber nor service range facilities are available.

d. Qualification Scores.

	Course A	Course B	Course C
Expert	210-260	320-400	315-380
First class gunner	185-209	280-319	270-314
Second class gunner	160-184	240-279	230-269
Unqualified----	Below 160	Below 240	Below 230

e. Scorecard. DA Form 2974-R, Individual Scorecard 90mm Recoilless Rifle (fig. 33) will be reproduced locally on 8" x 10½" paper.

69. Tables

Table I. 25-meter subcaliber firing—stationary target

Trial	Number of rounds	Time (seconds)	Maximum score
1.....	5	75	25
2.....	5	75	25
3.....	5	75	25
4.....	5	75	25
	20	-----	100

Note. The number of rounds fired in this table may be reduced at the discretion of the officer in charge of firing.

a. Table I.

- (1) Instructions for firing table I.
 - (a) Target layout consists of five 1,000-inch "A" rifle targets for each firing point. Targets are emplaced 1 meter apart and 50 centimeters off the ground (fig. 34).

(b) Zero the rifle at 25 meters using any desired range line, but insure that all rifles on the firing line are zeroed with the same range line.

(c) This table is fired from the prone position.

(d) Use 7.62mm ball ammunition only.

(2) Procedure for officer in charge of firing,

(a) During instructional firing, the officer in charge of firing announces TIME at the end of the prescribed time. He does not command CEASE FIRE until all gunners have completed firing.

(b) During record firing, the officer in charge of firing commands CEASE FIRE at the end of the prescribed time.

(c) Hits on the 1,000-inch "A" rifle target are given the numerical value as shown on the target.

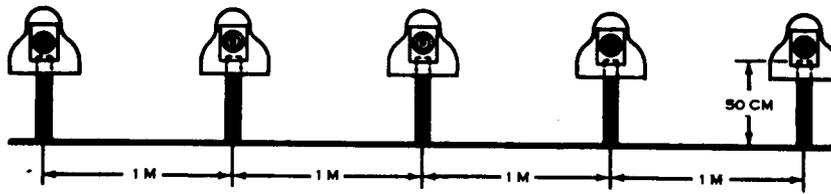
Table II. 25-meter subcaliber firing, moving target (level track)

Trial	Number of rounds	Time exposed (sec)	Target speed (cm/sec)	Maximum	
				Leads	Score
1.....	3	60	20	0-1-2	15
2.....	3	60	20	0-1-2	15
3.....	3	50	25	0-1-2	15
4.....	3	50	25	0-1-2	15
5.....	3	40	30	0-1-2	15
6.....	3	40	30	0-1-2	15
	18	-----	-----	-----	90

INDIVIDUAL SCORECARD 90MM RECOILLESS RIFLE (FM 23-11)						DATE 12 Sept.				
NAME John R. Smith			GRADE E-5		ORGANIZATION TSB DET 2, 2nd STU BN					
TABLE I (Course A)				TABLE IV (Course A)						
Trial	Possible	Instruction Score	Record Score	Trial	Possible	Instruction Score	Record Score			
1	25	25		1	10	10	10			
2	25	25		2	10	5	10			
3	25	20		3	10	5	10			
4	25	25		4	10	5	10			
Total		95		5	10	10	10			
TABLE II (Course A)				TABLE V (Course A)						
1	15	15		6	10	10	5			
2	15	10		7	10	10	5			
3	15	15		8	10	5	10			
4	15	15		9	10	10	10			
5	15	10		10	10	5	10			
6	15	15		Total		75	90			
Total		80		1	20	20	20			
TABLE III (Course A)				2	20	10	20			
1	10	5	10	3	20	20	20			
2	10	10	10	Total		50	60			
3	10	10	10	Instruction Course			Record Course			
4	10	5	5	Table						
5	10	5	10		A	B	C	A	B	C
6	10	10	10	I	95			XXX		
7	10	10	10	II	80			XXX		
8	10	5	10	III	80			90		
9	10	10	5	IV	75			90		
10	10	10	10	V	50			60		
Total		80	90	Total	380			240		
Signature of Firer John R. Smith				Signature of Scorer John Jones						
Signature of Officer Harvey Green				Date 12 Sept 64						

DA FORM 2974-R

Figure 33. Scorecard.



TARGET STAKES ARE MADE OF ANY SUITABLE SIZE LUMBER. A PRONE "F" SILHOUETTE TARGET IS TACKED TO THE TOP OF EACH STAKE. 1,000-INCH "A" RIFLE TARGETS ARE PASTED ONTO THE SILHOUETTE TARGETS.

Figure 34. Target array for table I.

b. Table II.

(1) Instructions for firing table II.

- (a) The standard A-22 subcaliber target is used in firing this table (fig. 35). It may be modified by painting over the scoring spaces. A scoring template is then required.
- (b) Scoring templates may be locally fabricated.
- (c) Zero the rifle in the same manner as in table I.

(d) This table is fired from the kneeling position.

- (e) Use 7.62mm ball ammunition only.
- (f) Gunner fires one round at each tank in the following order: Top, center, and bottom as target moves in either direction. He uses zero leads when firing at the top tank; one lead when firing at the center tank; and two leads where firing at the bottom tank. Gunner fires on the left vertical column of tanks

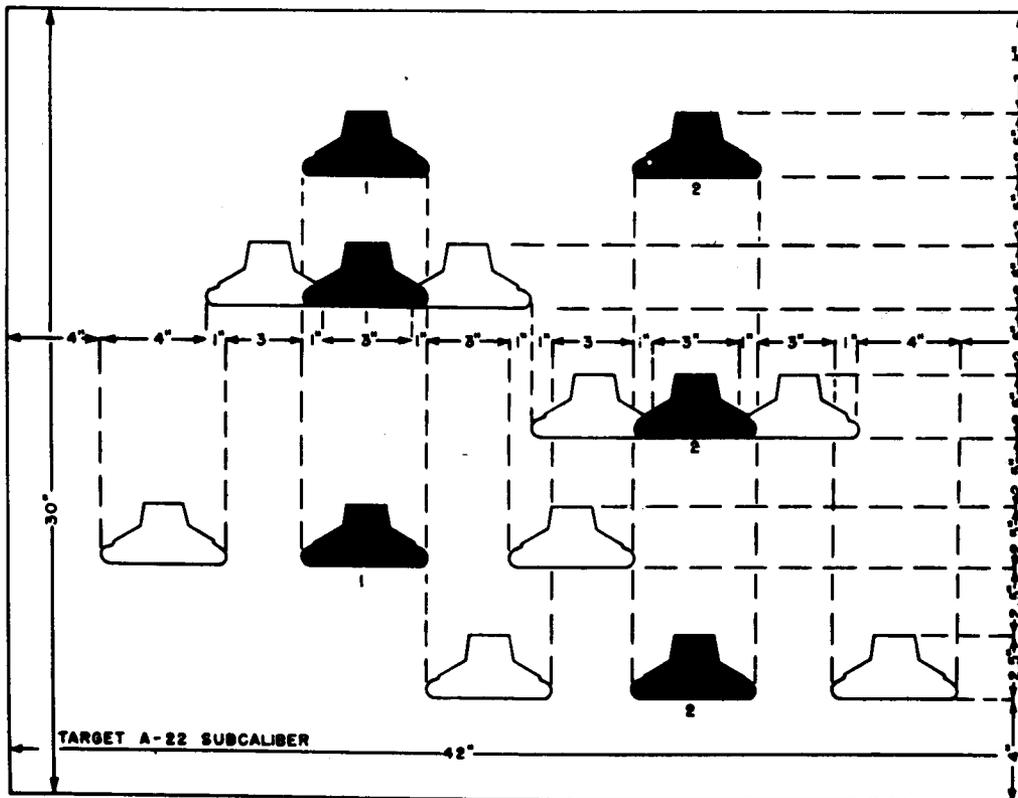


Figure 35. Moving target 25-meter subcaliber firing.

when the target is moving right to left, and on the right column when target is moving left to right.

- (2) Procedure for officer in charge of firing.
 - (a) The command CEASE FIRE is given at the end of the prescribed time during both instructional and record firing.
 - (b) Score five points for each hit in a scoring space; but do not score more than three hits in each top silhouette and three hits in each scoring space.

c. **Table III.**

- (1) Instructions for firing table III.
 - (a) Targets should be spread laterally in at least a 30-degree fan. Targets should be arranged at random in depth at ranges varying from 200 to 450 meters.
 - (b) Target panels must have a 10-foot (3-meter) or 20-foot (6-meter) horizontal dimension. Bunker targets may be any size.

 **Table III.** *Midrange subcaliber firing, stationary target, unknown range*

Trial	Maximum number of rounds	Range (meters)	Target	Maximum score
1.....	2	200-450	Panel.....	10
2.....	2	200-450	Panel.....	10
3.....	2	200-450	Panel.....	10
4.....	2	200-450	Panel.....	10
5.....	2	200-450	Bunker.....	10
6.....	2	200-450	Panel.....	10
7.....	2	200-450	Panel.....	10
8.....	2	200-450	Panel.....	10
9.....	2	200-450	Bunker.....	10
10.....	2	200-450	Panel.....	10
	20	-----	-----	100

- (c) Zero the rifle at a known range between 400 and 450 meters.
- (d) This table is fired from the prone position.
- (e) Use 7.62mm tracer ammunition only.
- (f) Gunner estimates range to each panel target by use of stadia lines. Gunner estimates range to bunker targets by eye and by noting location in relation to panel targets already engaged.
- (g) Gunner attempts to achieve a first round hit on each target. In the event

of a miss, he fires a second round using the burst-on-target method of adjustment.

- (2) Procedure for officer in charge of firing.
 - (a) Scorers should have binoculars.
 - (b) Number of rifles firing at any given time should be controlled so that a scorer need watch only one weapon at a time.
 - (c) Score 10 points for a first round hit; six points for a second round hit; and zero points if both rounds miss.
 - (d) In the event of a first round hit, a second round will not be fired.

Table IV. *Midrange subcaliber firing, moving target, known range*

Trial	Maximum number of rounds	Target km/hr	Speed mph	Leads (perpendicular track)	Maximum score
1.....	2	16	10	4	10
2.....	2	16	10	4	10
3.....	2	24	15	6	10
4.....	2	24	15	6	10
5.....	2	16	10	4	10
6.....	2	16	10	4	10
7.....	2	24	15	6	10
8.....	2	24	15	6	10
9.....	2	16	10	4	10
10.....	2	16	10	4	10
	20	-----	-----	-----	100

d. **Table IV.**

- (1) Instructions for firing table IV.
 - (a) If possible, use a tank as the target.
 - (b) A diagonal track is preferable to a perpendicular track. When a diagonal track is used, the number of leads will be reduced.
 - (c) Zero the rifle at a known range between 400 and 450 meters.
 - (d) This table is fired from the foxhole supported position.
 - (e) Use 7.62mm tracer ammunition only.
 - (f) Gunner attempts to achieve a first round hit on each target run. In the event of a miss, he fires a second round using the burst-on-target method of adjustment.
- (2) Procedure for officer in charge of firing.
 - (a) Scorers should have binoculars.

- (b) Each scorer should be required to score a maximum of two firing points at any given time.
- (c) Officer in charge of firing should announce the range to each end of the moving target track.
- (d) Score 10 points for a first round hit; 6 points for a second round hit.

Table V. Service firing, stationary target, unknown range

Trial	Maximum number of rounds	Range	Maximum score
1-----	2	150-300	20
2-----	2	250-400	20
3-----	2	350-450	20
	6	-----	60

e. Table V.

- (1) Instructions for firing table V.
 - (a) Targets may be log and sandbag bunkers, panels, or tank hulls. It is important that each target has a 10-foot (3-meter) or 20-foot (6-meter) horizontal dimension.
 - (b) Boresight the rifle in the normal fashion.
 - (c) This table is fired from the prone position.

- (d) Either HEAT or TP ammunition may be used.
- (e) Gunner attempts to achieve a first round hit. In the event of a miss, he applies burst-on-target and fires a second round.
- (2) Procedure for officer in charge of firing.
 - (a) Scorers should have binoculars.
 - (b) Each scorer should be required to score a maximum of two firing points at any given time.
 - (c) Score 20 points for a first round hit; 12 points for a second round hit; zero points if both rounds miss.

Table VI. Service familiarization

Trial	Number of rounds	Range (meters)
1-----	1	200-300
2-----	1	250-350
3-----	1	300-400

f. Table VI.

- (1) Instruction for firing table VI. This table is fired in the same manner as table V except that only one round is fired at each target, regardless of results.
- (2) Procedure for officer in charge of firing. This table is not scored.