

UNITED STATES MARINE CORPS
School of Infantry
Training Command
Camp Lejeune, NC 28542-0161

MG1003
10 Feb 04

STUDENT OULTLINE

PREPARE A MACHINEGUN RANGE CARD

1. TERMINAL LEARNING OBJECTIVES.

a. Given a tripod mounted SL-3 complete machinegun, a designated sector of fire, a final protective line or principal direction of fire, a mission, a lensatic compass, and DA Form 5517-R, while wearing a fighting load, prepare a machinegun range card which contains each of the required items. (31TR.01.16)

b. Given a tripod mounted SL-3 complete M240G medium machinegun, 192 rounds of ammunition, DA Form 5517-R range card, selected firing position, sector limits, and targets between 400 and 1000 meters, as a machinegun team, while wearing fighting loads, establish predetermined data for an M240G medium machinegun by achieving a minimum score of 6 of 8 points. (31TR.04.08)

c. Given a tripod mounted SL-3 complete M2 heavy machinegun, 312 rounds of ammunition, DA Form 5517-R range card, selected firing position, targets from 400 to 1000 meters, fire commands, and corrections, while wearing a fighting load, establish predetermined data for an M2 heavy machinegun by achieving a minimum score of 7 of 15 points. (31TR.04.14)

d. Given a tripod mounted SL-3 complete MK 19 heavy machinegun, 109 rounds of ammunition, DA Form 5517-R range card, selected firing position, targets from 400 to 1500 meters, fire commands, and corrections, as a machinegun team, while wearing fighting loads, establish predetermined data for an MK 19 heavy machinegun by achieving a minimum score of 4 of 7 points. (31TR.04.21)

2. ENABLING LEARNING OBJECTIVES.

a. Given a designated position, lensatic compass, writing materials, and DA Form 5517-R, illustrate the machinegun position in accordance with FM 23-27. (31TR.01.16a)

b. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and a final protective line, illustrate the final protective line in accordance with FM 23-27. (31TR.01.16b)

c. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and a principal direction of fire, illustrate the principal direction of fire in accordance with FM 23-27. (31TR.01.16c)

d. Given a designated position, lensatic compass, writing materials, and DA Form 5517-R, illustrate the north seeking arrow in accordance with FM 23-27. (31TR.01.16d)

e. Given a SL-3 complete M240G medium machinegun, a designated position, writing materials, DA Form 5517-R, and target reference points, complete the DATA section of the range card in accordance with FM 23-27. (31TR.01.16e)

f. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and designated sector of fire, illustrate the sector limits in accordance with FM 23-27. (31TR.01.16f)

g. Given a designated position, lensatic compass, writing materials, and DA Form 5517-R, illustrate the back azimuth to a known point in accordance with FM 23-27. (31TR.01.16g)

h. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and targets, illustrate the range of the range card circles in accordance with FM 23-27. (31TR.01.16h)

i. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and a final protective line, illustrate the grazing fire along the final protective line in accordance with FM 23-27. (31TR.01.16i)

j. Given a designated position, lensatic compass, writing materials, and DA Form 5517-R, illustrate the dead space in accordance with FM 23-27. (31TR.01.16j)

k. Given a designated position, lensatic compass, writing materials, DA Form 5517-R, and targets, illustrate the targets in accordance with FM 23-27. (31TR.01.16k)

l. Given a designated position, lensatic compass, writing materials, and DA Form 5517-R, annotate the marginal information in accordance with FM 23-27. (31TR.01.16l)

m. Given a designated position, lensatic compass, writing materials, DA Form 5515-R, and a mission, annotate the pertinent information in the remarks section in accordance with FM 23-27. (31TR.01.16m)

1. DEFINITION/PURPOSE OF A RANGE CARD.

a. Definition. A range card is a sketch or drawing of an assigned sector of fire.

b. Purpose. The purpose of a range card is to serve as a record of firing data and as a document for defensive planning.

(1) Accurate range cards permit fire to be delivered on targets rapidly during periods of reduced visibility.

(2) Machineguns are the "backbone of the defense" and should be laid first to ensure even fire distribution across the entire defensive sector. Range Cards are the most basic fire coordination measure and must be submitted as quickly as possible to be incorporated in the unit's fire plan sketch.

2. **COMPONENTS OF A RANGE CARD.** There are two components to a range card; the sketch section and the data section.

a. The sketch section is an overhead view drawing of the teams assigned sector of fire. It must contain sufficient detail that a team member can identify all targets and significant features within the sector of fire, but not so detailed that it is difficult to read. Features that are difficult to draw should be labeled (i.e.: a road drawn as two parallel lines could be interpreted as a stream so write "ROAD" between the lines).

b. The data section contains identifying information, target data, and instructions to the gun team. For the team to successfully engage predetermined targets it is essential that the firing data be as accurate as possible. If the tactical situation permits, targets should actually be registered by firing short bursts on target to achieve accurate firing data. If not, the gunner will lay on each target using the most accurate range estimation available and carefully note the firing data.

3. **TYPES OF RANGE CARDS** There are two types of range cards.

(a) **Final Protective Line** (FPL) is a predetermined line along which grazing fire is placed to stop an enemy assault. When in the defense a FPL is usually preferable.

(b) **Principle Direction of Fire** (PDF) is generally in the center of the sector. Final Protective Lines and Principle Directions of Fire are two distinctly different missions. PDF may be specified if a FPL is unattainable.

4. **PREPARING A RANGE CARD.** A range card is prepared immediately upon occupying a position and being assigned a sector of fire. The team leader will prepare the range card within 15 minutes with one copy for the gun position and one copy submitted to higher. The Standard Range Card is DA Form 5517-R. This form has concentric circles in the sketch section to aid in drawing the sketch to scale. If this form is unavailable the range card will be prepared on whatever writing material is available. Cardboard from an MRE box is a good material as it is durable and large enough to permit sufficient detail. A pencil is recommended to fill out the range card so mistakes can be neatly erased and corrected.

a. Data Section: The data section will contain the following information. And will be done first.

1. The unit information up to company level will be filled out in the space provided. If the gun team is in general or direct support the platoon will be Weapons Platoon (Rifle Company) or Heavy Machine Gun Platoon (Weapons Company). If the gun team is attached the platoon and company will be the unit to which attached.

2. The gun number (gun 1 or 2 not the armory number) will be recorded next to the unit information in the top left hand corner of the block labeled "MAY BE USED FOR ALL DIRECT FIRE WEAPONS".

3. The guns position identification will be recorded as an 8-digit grid in the space provided.

4. The date time group will be recorded in the space provided.
5. The weapon type will be recorded in the space provided.
6. The scale of the concentric circles will be recorded in the space provided.
7. The target number will be recorded in the block provided.
8. The direction to target from the T&E will be recorded in the block provided. When laying the gun for direction the traversing slide will be utilized first. If it is necessary to use the traversing handwheel it must be zeroed before laying in on a subsequent target.
9. The elevation data from the T&E will be recorded in the block provided.
10. The range to the target will be recorded in the block provided.
11. The type of ammunition will be recorded in the block provided. The caliber of ammunition does not need to be recorded in this block.
12. The target description will be recorded in the block provided. If the target is the PDF or FPL that information is recorded here.
13. Any instructions to the gun team necessary to accomplish the mission will be recorded in the remarks block. FPL rangecards will contain the following remarks at a minimum: primary and alternate signal to commence and cease the FPL, and the rates of fire to engage the FPL. PDF range cards will contain the following remarks at a minimum: target precedence (not target number), and rates of fire. An example of target precedence would be " Trucks, then platoon sized elements of dismounted infantry, then smaller elements of dismounted infantry".

b. Sketch Section: The following items will be included in the sketch section.

1. The team leader will select a scale that each concentric circle will represent.
2. The gun position will be recorded as a dot in the center of the smallest concentric range circle.
3. The left and right lateral limits will be recorded as a dashed line extending outward from the gun position and terminating in an arrowhead. The magnetic azimuth is recorded along the outboard, top portion of each lateral limit line in mils.
4. A magnetic back azimuth is recorded in degrees to a prominent terrain feature behind the weapon. This is drawn as a line with multiple arrowheads, pointing towards the position, along its length with the azimuth and meters to position written above or below the line. This is so higher unit personnel reading the range card can find the position. The terrain feature selected will not be in the CP itself but nearby.
5. An arrow with one half of the arrowhead will be drawn in the space provided, depicting magnetic north to aid in orienting the range card.

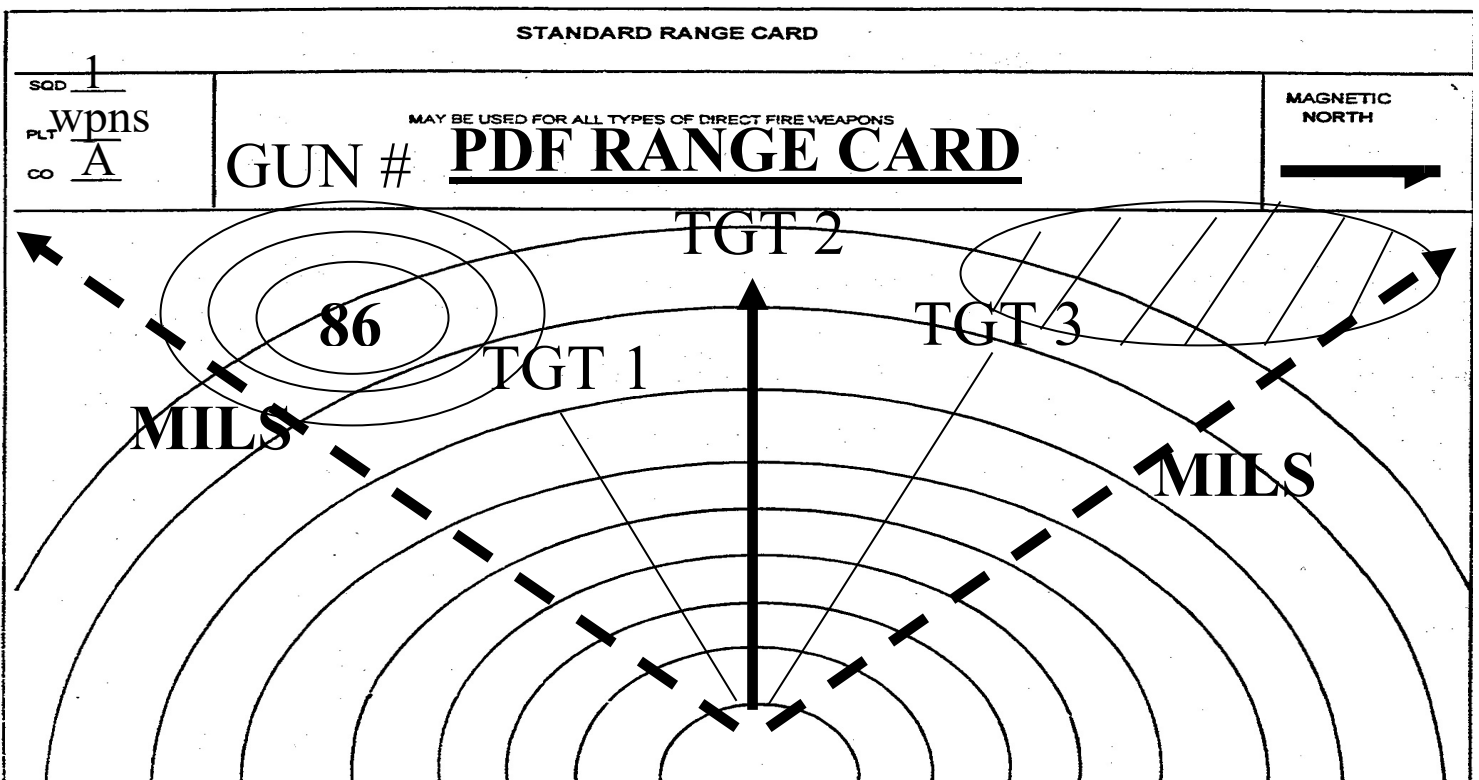
6. On a PDF range card the principle direction of fire will be drawn as an arrow to the target with the target labeled PDF and the magnetic azimuth in mils recorded along the line. The PDF is not necessarily the first target on the PDF range card. Targets will be numbered from right to left or left to right.

7. On a FPL range card the final protective line will be drawn as a solid line along the left or right lateral limit. Grazing fire will be determined by having a Marine walk the FPL noting where the dead space is by keeping a pace count and noting where along the FPL he can not see the gun position. Grazing fire will be recorded as a heavily shaded line along the FPL and dead space will be recorded as a gap in the heavily shaded line. The magnetic azimuth in mils and the distances where dead space begins and ends will be recorded along the outboard edge of the FPL. The FPL is always the first target on an FPL range card. Other targets will be numbered from the FPL starting with 2.

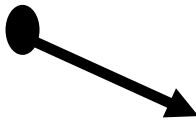
8. Targets other than the PDF or FPL will be recorded with a solid line (no arrow head) from the gun position to the target. They will be numbered from either left to right or right to left starting with target number 2 on a FPL range card and number 1 on a PDF range card. Target will be abbreviated TGT followed by its corresponding target number.

9. Dead space that is not recorded on an FPL is recorded by outlining the dead space with a solid line and filling in the outlined shape with solid diagonal lines.

10. Significant terrain features and man made objects are sketched in. If the team leader has difficulty rendering a feature or object it should be labeled. Simple drawings are best. The team leader needs to ensure that the range card is not cluttered with excessive drawing to the point that it is difficult to read.


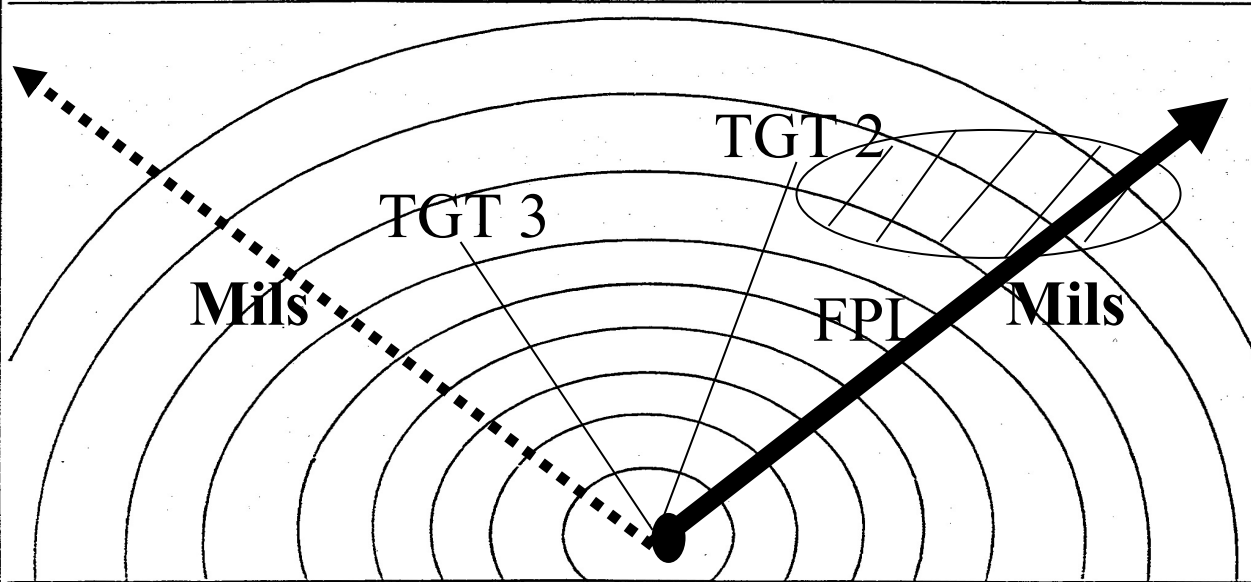


12345678 / PRIMARY
M240G

 **BACK AZMUTH**
20020618 / 1330
100

1 L 250 +50/12 500 4:1 BALL BAD GUY

ALL REMARKS MADE BY SQUAD LEADER

STANDARD RANGE CARD		
SQD <u>1</u> WPNS PLT <u> </u> CO <u>A</u>	MAY BE USED FOR ALL TYPES OF DIRECT FIRE WEAPONS GUN # <u>FPL RANGE CARD</u>	MAGNETIC NORTH 
		
DATA SECTION		
POSITION IDENTIFICATION 12345678 / PRIMARY	DATE 20020618 / 1330	
WEAPON M240G	EACH CIRCLE EQUALS 100 METERS	

References and Pages: MK19 40MM Grenade Machinegun Mod 3, FM 23-27: pages 5-15 through 5-21; Machinegun 7.62mm M60, FM 23-67: pages 8-12 through 8-15.

Notes: