WEAPON TRAINING MEMORANDUM

WAR

No. 1

This Memorandum reviews weapon training and indicates amendments to Small Arms Training Vol. I, necessitated by changes in organization, equipment and training.

By Command of the Army Council,

THE WAR OFFICE
March, 1940.
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WEAPON TRAINING MEMORANDUM
No. 1

I.—INTRODUCTORY

The object of Weapon Training Memoranda which will be published from time to time is to provide, in compact form, information on such changes and additions to the Small Arms Training Pamphlets as may be rendered necessary by changes in organization, equipment or tactics.

Certain of the more important amendments are printed in the form of appendices to this Memorandum and may be removed and pasted in to the pamphlet concerned. The distribution of this Training Memorandum will be on a scale sufficient to allow this to be done.

II.—DETAIL OF CHANGES

1. Snipers

As snipers no longer form part of the organization of the infantry section, the references to their use in paragraphs 1 and 2 on page 4 of Pamphlet No. 2 should be deleted.

2. Area of fire

The following definition should be included among the definitions given in Lesson 11, paragraph 1 of Pamphlet No. 2:

"Area of fire.—The area of ground for which a section is responsible and within which it will engage targets."

3. Care and cleaning of guns, machine, Bren, .303-in. Mk. I

Experience has shown certain modifications to be necessary to the instructions for cleaning given in Lessons 8 and 9 of Pamphlet No. 4. These changes are printed as Appendix A.

4. Use of traversing stops

Consequent upon the introduction of traversing stops for Bren tripods, certain amendments to the appropriate lessons in Pamphlet No. 4 should be made, these are reproduced as Appendix B.
5. The fixed line sight for the Bren gun

The introduction of the fixed line sight involves the cancellation of Lesson 19 in Pamphlet No. 4, and the substitution of two new Lessons, 19 and 19A, which are reproduced at Appendix C.

6. The use of the tripod for anti-aircraft fire

Breakages sometimes occur to the anti-aircraft mounting socket as a result of careless handling. The instructions given on page 45, Lesson 20, paragraph 3, sub-paragraph ii, of Pamphlet No. 4 should be amended to read (new first sentence):

"Holding the gun horizontally, or slightly raised at the butt, hook the front mounting pin into the anti-aircraft mounting socket, ensuring it is fully engaged."

"When lowering the gun do not allow it to swing down under its own weight."

7. Firing from the hip

Shooting from the hip during an advance at ranges up to 10 yards will be taught as an adjunct to bayonet training. It is employed purely as a means of dealing with an individual at close range who is threatening the firer. At ranges over 10 yards the accuracy does not warrant the expenditure of ammunition. Detailed instructions for teaching this lesson are attached as Appendix D for insertion at the end of Lesson 6 of Pamphlet No. 12. It should be noticed also that the introduction of this method of advance involves the safety catch remaining in the "forward" position and the necessary correction should be made to Lesson 1, line 3 of the Instructor's Notes.

8. New machine gun equipment

Consequent on the introduction of the director, No. 9, and a new slide rule for use with streamline ammunition, three new lessons, Nos. 39A, 43A and 40A, are attached as Appendices E and F for insertion in Pamphlet No. 7, Part I.

9. Miscellaneous

i. Pamphlet No. 4 (1939), page 59, paragraph 1, line 2. The reference to "General Notes" is incorrect and should be deleted, and a reference made to Sec. 5, paragraphs 1 to 5.

ii. Pamphlet No. 4 (1939), page 63, paragraph 4. Instructions given for the action to be taken on a call for defensive fire should be read as a guide only. On service the rates of fire and the amount of ammunition to be used will be laid down in the orders for the defence.
iii. Pamphlet No. 4 (1939), page 69, for test No. 1 in column 3 (b), the time should be increased from 30 to 40 seconds.

iv. Pamphlet No. 6, 1937, page 21, paragraph 4, sub-paragraph ii. The reference to "respirators" should be deleted and "eye-shields and gas capes" substituted.

Edward / Ironside

Chief of the Imperial General Staff

The War Office,
8th March, 1940.
APPENDIX A


ADDITIONAL NOTES ON CLEANING OF THE BREN L.M.G.

(to be inserted as page 22A.)

1. On no account must an abrasive of any description be used for cleaning purposes.

2. The return spring also must be oiled before firing. This can be done by holding the butt slide vertically, pushing the return spring rod back and allowing a little oil to run through the rod hole. Over-oiling must be avoided.

3. Graphite grease R.D.1179 should be used to lubricate the locking shoulder and inside working surfaces of the breech block, and the corresponding surfaces of the piston extension and piston post.

4. Rotation of the gun in the bipod sleeve to break down fouling should be carried out only when the firer feels that the gun is tight in the bipod sleeve, as it is essential that the inside and outside diameters of the gas cylinder, the inside diameter of the bipod sleeve and the outside diameter of the nose of the gas block should be maintained. Otherwise loss of power will result. For the same reason scraping with any steel implement or abrasive substance is strictly prohibited. The bore of the sleeve can be cleaned with an oily rag in a manner similar to that laid down for the gas cylinder. It should then be dried clean and lightly covered with oil.
USE OF TRAVERSING STOPS
ON BREN TRIPODS

1. Add to the description of the tripod on page 39:

"On the traversing arc are two traversing stops. These can be clamped in any fixed position by the use of the clamping handles."

2. The inspection of the traversing stops should be added to the items given in paragraph 3 on page 40.

3. Page 40, lesson 17, paragraph 4, sub-paragraph i, line 6. After the first word "clamp" insert:

"Loosen the necessary traversing stop, move to the end of the traversing arc and reclamp."

Page 40, lesson 17, paragraph 5, line 9. After "reclamp" insert:

"Move over the traversing stop close to the traversing slide and reclamp."

4. Lesson 18, page 41, explanatory detail in paragraph 3 should include "traversing between fixed limits and firing in bursts, irregularly distributed."

5. In lesson 18 and in lesson 25, paragraph 6, it should be explained that the introduction of the traversing stops enables the arcs of fire to be accurately limited when the gun is firing at night or in conditions of poor visibility. The bipod will still remain the normal method of mounting the gun.
LESSON 19. AIMING POST (M.G. MK. III), AIMING LAMP (M.G. MK. III) AND FIXED LINE SIGHT

(Description and use of)

Instructor's Notes

Stores:

Aiming post and lamp, fixed line sight, gun, tripod.

1. Object of Lesson.—To teach apparatus used in connection with firing on fixed lines.

2. Aiming post

Explain and demonstrate:

i. Folding arm.
   Lamp bracket.
   Securing extension.

ii. Describe how the aiming post consists of a triangular base with three spikes for securing the post into the ground. The stand has a folding arm with an aiming mark and lamp bracket, and an extension to act as a support.

iii. A gun will be mounted, fixed line sight fitted and No. 1 will be instructed to put out the post about 10 yards from the gun either in front or in rear, as is more convenient, care being taken that the light is not visible to the enemy. It is very important that the aiming post should be placed within 30 degrees of the line of sight of the gun. The aiming post should be vertical or lying on its side, with the flat side of the base and the securing extension on the ground.

iv. Practise squad.

3. Aiming lamp

Explain and demonstrate:

Aiming lamp.

The lamp is contained in a box divided into three partitions. One containing the lamp, another two batteries, and the third a two-way switch with wire lead to the external ring; line and reel, securing chain, spare bulb and fog disc.
On the base of the box is a securing hook.

i. Attaching the lamp to the aiming post.
   The box will be opened, the lamp removed and the cable passed through the slot in the side of the box. The lamp will be secured to the folding arm above the aiming mark with the bracket uppermost, by tightening the wing nut.
   Note.—The box must be closed, and placed close to the aiming post with the ring facing the gun.

ii. Attaching the line.
   The reel will be removed from the box and the swivel hook will be clipped through the switch ring. To turn the light on or off, the line must be given a steady pull.

iii. Securing the box.
   In soft ground the hook will be released from its securing strap and stamped into the ground. On hard ground the securing chain will be used to anchor the box to a post or other suitable object.

iv. Practise squad.

4. Fixed line sight

The fixed line sight consists of three main parts:—Lensatic sight, bottom plate and bracket.

i. Lensatic sight.—Consists of a tube inside of which is a lens. On looking through the lens will be seen a frosted triangle.

ii. Bottom plate.—The bottom plate rotates on the bracket controlled by both the quick release and fine adjustment screw for direction. For elevation adjustment is obtained by the slide working on the ramps actuated by a milled head screw. The elevation can be locked by the milled head locking screw.

iii. Bracket.—This is tapered to fit into the slot on the left of the L.M.G. body and is secured by a fixing screw.

5. Aiming with fixed line sight

Explain and demonstrate, using diagram:—

i. Sights must be upright.

ii. The eye should be about 3 inches from the lensatic sight.

iii. Keep both eyes open, align the apex of the triangle on the centre of the aiming mark of the lamp.
6. Squad view aim, laid by instructor.

7. Squad practise
   Constant practice in actual darkness is essential.

LESSON 19A.—LAYING A FIXED LINE

Instructor's Notes

Stores.—As for Lesson 19.

Method A.—Using fixed line sight, aiming lamp and post.

No. 2 erects the tripod with reference to the task. If available, filled sandbags or sods of earth should be placed on each leg of the tripod to ensure that it does not move. At the same time No. 1 fits the fixed line sight to the gun and places aiming lamp and post in position.

Explain and demonstrate:—

1. i. Using gun sights, align on edge of forward defended localities whose safety is involved.
   
   ii. Note reading on traversing arc and ensure that fixed line is not within 5 degrees.
   
   iii. With sights set at range required, lay on far end of the area to be covered. This is the fixed line for the gun.
   
   iv. How dangerous zone, as opposed to beaten zone, is used.
   
   v. Clamp tight elevating and traversing gear.
   
   vi. Aim fixed line sight at night aiming lamp, by the use of elevating and direction screws of fixed line sight.
   
   vii. If it is desired to fire the gun from the bipod, remove the fixed line sight and return it to its case, and remove gun from the tripod. The greatest care must be taken to ensure that the setting of the fixed line sight is not disturbed.
   
   viii. Gun can be re-aligned on its fixed line with use of fixed line sight and aiming lamp.

Method B.—Without the use of fixed line sight, aiming lamp and post, or other instruments.

Nos. 1 and 2 having mounted the gun and tripod with reference to the task as in Method A.
Explain and demonstrate:—

2. i. Using gun sights, align on edge of forward defended localities whose safety is involved.
   
   ii. Note reading on traversing arc and ensure that fixed line is not within 5 degrees.
   
   iii. With sights set at range required, lay on far end of the area to be covered. This is the fixed line for the gun.
   
   iv. How dangerous zone, as opposed to beaten zone, is used.
   
   v. Clamp tight elevating and traversing gear.
   
   vi. Move traversing stops close up against and in contact with traversing slide, clamp firmly.
   
   vii. If it is desired to fire the gun from the bipod, it can be moved from the tripod provided the elevating gear, traversing gear, and as an additional safety precaution, the traversing stops, are left firmly fixed in this position.

3. Explain that:—

   i. On service all men of the section must know the position of the aiming lamp, so that any one of them can fire in an emergency.
   
   ii. Direction and elevation can be corrected by the aiming lamp at any time. It is essential that the tripod is not moved.

4. Practise squad.
S.A.T. Vol. I, Pamphlet No. 12, 1937

Page 22, Lesson 6.—Add new paragraphs 3 and 4:

3. Firing from the hip.—In paragraph 1 of the General Notes at the beginning of this pamphlet it states that the use of the bullet must NOT be forgotten during hand-to-hand fighting. A trained soldier can achieve a considerable degree of accuracy in firing from the hip at a range not exceeding 10 yards. Training will be carried out in the following simple form:

Instructor’s Notes

Stores.—Rifles, bayonets, row of standing dummies.

Squad falls in in single rank on the right of the dummies—bayonets fixed, scabbards off, actions cocked and safety catches forward.

1st Stage

i. Explain that the object of the lesson is to kill an opponent by firing from the hip at ranges up to 10 yards—in other words, the range of the bayonet is lengthened.

ii. Demonstrate complete action of firing from the hip, instructor about 5 yards from dummy.

iii. Repeat demonstration with detail:

(a) Correct “On guard” position, except that finger will be on the trigger.

(b) The lowering of the point of the bayonet by vigorously straightening the left arm and at the same time ensuring that the butt of the rifle is not lowered or withdrawn. Emphasis must be laid on the natural tendency to shoot high. It is essential that the point must be lowered to the opponent’s feet.

(c) The firing of the round. This will be done simultaneously with the lowering of the point and entirely by sense of direction. Reload immediately.
iv. Practise squad individually and by word of command:

"On guard" (finger on the trigger).
"Fire."

Note.—Instructor checks from flank to ensure the correct lowering of the rifle.

2nd Stage

Instructor's Notes

Stores.—Rifles, bayonets, three rows of dummies, and training sticks.

This Stage will be subdivided as follows:

i. Attacking three rows of dummies. As for 1st Stage.
   1st row to be attacked with the bullet, 2nd and 3rd rows with the bayonet.
   At the walk and the double.

ii. With the training stick only. As for Lesson 4.
   The instructor will introduce the use of the bullet at a range of between 5 and 10 yards by the command "Bullet," interspersed with the use of the bayonet in the normal way. The command "Miss" will be occasionally given, whereupon the attacker will use the bayonet.

3rd Stage.—Open range—Tracer S.A.A. Fig. 2 targets

i. Explain that the object of the instruction is twofold:
   Firstly, to illustrate the accuracy that can be obtained by the instinctive pointing sense and, secondly, the extreme importance of lowering the point of the bayonet to the foot of the target.

ii. Instructor demonstrates from 10 yards.

iii. Class practises.

Note.—The Fig. targets will be placed at the foot of the ricochet pit. Not more than three firers will be exercised at a time.

4. Further training can be carried out with live ammunition where facilities exist, on battle-shooting ranges.

Page 63. Insert new Lessons 39A and 43A.

LESSON 39A.—DIRECTOR NO. 9 (PROVISIONAL)

Instructor's Notes

Stores.—Directors.

1. Explain and demonstrate:—
   Body.
   Telescope.
   Angle of sight graticules and hair line.
   Clinometer level and levelling screw.
   Director level.
   Dial and degree scale.
   Deflection drums and quick release.
   Clamping nut.
   Fine adjustment screw and centralizing pointers.

2. Describe how instrument consists of a body and a telescope. The telescope has graticules marked in 10 minutes, measuring up to 5 degrees above and below the centre, and a central vertical hair line. There is no focusing.

   (In a later pattern the angle of sight graticules measure up to 4 degrees only.)

   On top of the telescope is the clinometer level, which is a fixture with the telescope, and the clinometer levelling screw. The action of the latter is to bring the bubble central by bringing the telescope level.

   Below the clinometer levelling screw and on top of the body is the director level, by which it can be ensured that the director is upright. At the bottom of the body is the dial which measures 0-180 degrees right and left, and which is normally set at 180 degrees.

   In front of the body are the deflection drums, which enable the director to be turned about the dial. The angle of deflection is measured to 5 degrees on the dial, and in degrees and minutes by the appropriate deflection drum.

   Each deflection drum and dial has its own pointer. Between the deflection drums is a quick release, which, by being depressed, enables the director to be turned about the dial without the use of the deflection drums.
Below the body is a socket, by which the director is attached to a pivot on the stand. When attached, the director complete can be turned about the pivot, or clamped in the required direction by means of the clamping nut. Fine adjustments in direction can be made with the fine adjustment screw, below the left deflection drum. The two pointers alongside indicate when this is central.

3. Describe how stand consists of three legs of adjustable length. Adjustment is controlled by milled headed screws.
The legs are connected to a base plate by butterfly nuts.
In the centre of the base plate is a pivot connected to the former by a universal joint, and controlled by a universal joint clamping screw.
The pivot is protected by a metal screw cover.

4. Show how to set up director.
Undo the strap holding the legs together. By loosening the milled-headed screws extend the legs as necessary and tighten up the screws. Splay out the legs and mount the stand, with pivot at convenient height and approximately upright. If necessary tighten butterfly nuts.
Press the legs firmly into the ground.
Remove pivot protector and attach director. Ensure that fine adjustment screw is central.
Loosen the universal joint clamping screw and centralise director level bubble. Tighten universal joint clamping screw.

5. To show how to take an angle of sight (normal).
Lay at target through telescope, if necessary by elevating or depressing telescope with clinometer level screw.
Tighten clamping nut.
Level clinometer bubble, look through telescope and read angle of sight from the graticules. For accuracy this may entail bringing the graticules on to the target by means of the fine adjustment screw.
Readings to be within 2 minutes.
Check that clinometer level bubble is still central.

6. To show how to take an angle of sight of more than 5 degrees.
If angle of sight is more than 5 degrees plus, lay director at a convenient point immediately below the target and note the angle of sight. By using the graticules measure the vertical angle between this point and the target, and add the two angles together.
In the case of an angle of sight below 5 degrees minus take a convenient point above the target and proceed as before.
7. Explain how to measure the lateral angle between two points.
   Set dial and deflection drums at zero.
   Loosen clamping nut and lay director approximately at the first point. Tighten clamping nut, and bring hair line on to first point by means of the fine adjustment screw.
   Using deflection drums, and if necessary the quick release, bring hair line on to second point.
   Read degrees off dial and degrees and minutes off the appropriate deflection drum. Readings to be to the nearest minute.
   Before putting director in its case centralise fine adjustment screw, and put dial pointer at 180 degrees and deflection drums at zero.

8. Practise squad.

LESSON 43A.—TESTING THE NO. 9 MK. 1 DIRECTOR FOR ANGLE OF SIGHT

Instructor's Notes

Stores.—Gun, tripod, dial sight, director.

1. Mount a gun, attach a dial sight known to be in adjustment, and lay with the tangent sight at zero (0) on a distant object. With the range drum of the dial sight at zero, level the bubble by means of the angle of sight drum and note the reading.
   Mount the director at the same height as the gun (i.e., object glass on the same level as the tangent sight) and take angle of sight to distant object.
   If this is the same as the reading on the angle of sight drum the director is in adjustment. If not, note the amount of error.

2. If a horizontal line is available (see para. 3 below), place the object glass at one end of the horizontal line and take the angle of sight to the other end. If this is zero the director is in adjustment, if not, note the error.

3. To lay out a horizontal plane, and test director for angle of sight
   i. Select a position where there are two walls or upright posts, about 200 yards apart, and as far as possible in the same horizontal plane.
ii. Take director to one wall (A), if possible a corner of a house. Lay director at the other wall (B), and direct an assistant to make a mark on (B), which appears to have no angle of sight (i.e., an angle of sight of zero).

Make a mark on (A) level with the object glass.

iii. Take director to (B), mount it with object glass level with the mark, and lay it at mark on (A).

(a) If mark on (A) has no angle of sight, the two marks are on the same horizontal plane and the director is in adjustment.

(b) If the mark on (A) appears to show an angle of sight, make a second mark which has not.

(c) By measurement, make a third mark (X) on (A), midway between the two existing marks. (X) is on the same horizontal plane as the mark on (B).

iv. (a) Any director may now be tested for angle of sight and the errors, if any, noted.

(b) Adjustments will only be made by an armourer.

4. Practise squad.

Note.—Where an adjustment is necessary, it will be carried out by an armourer.
LESSON 40A.—THE SLIDE RULE

A new slide rule, designed for use with streamline ammunition, is in the course of production. The differences between this and the Mark III slide rule described in Lesson 40 are as follows:

1. It is longer, to cater for the increased range.

2. The wind allowances are based on a 10 m.p.h. wind, and on the clock ray method of describing the wind which is to be found in the streamline range tables.

3. On the left column of the rule, near the bottom, is an arrow marked "Metres to Yards."

   To convert metres to yards:

   Slide the left hand slide up until the figure 100 on the H.E. scale is opposite this arrow. Follow the H.E. scale up to the required number of metres. Read the figure opposite this on the V.I. scale. Multiply the figure on the V.I. scale by 10 to find the number of yards.

   Example. How many yards is 2,500 metres?
   Set the left slide as above.
   Opposite 2,500 on the H.E. scale, you find 273 on the V.I. scale.
   Multiply by 10.
   Answer—2,730 yards.

4. Some of the columns on the front side of the slide rule have been omitted so that the blank space may be used as a writing tablet.