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# WEAPON TRAINING MEMORANDUM

No. 7

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*Prepared under the direction of*

*The Chief of the Imperial General Staff*

THE WAR OFFICE,  
October, 1944

# WEAPON TRAINING MEMORANDUM

## No. 7

The following changes and additions to teaching are issued in the form of notes with references to the particular lessons concerned. Amendments will NOT at present be issued and all concerned should make marginal notes to Small Arms Training Pamphlets as necessary. Formal amendments will be published later, where applicable.

The amendments and additions to lessons given in Weapon Training Memoranda must not be taught before the Memoranda are published, although units may have prior knowledge of such amendments.

1. **Cleaning of weapons.**—Weapons will be cleaned immediately after firing wherever they are used. All troops will be taught to clean their weapons as if they were on active service.

They should be got into the habit of cleaning arms wherever they are and not putting it off till they get back to camp or barracks. Only so will care of arms become instinctive in battle.

2. **SAT, Vol I, Pamphlet No. 2, Lesson 7.**—Delete existing Lesson 7 and substitute :—

### LESSON 7.—RECOGNITION OF TARGETS AND NORMAL FIRE CONTROL ORDERS

*Instructor's notes*

*Stores.*—Aiming rests, landscape targets if necessary, pointer staff, for NCOs only.

Accuracy in aiming must be insisted upon at all times.

Place rifles in rests and point out the general line of direction and arc of fire.

1. Explain :—

(a) *Fire control orders.*—These are orders given by the fire unit commander to some or all of the men under his command in order that they may recognize the target and engage it accurately with the rate of fire he thinks suitable. It is the duty of the individual firer to consider the effect of wind and allow for it (*see Pamphlet No. 3, Lesson 4*).

The fire unit commander will commence a fire order with "No. . . . section", if the LMG and riflemen are required to fire; "Bren group" if the gun only, and "Rifle group" if the riflemen only.

When the LMG is required to fire automatic, "Bursts" or "Rapid" will be included in the fire order.

If the LMG is required to fire single rounds, in addition to the fire of the riflemen, the fire order will end with the command " Fire " and will not include any reference to " Bursts ".

When the Bren and rifle groups are working separately the designation " Bren group " and " Rifle group " will be omitted from the fire order.

- (b) *Easy targets*.—These are indicated in the most direct manner, e.g., " Bren group—400—large ruined house—left bottom corner—bursts—fire ". Sometimes it will be helpful to add the direction of the target in relation to the general line of direction, e.g., " No. 2 section—300—slightly/quarter/half/three-quarters left/right—small bank—fire ".
- (c) *Concentrated fire*.—This means that the fire of all the weapons used is directed at the same point. When a large target is engaged, a definite point of aim will be given, e.g., " Right end ", " Top right corner ". With small targets, where no point of aim is given, aim will be directed at the centre.

2. Practise squad in easy concentrated fire orders. Check aims and discuss fire effect.

3. *Distributed fire*.—Explain :—

- (a) It may be necessary to engage a wide target, such as enemy lining a hedgerow, from one end to the other. Such a target requires fire to be distributed. The method of indication is exactly the same as for concentrated fire orders, except that the extent of the target must be indicated after one end of it has been named.
- (b) A target for distributed fire is engaged (see Fig 3) :—
- (i) By the light machine gunner distributing his fire in single rounds or bursts at irregular intervals between the limits of the target, avoiding systematic traversing.
  - (ii) By the riflemen firing at points between those limits approximately corresponding to their places in the section.

4. Practise squad in easy distributed fire orders, as in 3 above.

5. *Difficult targets and aids*.—Explain that in battle many targets will be difficult to indicate and recognize, e.g., well hidden machine guns. For these targets certain aids to recognition will

be necessary. There are three methods in common use—the reference point, vertical clock and degree methods.

- (a) *Reference points.*—A reference point is selected by the fire unit commander. It should be a prominent object, and the range should be given to it. It must be clearly named. If more than one is used, they must be well apart and of different kinds.

Practise squad in fire orders using reference points.

- (b) *The vertical clock.*—The vertical clock is used in conjunction with the reference point, which forms the centre of the clock face. These form the basis of the indication; therefore the reference point is named first, followed by the clock ray. Except in the case of 12 and 6 o'clock, the direction is given before the actual clock ray.

(Example, see Fig 4.)

Practise squad in fire orders using the vertical clock.

- (c) *The degree method.*—The degree method is a useful way of indicating distance from a reference point when there would otherwise be a possibility of confusion between two close and similar objects. For measuring degrees it is quite sufficient for a man to know the number of degrees subtended by various parts of the hand (see Fig 5). Extreme accuracy in measurement is quite unnecessary for recognizing targets in battle.

Practise squad in fire orders using the degree method.

6. *Indication by fire.*—Explain that when a fire order has to be given on a difficult target, the best method is often to fire at it either with a round of tracer or with a burst from the LMG, while the men required to fire watch the strike of the shots. A certain amount of indication may have to be added if the fire effect is slightly off the target. The firer may be either the fire unit commander or the soldier who has located the enemy.

**NOTE.**—When teaching NCOs explain the use of the pointer staff, and practise in para 5 difficult targets by pointing out targets which are to be indicated.

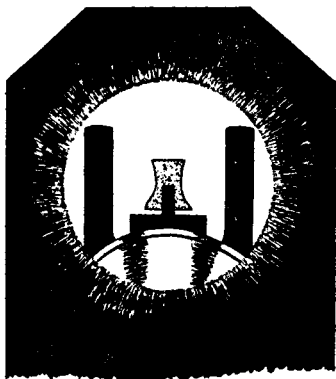
3. **SAT, Vol I, Pamphlet No. 3, Lesson 3, page 10.**—It has been reported that the Fig 3 shown in the above pamphlet is misleading and that some men are using the foresight protector instead of the foresight.

To overcome this error the following diagrams should be used in conjunction with this lesson.



(a) Open sight.

Fig 3—Correct aim.



(b) Aperture sight.

Fig 3—Correct aim.

**4. SAT, Vol. I, Pamphlet No. 3, Lesson 8.**—This lesson takes the place of several lessons in earlier editions of SAT. But the importance of training the soldier to fire in positions other than lying is as great as ever.

In elementary training the position should be varied continually to prepare the man for any conditions. At the Small Arms School, firing standing and kneeling in the open is practised with ball ammunition. An example of a practice is attached at Appendix A.

**5. No. 4 Rifle fitted with tangent aperture backsight—zeroing**

- (a) Although the rules for zeroing the No. 1 rifle must be followed, for zeroing No. 4 with tangent aperture backsight, the difference made to the position of the MPI by each change of foresight with the No. 4 rifle is as laid down in Appendix I, para 3 (iii) of SAT, Vol I, Pamphlet No. 1.
- (b) It is, however, sufficiently accurate for service purposes if the vertical variation from the correct position of the MPI does not exceed 2 ins at 100 yds or  $\frac{1}{2}$  in at 25 yds.
- (c) With the No. 4 (T) sniper rifle, when zeroing without the telescope, only the least possible variation from the correct MPI is permissible.

**6. SAT, Vol I, Pamphlet No. 4, Bren LMGs.—Protection of.**—Bren guns are liable to fail if carried through heavy surf on a sandy beach without protection :—

(a) It is appreciated that a proportion of LMGs of early flights must remain in action up to the moment of disembarking. For guns not required in this phase of operations, and for guns of subsequent flights, to which a 30 sec delay on landing to remove protection is acceptable, the following method should be adopted :—

(i) Prepare guns for firing in normal way (SAT, Vol I, Pamphlet 4, Lesson 6). Graphite grease in tropical climates, oil "A" in other climates. (No graphite grease on face and top of breech block.) Gas regulator at No. 4 port.

(ii) Seal all gas escape holes with adhesive tape.

(iii) Plug the muzzle with flannelette.

(iv) Close the ejection and magazine covers, and using 6 to 7 yds of flannelette, bind the gun from the body locking pin forward to the gas-block, inclusive, but leaving the carrying handle free and the bipod legs down. The object of this binding is to filter out the fine sand suspended in the water, not to attempt to keep the gun dry.

(b) *If delay not acceptable.*—All openings should be closed and sealed with Cooper's Grease No. 4, muzzle plugged with flannelette and secured to the foresight and guns dry internally. This method will give a high percentage of satisfactory gun functioning.

(c) On landing :—

(i) Remove the flannelette plug from the muzzle.

(ii) Unwind the flannelette bandage and discard.

(iii) Pressing the trigger, work the mechanism to and fro sharply by hand at least half-a-dozen times.

(iv) Place magazine on gun and carry on.

(d) Magazines carried in pouches may pick up some fine sand suspended in the water. To give these as much protection as possible, magazines should be wrapped in flannelette, special attention being paid to covering mouth of magazine. When opportunity offers, all magazines to be carried should be thoroughly cleaned.

**7. SAT, Vol I, Pamphlet No. 4, Harmonized LMG target.**—A very good harmonized LMG target is available for use on 30 yds ranges and can be obtained from garrison engineers.

It consists of a series of four representative landscapes in colour on one sheet of paper with silhouettes correctly positioned above them (which allow for the Bren shooting right) together with separate silhouettes on small strips of paper for patching purposes.

Units indenting on their garrison engineer should quote "Item 4091" (Vocabulary of RE Stores).

**8. SAT, Vol I, Pamphlet No. 8.**—A 2-in mortar HE blind has been thrown a considerable distance, complete, instead of being destroyed by the demolition charge.

This incident is a freak, but the risk of a 2-in bomb falling from a considerable height on to troops within the danger area laid down cannot be disregarded.

ACI 1/1944 must be strictly complied with, and troops must be 250 yds away.

**9. SAT, Vol I, Pamphlet No. 8, Lessons 2 and 3.**—*Delete* lesson 2 and *substitute* the following:—

### LESSON 2 (A).—LOADING, AIMING, AND FIRING (BASEPLATE)

#### *Instructor's notes*

*Stores.*—Mortar with sight fixed ; drill bombs ; utility pouches or container.

*Dress.*—Battle order.

This lesson should be carried out on sufficiently flat ground to enable the firer to lay the mortar on the target. Two men will be exercised at a time in the duties of Nos. 1 and 2, which will be interchangeable:—

(a) Explain and demonstrate in the lying position:—

(i) *Mounting.*—Place the mortar in the position selected with the barrel to the rear. Undo the barrel securing strap. Loosen both clamps. Raise the barrel slightly and swing it round so that it is pointing in the direction of the target. Tighten both clamps. No. 1 lies with his chest on the baseplate, left hand holding the barrel above the sight. No. 2 lies on the right side of the mortar.

(ii) *Loading.*—No. 1 removes the muzzle cover. No. 2 takes a bomb from the utility pouches or container, removes the safety cap if it is HE and places it in the barrel, tail first.



No. 1 ensures that the bomb has reached the bottom of the barrel, by shaking the barrel if necessary.

No. 2 takes another bomb from the utility pouches or container and, if it is HE, prepares it for loading.

- (iii) *Unloading without firing.*—No. 1 turns the mortar on its side and shakes out the bomb. If it is HE No. 2 replaces the safety cap, if time permits. (In action, No. 1 may have to perform the actions of No. 2 when loading and unloading.)
- (iv) *Dismounting.*—Dismount in the reverse order.
- (v) Practise squad.

(b) Explain and demonstrate :—

(i) HIGH angle is used if the cover is steep or if the bomb is required to fall steeply on the target.

LOW angle is used if the slope of the cover permits or when the bomb is not required to fall steeply on the target.

- (ii) *Aiming.*—Set the range. Loosen the elevating clamp handle, ensure that the elevating bubble is central and clamp up. Ensure that the transverse bubble is central. Loosen the traversing clamp, look along the sight and turn the barrel until the sight is on a vertical line through the centre of the target, or aiming point if allowance for wind is necessary. Clamp up. Ensure that both bubbles are central.
- (iii) Squad views aim, while mortar is held steady by the instructor.
- (iv) *Firing.*—Hold the mortar steady with the left hand above the sight. Ensure that the aim is correct and then turn the firing grip to the rear. (This will only be done when there is a bomb in the barrel.) No. 2 will re-load immediately. Check aim and bubbles before firing the next bomb.
- (v) Practise squad.

(c) *Action on misfire*

- (i) Unload without firing. No. 2 will examine the cartridge. If the cap has been struck, put the bomb on one side and load with another bomb. No. 1 will carry on firing.

If the cap has not been struck, No. 1 will take off the barrel and remove any fouling from the steel pad and threads. The firing pin and spring will be examined and changed if broken.

(ii) Practise squad.

(d) Practise squad in the complete lesson.

## LESSON 2(B).—LOADING, LAYING AND FIRING (SPADE BASE)

*Instructor's notes*

*Stores—Mortar ; drill bombs and utility pouches or container.*

*Dress—Battle order.*

This lesson should be carried out on sufficiently flat ground to enable the firer to lay the mortar on the target. Two men will be exercised at a time in the duties of Nos. 1 and 2, which will be interchangeable.

(a) Explain and demonstrate in the lying position :—

(i) *Mounting.*—Place the mortar in the position selected so that the muzzle is pointing in the direction of the target. No. 1 lies behind the mortar, holding the barrel steady with the left hand. No. 2 lies on the right side of the mortar.

(ii) *Loading.*—No. 1 removes the muzzle cover. No. 2 takes a bomb from the utility pouches or container, removes the safety cap if it is HE and places it in the barrel, tail first.

No. 1 ensures that the bomb has reached the bottom of the barrel by shaking the barrel if necessary. No. 2 takes another bomb from the utility pouches or container and, if it is HE, prepares it for loading.

(iii) *Unloading without firing.*—No. 1 turns the mortar on its side and shakes out the bomb. If it is HE, No. 2 replaces the safety cap if time permits. (In action, the No. 1 may have to carry out the actions of No. 2 when loading and unloading.)

(iv) *Dismounting.*—No. 1 will replace the muzzle cover and await further orders.

(v) Practice squad.

**(b) Explain and demonstrate :—**

- (i) *Laying*.—Align the barrel on the target or aiming point if allowance for wind is necessary. Raise or lower the muzzle to the necessary angle that will give the required range to the target.

HIGH angle is used if the cover is steep or if the bomb is required to fall steeply on the target.

LOW angle is used if the slope of the cover permits or when the bomb is not required to fall steeply on the target.

As a rough guide, the maximum range of 500 yds is obtained when the barrel is held at an angle of 45 degrees, *i.e.*, midway between the upright and flat positions. If the barrel is held half way between 45 degrees and the upright position, a range of 400 yds HIGH angle will be obtained.

Further, the barrel held half way between 45 degrees and the flat position will give a range of 400 yds LOW angle.

- (ii) *Firing*.—Hold the mortar firmly with the left hand. Ensure that the laying is correct and pull the firing lanyard. (This will only be done when there is a bomb in the barrel.) No. 2 will reload immediately. No. 1 will check laying before firing the next bomb.

(iii) Practise squad.

- (iv) *Action on misfire*.—Unload without firing. No. 2 will examine the cartridge. If the cap has been struck, put the bomb on one side and reload with another bomb. No. 1 will carry on firing. If the cap has not been struck, No. 1 will take off the barrel and remove any fouling from the steel pad and threads. The firing pin and spring will be examined and changed if broken.

(v) Practise squad.

(c) Practise squad in the complete lesson.

### LESSON 3.—HANDLING (BASEPLATE AND SPADE BASE)

#### *Instructor's notes*

*Stores*—Mortar (with sight fixed on baseplate models); drill bombs and utility pouches or container.

*Dress*—Battle order.

Positions should be chosen where the height of the cover will necessitate the firer using auxiliary aiming marks close to his position. Previous reconnaissance is necessary.

(a) *Explain.*—The mortar detachment consists of three men : Detachment Commander, No. 1 and No. 2.

Duties within the detachment are interchangeable. If the detachment has been reduced to two members the duties of Nos. 1 and 2 will be combined.

The requisite number of bombs for the task to be performed are carried between the members of the detachment. Among the duties of the det comd is the positioning of auxiliary aiming marks when required.

(b) *Auxiliary aiming marks*

(i) Explain and demonstrate.—If the target cannot be seen from the mortar position, some prominent object or mark in line with the target can be used to obtain direction.

If allowance for wind is necessary, an aiming point into the wind must be selected.

If no suitable aiming point is visible from the mortar position, auxiliary aiming marks are necessary.

The det comd will therefore place an auxiliary aiming mark just below the top of the cover and in line with the target, or in line with an aiming point if allowance for wind is necessary. He will then place a second auxiliary in line with the target, or aiming point, and the first auxiliary.

The farther apart the auxiliaries can be placed and the mortar from them the greater will be the accuracy in laying.

(ii) Squad view auxiliaries in position.

(iii) Practise squad. (More than one man may be exercised at a time.)

(c) *Duties of the detachment commander*

(i) Explain and demonstrate.—An alternative mortar position must be occupied when ordered. The detachment commander's duties will be carried out in the following sequence :—

He points out the mortar position, alternative position, and approach to it.

He indicates the target to No. 1 and orders "— hundred, high/low angle." He indicates an aiming point and orders Nos. 1 and 2 to prepare mortar and bombs. If an aiming point is not available, he will order such preparation while he positions the auxiliaries.

(ii) Practise squad.

(d) *Engaging the target*

- (i) Explain and demonstrate.—The det comd will move to a position of concealment from which to direct and control fire. The mortar will be mounted, loaded, and laid in line with the aiming point or auxiliaries to maintain direction.

The det comd orders "Fire". When two bombs have been fired he will order any necessary corrections thus: "Up 50", or "Down 100", "Go slightly right" or "Go slightly left". If the bombs are seen to straddle the target the det comd will order "Range".

- (ii) Practise squad as detachments.

- (e) Practise squad in complete lesson as detachments of both three and two members.

NOTE.—Mortar detachments should be exercised in the occupation of alternative positions during further periods of handling.

The instructor will explain.

An alternative position will be selected by the det comd before engaging a target.

Such a position should not be less than 75 yds from the original position and should possess a covered approach to it. On a move to the alternative position being ordered by the det comd Nos. 1 and 2 will first *ensure that there is no bomb in the barrel* by unloading without firing. On the completion of the move the det comd will direct and control fire as necessary.

### **Additional instruction for mortars fitted with baseplates**

#### *Emergency action*

- (i) Explain and demonstrate.—When speed in engaging a target is the main consideration, the mortar can be brought quickly into action with the barrel clamped at an angle of 90 degrees to the baseplate. (See Figs 5 and 6 in Pamphlet No. 8.)

An alternative method, with the barrel thus clamped, is to lay the left side of the baseplate on the ground. The firer's left foot should be placed on the baseplate to steady the mortar. The barrel is held firmly at the required angle with the left hand and the firing grip operated with the right.

In both methods, the necessary elevation is obtained by raising or lowering the barrel as required.

As a rough guide, the maximum range of 500 yds is obtained when the barrel is held at 45 degrees, *i.e.*, midway

between the upright and flat positions. If the barrel is held half way between 45 degrees and the upright position, a range of 400 yds HIGH angle will be obtained. Further, the barrel held half way between 45 degrees and the flat position will give a range of 400 yds LOW angle.

(ii) Practise squad.

NOTE.—It is an advantage if a degree scale is marked on the baseplate. Sub-divisions of 5 degrees only are necessary, to the minimum of 20 degrees right and left. They can be read in conjunction with the corners of the traversing bracket. Corrections in direction can then be readily made, the det comd giving the necessary correction by measurement with his hand. Moreover, a quick switch to a fresh target can be made very quickly without the necessity of positioning fresh auxiliary aiming marks.

It must be remembered, when corrections are given by the det comd, that the No. 1 must read the scale on the opposite side, thus bringing the barrel over in the required direction.

Re-number present Lesson 3 to read Lesson 4.

**10. SAT, Vol I, Pamphlet No. 13, Lesson 8, para 5.**—Add :  
“ Live primed grenades will never be thrown in training. In operations, unexploded grenades that have been thrown will be treated as blinds and where possible will be destroyed accordingly.

Instructors or personnel undergoing instruction, will never stand on the striker plate of the grenade, whether it is primed or not. This ruling applies to drill as well as to live grenades.”

**11. SAT, Vol I, Pamphlet 13, Lesson 10, para 3.**—Delete and substitute :—

**Detonators.**—Explain :—

There are several kinds of detonator in the service. The one used for the demolition set is the No. 27. This detonator consists of a small unpainted metal tube filled with a small quantity of very sensitive high explosive. These detonators are issued in metal cylinders having a screw on cap at each end. The cylinder contains 25 detonators and a rectifier. All detonators must be handled carefully. They must not be struck violently, crushed, placed near heat or tampered with in any way. Damp quickly affects the explosive and detonators must be kept in the cylinder with the cap screwed firmly on.

The drill detonator is also unpainted but is distinguished from the live by having holes drilled through it and by a wooden plug inserted to simulate the filling.

12. **The No. 75 Mk II Grenade.**—In this grenade the detonators are retained in position by a thin wire pin. After the detonators have been inserted the pin should be passed through the holes in the detonator holder and turned back on itself, away from the detonators to ensure the detonators do not move.

In early models of this grenade the holes for the pin have been elongated. In future production, the holes will be round.

In some instances the cord securing the pin has been attached to the detonator holder. Insertion of the detonator will be simplified if this is secured through the cannellure at the end of the striker plate support nearest to filling cap. In future production, the securing cord will be in this position.

13. **The No. 77 Grenade.**—If air is admitted to the filling, this grenade will burst into flame immediately, whether it is primed or not.

The risk of fire if one of these grenades is hit by a bullet must be understood by all ranks; and this risk must be considered and guarded against as far as possible when vehicles are being loaded.

#### 14. SAT, Vol I, Pamphlet No. 18.

(a) Appendix III.—Practices 7 and 12 as amended by Amendment No. 2 issued on 4th March, 1944.

Detail.—*Delete* “ (a) ” and *substitute* “ (e) ”.

*under* remarks *insert* “ (e) Round cover. Side of rifle rested.”

(b) Appendix IV as amended by Amendment No. 2 issued on 4th March, 1944.

Practice 3, detail.—*Delete* from “ in ” in line 3 to “ pouch ” in line 4, and *insert* “ on ground beside firer.”

Practice 6, detail.—*Delete* from “ in ” in line 3 to “ pouch ” in line 4.

*After* “ magazine ” in line 3 *add* “ in a utility pouch placed on the ground beside the LMG unbuttoned.”

LMG Course, Part I, Note 3.—*Delete* “ firing ” and *substitute* “ grouping ”.

LMG Course, Part II, Note 1.—*Delete* “ firing and field firing ” and *substitute* “ grouping and field firing.”

(c) Attached at Appendix “ B ” to this memo are two suggested LMG grouping practices. These have been taken from SAT, Vol. 1, Pamphlet No. 14, which is held in abeyance during war.

(b) Lesson 3, page 20, para 5 (a) "Cleaning."

*Delete* "Note.—Before firing, the weapon should be completely dry if possible."

(c) It has been decided that the Mk IV cocking handle will not be fitted to Sten carbines. Appendix "C" to SAT, Pamphlet No. 21, should therefore be deleted.

#### 16. SAT, Vol I, Pamphlet No. 24, PIAT Mk I—Care in handling

(a) Damage has occurred in a number of cases, due to careless handling, particularly when cocking and uncocking the weapon. It is, therefore, emphasized that great care must be exercised when carrying out these operations. The following instructions should be strictly observed:—

(b) *When cocking the projector.*—If the firer fails to cock the weapon, but maintains tension on the mainspring, he must lower the outer casing under control. Failure to do so results in the rear end cap stud striking the upper surface of the shoulder piece cup under the full, or partially full, influence of the mainspring. This blow bends the cocking rod guide tube and sets the shoulder piece at an angle. This damage renders it difficult, if not impossible, to engage the rear end cap stud in the groove of the shoulder piece cup. Such mishandling of the weapon will, in addition, cause the rear end cap stud to become damaged or fractured.

(c) *When uncocking the projector.*—Unless the outer casing is lowered under control, similar damage to that described in para (b) will occur.

17. SAT, Vol I, Pamphlet No. 24—PIAT Backsight.—A Mk III backsight has been introduced for the PIAT. This backsight has three holes for 50 yds, 80 yds, and 110 yds. The sight should be used as follows:—

For 50 yds and 60 yds—the 50-yd sight aiming direct.

For 70 yds—either the 50-yd sight aiming up or the 80-yd sight aiming down.

For 80 yds and 90 yds—the 80-yd sight aiming direct.

For 100 yds—either the 80-yd sight aiming up or the 110-yd sight aiming down.

For 110 yds—the 110-yd sight aiming direct.

18. SAT, Vol I, Pamphlet No. 24, PIAT "Blinds," 426 (Graze) fuze.—In the event of a "blind" occurring with a PIAT



bomb armed with the 426 fuze, very strict safety precautions are necessary.

In addition to the method of destroying "blinds" as laid down in ACI 1/44, the demolition charge must not touch the bomb, but must be placed as near as possible without actually touching it. (See Appendix "C.")

### 19. SAT, Vol. I, Pamphlet No. 24, PIAT (Fuzing Bombs)

*Lesson 1, para 5, ii.*—This sub-para to become new sub-para iii and entitled "To fuze". *Add* at end of the sub-para: "Bombs must be fuzed on being drawn from unit transport, preparatory to battle".

*Lesson 1, para 5.*—*Insert* new sub-para ii to read:—

"Fuzes.—The nose of the No. 425 fuze is cupped and the edge not milled. The No. 426 fuze has a rounded yellow nose. The nose of the transit plug is flat and the edge is milled."

*Lesson 2, para 1.*—*Add* at end of para:—

"It is the duty of No. 2 to check all bombs and ensure that they are fuzed, preparatory to battle. This must always be practised, therefore, during training with drill and live bombs."

*Lesson 3, para 3.*—*Add* following note at end of para:—

"Note.—The instructor will exercise the No. 2 of each pair in fuzing bombs before a position is occupied."

This should be stressed in training. Cases have been reported of unfuzed bombs being fired in battle.

### 20. SAT, Vol I, Pamphlet No. 25, Polsten 20-mm Mk I, barrels (bore finish).

—The barrels of some Polsten guns are "parkerized" internally. In such guns the bore will be found to be black in appearance.

The reason for this "parkerized" finish is merely to accelerate production and no adverse effect on barrel life, functioning, or accuracy of the weapon is caused by it.

This condition of bore must not be mistaken for fouling.

Normal cleaning drill will be carried out and no abrasive will be used to remove the parkerizing. This will, in any case, be removed by the driving bands of the shells after a few hundred rounds have been fired.

The above will form the substance of an ACI to be published shortly.

## 3-in MORTARS

### 21. Damage to equipments, due to baseplate positions.

—Numerous examples of damage to 3-in mortars. *i.e.*, bending of the breechpiece, have occurred when firing with Charge II.

Frequently these have been due to bad positioning of the baseplate. In order to obviate, as far as possible, future damage of this nature, the methods laid down in SAT, Vol 1, Pamphlet No. 9, 1944, Lesson 74, must be strongly stressed in training.

After bedding in, the maintenance of the baseplate position should be carefully watched, and the baseplate repositioned if necessary as opportunity offers, during subsequent firings.

22. **3-in mortar firing from the carrier.**—In view of manufacturing difficulties with the carrier mounting, further investigation has been necessary and trials are now in progress.

23. **3-in mortar smoke.**—A base ejection smoke bomb fitted with a time fuze is in production and will be issued in the near future.

24. A prototype canvas cover to protect the mortar stores on the rear of the carrier is undergoing trial.

25. **Carrying harness.**—Troop trials with the carrying harness, based on the Everest Carrier, have now been completed. The harness is not in all respects ideal but it enables the mortar equipment to be carried for much greater distances without fatigue and, by leaving the hands free, enables the man to use his personal weapon freely. It is an added advantage to have the hands free when climbing steep hills or cliffs.

For normal occasions in European warfare, it is probably correct to say that the existing type of harness is preferable to the more elaborate Everest Carrier pattern since, in view of the difficulties of transporting the ammunition, manhandling in action will be required only for short distances, for which the existing type of harness is preferable. For abnormal occasions in Europe, however, there will probably be a real requirement for the Everest and 1,000 sets are to be held in Ordnance depots to be issued as and when necessary to units of 21 Army Group. Thirty sets are also being produced for training establishments in the UK. A further 75 sets are being prepared for despatch to (each) Italy and Burma for operational trials in mountainous and jungle country.

26. **Auxiliary baseplate.**—In order to prevent the sinking of the baseplate in certain types of ground, the provision of a skirt or some other method of firing off soft ground is under investigation.

27. **Mortar sight.**—An improved sight on the lines of the MMG dial sight has been approved for manufacture. It is attached direct to the collar by means of a wedge fitting, thus obviating the inaccuracies due to the distortion of the existing sight arm bracket and pillar. Barrel obstruction is overcome by the incorporation of a free skin collimator.

28. **Recoil spring failures.**—To reduce the incidence of failure of the mounting recoil spring it will be disconnected from the cradle when firing the first round on charge II.

No. 1 will hold the yoke with both hands (as in Misfire Drill) to prevent the cradle sliding forward, and No. 3 will detach and hold the recoil spring to protect it from damage.

29. **Misfires.**—If the bomb cannot be cleared by the approved IA it should be dealt with as follows :—

*During training.*—No attempt will be made to move the barrel from the firing site ; arrangements will be made for the bomb to be cleared by an IOO.

*In action.*—In the case of the **Mk II barrel**, remove the breech piece and striker stud ; the bomb must then be removed by further shaking ; but on no account must anything be forced into the striker stud hole. Before clearing the bomb, ascertain by visual examination whether the striker clip is in contact with a broken portion of a tail fin. In the event of this being so, special care must be taken that the bomb is not jolted back against the obstruction.

In the case of the **Mk IV barrel**, remove the breech cap. Having carefully removed all debris, force the bomb out by means of a piece of wood, which must be at least 2½ ins in diameter to ensure that it engages with the bottom of the tail fins and not the striker clip.

In all cases the barrel must be given time to cool down before work commences, and it should be held firmly along the ground with the muzzle pointing clear of all obstructions, preferably where the personnel have a certain amount of cover, *e.g.*, from the edge of a ditch or top of a bank.

## MEDIUM MACHINE GUNS

30. **Carrying harness.**—Investigations are in hand to produce a form of harness for the carriage of gun, tripod, and ammunition.

31. Reports have recently been received from the UK and Italy of trouble experienced with Vickers MMGs and Mk VIIIz SAA when carrying out long firing programmes. Stoppages have occurred on the gun which have sometimes resulted in platoons failing to complete their firing programme. In order to avoid unnecessary stoppages the following precautions should be taken :—

### (a) *Ammunition liners*

- (i) At present these are manufactured in comparatively thin metal that easily gets damaged by rough usage. If the liner becomes damaged it is very difficult to withdraw the belt ; the rounds also

become loose and either shake out of the belt during firing or else cause stoppages in the feed block.

Liners, when not in use, will be carefully stacked near the gun in a place where they cannot be damaged. Only ammunition liners immediately required for firing will be opened.

- (ii) When opening the liner the tear-off nearest the feed block only will be opened. It will not be removed completely from the liner but will be allowed to remain attached, so that it can form some support for the belt between the liner and feed block.

The fact that the tear-off is not completely removed also assists in the identification of faulty ammunition.

- (iii) The cardboard packing strips will not be removed from the liner, they are put there for the purpose of keeping the belt firm in the liner and to prevent rounds shaking loose.

- (b) *Identification and reporting of faulty ammunition.*—It is of great help to the technical authorities and the manufacturers if users report details of faulty ammunition. The details should include :—

Nature of fault.

Mark number.

Batch number, date and year of manufacture.

Box number.

These will be found printed on the label stuck on the liner.

- (c) *Points during firing.*—Although SAT, Vol 1, Pamphlet No. 7, Part 1, 1941, Lesson 11, para 2, clearly lays down points to be observed in order to ensure proper feeding of the belt, units are obviously neglecting these. Feed block stoppages should seldom occur with a well-trained No. 2 who, in addition to the points mentioned in the above lesson, must ensure that loose rounds are pushed back into the belt before they reach the feed block.

32. The full causes of the trouble are under investigation and there are grounds to believe that they will be eliminated in future production. In the meantime, whenever MG units experience :—

(a) A number of bullets stopping in the bore ;

(b) A high incidence of pierced caps or caps out ;

(c) Excessive metallic fouling on the front cone of the muzzle attachment,

They should report through the usual channels :—

- (i) Details of identification markings of the ammunition concerned (e.g., maker's letter and date of manufacture as shown on all boxes and packer's labels).
- (ii) Details of the registered numbers, conditions and gauging (e.g., entry of .306-in plug gauge) of barrels concerned.
- (iii) Condition of locks (e.g., part worn) and muzzle attachments (e.g., alignment with bore) of the guns concerned.

In addition, all available information should be brought to the notice of IOOs and the AIAs in the formation concerned.

33. For the guidance of units, some of the problems that may arise are shown below.

Nature of problem	Probable cause	Suggested remedy
(i) Short accuracy life of barrel	Barrel wear	<p><i>Immediate</i> : Change barrels in accordance with ACI 773 of 1943, amended by ACI 373 of 1944.</p> <p><i>Later</i> : Calculate barrel replacement requirements on basis of 10,000 rounds.</p>
(ii) Pierced caps, or caps blown out of cartridge cases	Worn lock Weak caps (see ACI 336 of 1942). High chamber pressures.	<p><i>Immediate</i> : Change lock and belt of amn, remove caps from breech mechanism.</p> <p><i>Later</i> : Clean and examine lock; change worn parts; check striker protrusion and cartridge head space.</p>
(iii) Feed block stoppages. Broken firing pins. Broken tumblers. Explosions in feed block.	Coppering of lock. Jammed extractor. (See ACI 336 of 1942).	<p><i>Immediate</i> : Clear stoppage. Change lock and belt of amn, remove caps from breech mechanism. If necessary change feed block.</p> <p><i>Later</i> : Clean and examine lock, change worn parts. Check striker protrusion and cartridge head space.</p>
(iv) Bullets stopping in the bore.	Generally weak, or no charge in cartridge case.	<p><i>Immediate</i> : Change barrel.</p> <p><i>Later</i> : Remove obstruction from bore.</p>
(v) Bulged or burst barrels.	Firing a round when there is an obstruction in bore, e.g., bullet stopping up bore. (See (iv) above.)	<p><i>Immediate</i> : Change barrel.</p> <p><i>Later</i> : Exchange damaged barrel. (If bulged only slightly and at rear end may be used in emergency).</p>

Nature of problem	Probable cause	Suggested remedy
(vi) Explosion in feed block. Damaged extractors. Broken lock parts.	Bullets lodged in bore and second round fired on top of it. (See (v) above).	<i>Immediate</i> : Clear stoppage. Change lock and belt of amn. Examine barrel for bulge or bullet up bore and feed block components for damage; Change if necessary. <i>Later</i> : Remove obstruction from bore. Exchange barrel if damaged.
(vii) Excessive metallic fouling on disc of muzzle attachment.	Muzzle attachment out of alignment. Barrel bent or badly worn. Uneven packing. Combination of .301 barrel and .313 bullet.	<i>Immediate</i> : Examine muzzle attachment, change disc and all bent or damaged parts; check alignment, correct if necessary. Change belt of amn. <i>Later</i> : Examine barrel, change if bent, badly worn, or showing signs of cordwear at muzzle; check packing, ensure it is even all round. Check fitting of muzzle attachment, tighten if necessary. Check alignment, correct further as required.
(viii) Broken extractors (top of right hand groove broken off).	Worn feed block pawls, sluggish barrel run-outs. Overheated barrel.	<i>Immediate</i> : Check feed block, change worn parts. Adjust weight of fuzee spring. Replenish water. <i>Later</i> : Check barrel packing, recoil friction and weight of fuzee spring, etc. Examine barrel casing for water leakage.

34. The following technical considerations should be considered in relation to the above table.

- (a) Barrels at present issued to MG units for use with .303-in Mk VIII Z amn gauge between .301 and .303-in.
- (b) Current production .303-in Mk VIII Z bullets are made to diameter .312-in to .313-in. Earlier production bullets were made to diameter .311-in to .312-in. Production is now reverting to the .311-in. to .312-in bullet.
- (c) Inaccuracy is liable to occur after a .306-in gauge enters the breach of a barrel to a distance of  $3\frac{1}{2}$  ins. (See ACI 773 of 1943 amended by ACI 373 of 1944.) It is likely to occur earlier in the life of high gauge barrels, and particularly with low diameter bullets.

- (d) The combination of .313-in diameter bullets and .301-in gauge barrels gives the greatest length of barrel life, but in the first few thousand rounds slightly higher chamber pressures may be experienced. It is possible also that metallic fouling may be collected on the front cone.
- (e) When high chamber pressures occur, the percussion caps of the cartridge cases may be pierced and small particles of copper blown back through the firing pin hole in the extractor into the lock interior. More particularly is this result likely to ensue from worn locks. Alternatively the complete cap may be blown out of the cartridge case into the breech mechanism.
- (f) When particles of copper enter the lock in this way excessive friction is caused and stoppages occur. *Further trouble can be avoided* at this stage if the lock is changed and a new belt of ammunition is used. (The old lock must be stripped, cleaned, and oiled, and all loose caps removed from the breech mechanism. Check condition of firing pin, firing pin hole, extractor, and lock generally; change worn parts.)
- (g) If this remedial action is not taken, the inside of the lock casing may become so "coppered" that the excessive friction between the lock casing and the firing pin will result in:—

(i) Incomplete backward movement of the recoiling parts giving a feed block stoppage;

OR

(ii) Breakage of rear portion of firing pin or head of tumbler during the backward movement of the recoiling parts preventing the extractor from dropping.

Alternatively, particles of copper may work their way into the grooves of the extractor, or lodge behind it, preventing the extractor from dropping.

- (h) When the extractor is prevented from dropping in this way the partial backward and forward movements of the recoiling portions complete the feeding up of a new round in the feed block. Consequently, during the forward movement the nose of the round held by the undropped extractor may strike the base of the round in the feed block and fire it.
- (j) Feed block explosions can be caused in this way without the ammunition necessarily being faulty; but any lots of ammunition that have a weakness in the cap will be more prone to give trouble of this sort. (See ACI 336 of 1942.)

- (k) Feed block explosions can also be caused by a round being fired on top of a bullet lodged in the breech end of the barrel. Although the occurrence of a bullet stopping in the bore is normally extremely rare, with certain lots of ammunition it is possible it may be more common than has been supposed.
- (l) The cause of a bullet stopping in the bore is generally there being a weak charge, or no charge, in the cartridge case. When it occurs a No. 4 stoppage will normally result, but a No. 3 stoppage may be experienced if the check lever is worn and the crank handle bounces so that the lock is thrown to the rear by the "blowback" pressure of the gases in the chamber. In such a case there is no movement of the belt in the feed block.
- (m) If the presence of a bullet in the barrel is not detected by the failure of the next round to enter fully into the chamber, a second round may be fired on top of it. The force of the explosion in the chamber may then damage the extractor, break other parts of the lock, and explode another round in the feed block.

35. A resume of the points covered in ACIs 336 of 1942, 773 of 1943 and 373 of 1944, referred to in paras 33 and 34 above, is given below :—

336/42.—Refers to the danger of pierced caps with certain lots of RL manufacture Mk VIII Z. The importance of correct striker protrusion and careful lock maintenance is emphasized.

773/43.—Draws attention to the fact that barrel life of 10,000 rds with mass produced .303-in Mk VIII Z can no longer be guaranteed. Barrels will therefore be condemned when the .306-in plug gauge will enter 3.5 ins from the breech face. Also barrels at all suspect will be fired for BSOs and keyholing and condemned, if necessary, irrespective of number of rounds or distance of entry of plug gauge.

373/44.—Amends 773/43, to say that .306-in gauges will be issued *on demand* and not without demand.

36. **Mounting the gun with the rear leg forward.**—It must be clearly understood that the legs of the tripod must be weighted down with sandbags when firing the gun in this manner from emplacements which do not permit of the normal mounting of the tripod.

Without sandbags the accuracy of the gun is adversely affected, the beaten zone being increased very considerably in length. Sandbags improve matters, but the accuracy still falls short of that obtained from a normal mounting.



## 37. Amendment to AFG 1098—701

*Boxes—MG Instrument Mk III*

Authority has now been obtained to include three boxes MG Instrument Mk III per MG platoon.

Amendment to AFG 1098 to include the above will be promulgated shortly.

## 4.2-in MORTAR

38. **Auxiliary base plate.**—In order to prevent the sinking of the base plate in soft or boggy ground an auxiliary skirting (design No. DD/G/508/1) has been approved for manufacture. This gives a much improved performance, but the additional weight of approximately 110 lb may necessitate a reduction in the number of bombs carried.

39. **Quick action.**—An additional battle drill, to enable the platoon to be brought into action as quickly as possible from the move, is being developed and will shortly be circulated.

40. **Mortar sight.**—A sight similar to that mentioned at para 27 above has been approved for manufacture.

41. **Misfires.**—Should the bomb become stuck in the barrel, and it is not found possible to clear it by use of Ammunition Key No. 179, the following action will be taken :—

*During training.*—No attempt will be made to move the barrel from the firing site: arrangements will be made for the bomb to be cleared by an IOO.

*In action.*—Remove the breech cap. Having carefully removed all debris, force the bomb out by means of a piece of wood, which must be at least 3½ ins in diameter to ensure that it engages with the bottom of the tail fins and not the striker clip.

The barrel must be given time to cool before work commences, and it should be held firmly along the ground with the muzzle pointing clear of all obstructions preferably where the personnel have a certain amount of cover, *e.g.*, from the edge of a ditch or top of a bank.

## 6-pr ANTI-TANK GUN

42. **Drill for the stripping and assembling of the 6-pr A tk equipment**

- (a) This drill is intended for use as a guide to gun detachments to facilitate the quick stripping and re-assembly of the 6-pr A tk equipment where it is not possible to transport assembled equipments, *i.e.*, small boats, Decauville railways, or, where owing to shortage of suitable trucks, it is

desirable to store several equipments into one railway truck.

- (b) The drill is based on the men and tools available in a section of two guns.

It should be possible for the detachments, with little preliminary training and without the help of skilled artificer personnel, to strip the equipment into easily portable loads in approximately 15 minutes and re-assemble the loads in approximately 20 minutes.

- (c) Number of men required per equipment is five, except when lifting the piece, when seven men will be necessary.

- (d) Tools required :—

Hammer	...	...	...	...	...	...	1
Pliers or pincers	...	...	...	...	...	...	1
Screwdriver—4-in	...	...	...	...	...	...	1
Spanner, adjustable, 15-in	...	...	...	...	...	...	1
Spanners, adjustable, 11-in	...	...	...	...	...	...	2
Spanners, D/E, $\frac{3}{8} \times 7/16$ in	...	...	...	...	...	...	2
Spanner, 6-pr, No. 285	...	...	...	...	...	...	1
Dragrope, 6-pr	...	...	...	...	...	...	1
Skidding	...	...	...	...	...	...	Nil

- (e) *Drill.*—Throughout the drill even numbers work on the right side of the gun, odd numbers on the left side of the gun.

- (f) *To remove shields*

1 places the gun slightly in depression and removes the split pin from the gun nut and slacks off the gun nut.

2 and 3 remove the six bolts securing the lower shield and lift it clear to the front.

4 and 5 remove the four bolts securing the upper shield and lift it clear to the front.

- (g) *To remove the gun and slipper (breech block left in closed position)*

1 removes the gun nut.

2 and 3 make a sling using a dragrope, pass the sling under the muzzle in rear of the counterweight or muzzle brake, and pass a handspike through the sling.

4 and 5 remove cradle capsquares (4 bolts).

1, 2, 3, 4, and 5 push the gun rearwards for about 18 ins.

4 and 5 fit a handspike under the rear end of the slipper.

4 and 5 with two additional numbers man the handspike under the rear end of the slipper, 2 and 3 continue to man the handspike at the muzzle, 1 steadies the breech. The gun and slipper are eased out of the cradle to the rear.

A pause must be made before the gun is quite clear to enable 2 and 3 to rest the muzzle on the cradle while they step over the axle.

1 replaces the gun nut.

(h) *To remove the cradle*

2, 3, 4, and 5 lift the cradle clear of the trunnion bearings and, carrying it sideways over the left wheel, place it on the ground.

4 and 5 replace capsquares and lightly screw down the bolts.

(i) *To remove the saddle*

4 and 5 remove the grub screw retaining the pivot nut and remove the pivot nut.

4 and 5 lift the saddle clear and replace the pivot nut and grub screw.

(j) *To remove axle and wheels from trails*

2 and 3 remove the split pin retaining the nut of the spigot of the saddle supporting bracket and slack off the nut.

2 and 3 open out the trails to their full extent and then close each leg approximately 1 ft.

2 and 3 see that the brakes are "off."

2 and 4 go to the front of the right trail leg.

3 and 5 go to the front of the left trail leg.

1, in front of and facing the axle, takes off the spigot nut and, ordering 2, 3, 4, and 5 to lift, he rocks the top of the axle to the front so that the lug on the axle swings clear of the spigot on the saddle supporting bracket.

2, 3, 4, and 5 carry the trails clear of the axle.

If necessary, 2, 3, 4, and 5 can now remove the wheels from the axle.

NOTE.—Nuts and bolts should be replaced in the various parts of the equipment when these have been dismantled, otherwise nuts and bolts may be lost, or difficulty experienced when re-assembling owing to their being offered up in the wrong positions.

(k) The equipment is re-assembled in the reverse order.

NOTE.—To avoid mixing of parts when several equipments are stored together, all components of each equipment should be marked with the sub-section letter and number.

## WEAPON HANDLING—METHODS OF HANDLING THE RIFLE AND SMC IN CLOSE QUARTER FIGHTING

43. **General.**—An addition to the methods of handling the rifle and SMC for close quarter fighting has been approved and the necessary addition to SAT will shortly be published.

Hitherto hip firing has been taught as the normal method for close combat. A satisfactory degree of accuracy is difficult to attain especially when an enemy appears either above or below the firer. The methods described below give greater accuracy at all times and especially when the enemy is not on the same level as and in front of the firer. They are based on the facts that shoulder control of SA weapons will give far more accurate results, even if no aim with the sights is taken, than will hip control, and that with shoulder control the flexibility of the upper part of the body, rotating on the hips, makes change of direction and/or elevation far quicker and easier.

In addition, with the rifle, a very high rate of fire is called for. It will be found that 5 rounds in five seconds with a good degree of accuracy can be attained with little or no practice. This rate can be accelerated by practice to 5 rounds in three seconds without loss of accuracy. It must be clearly understood that the methods are intended for use at very *short* ranges only. 40 yds can be taken as an absolute maximum. At ranges beyond this, to obtain reasonable accuracy, the normal method of shooting must be employed, but even so men must be taught to realize the importance of getting the first shot away really quickly when the range is short.

The speed at which the first shot is fired will often be vital at very short ranges. It should be away within half a second. On the assumption that a dead enemy is always worth two rounds, two shots should always be fired as rapidly as possible, and more if they have not been effective, with rifle or SMC.

At the same time, in order to make the enemy miss if he fires, the firer should move rapidly sideways if the ground will allow. This can be done without any appreciable decrease in accuracy.

#### 44. Detail of method

##### (a) Rifle : ALERT POSITION

When there is a likelihood of meeting the enemy suddenly, *e.g.*, in town, village, or wood fighting, come to the alert position.

Relax the body, to a position similar to that of a boxer sparring.

Bring the butt of the rifle into the shoulder, left hand gripping the handguard with the fingers well round the rifle.

Rest the left elbow against the body in a comfortable position about the left groin.

Right hand ; first finger and thumb locked on the bolt lever ; second finger on trigger. Keep the head up ; chin clear of the butt so that the head can turn freely in any direction and all round observation is not hampered.

(b) *Firing*.—When an enemy appears, keeping BOTH eyes open, throw the rifle up to what seems to be the right alignment and, without lowering the chin to the butt or attempting to aim more accurately, fire instantaneously. (If the enemy is beyond the maximum range the head must be lowered to the butt and a very quick aim with the sights taken.) The trigger must be pulled straight through both pressures with the second finger, the first finger and thumb remaining locked on the bolt lever. Reload instantly and fire again; and so on as may be necessary. While firing move sideways as described in para 43.

It must be remembered that the first shot must and can be away within half a second, and subsequent shots as required at the highest speed of which the firer is capable.

(c) *Notes*

- (i) *Degree of accuracy*.—Up to 15 yds a man with but little training should get 2-3 hits in 5 rounds at a head and shoulders target, when firing at his best speed. With practice 4-5 hits become possible.
- (ii) The rifle must be held very firmly into the shoulder with the left hand.
- (iii) Owing to the recoil of the rifle it will be found that this method of reloading is easier with live ammunition than with an empty rifle.

45. The following three points of elementary training are of particular importance:—

- (a) Keep the magazine fully or nearly fully charged.
- (b) Keep the bolt slightly oiled for easy operation.
- (c) Take care to ensure that all ammunition carried works freely in the charger clips.

46. This method of handling the rifle will NOT be taught to recruits until they have been thoroughly grounded in basic WT. A suitable moment to introduce it would be at the recruit's first field firing practice. It will be most clearly impressed upon all men that it is a special method of handling for special conditions and quite distinct from the methods which they have been taught for longer range work.

47. *SMC*.—With the SMC the method is substantially the same as with the rifle. The following points should be observed:—

The butt should always be in the shoulder. When firing, the butt should be slightly inclined to the side so that the eyes, both open, are looking along the axis of the barrel. Otherwise, accuracy will suffer. Bursts should rarely be fired. Such a high rate of fire can be obtained with the change lever at "Repetition" that this should be its normal position. This position improves control

and so increases accuracy, makes the switch to another target appreciably faster and saves ammunition.

48. This statement is not to be understood to mean that hip firing is abolished. It should be made clear that the two methods are complementary, though, since accuracy, flexibility, and speed are superior when the weapon is shoulder controlled, this method should be used whenever possible.

## APPENDIX "A"

### ADVANCED SNAP PRACTICE (RIFLE)

#### *Object*

To exercise men in quick shooting from the kneeling and standing positions in the open.

#### *Stores required*

Per firer : one Fig 2, one Fig 4a, and one Fig 5 target (all on poles) ; five rounds ball ammunition.

Chalk, telephones, danger flags, stop-watch, one marker per target, paste, paper, and brushes, one whistle.

Steel plates or other arrangement for marking limits of target area for each firer (about 8-10 yds).

#### *Layout*

Butts : All targets, one phone, one red flag, stop-watch, one marker to each target with paste, paper, and brush. Limits for each firer marked on stop butt or mantlet (steel plates about 8-10 yds apart sited from firing point). Whistle for officer or NCO IC butts.

100 yds FP : Telephone and orderly, red flag, one officer or WO to control.

#### *Details of practice*

Firers begin at 100 yds, loaded in standing position.

Conducting officer orders "Advance". Prearranged arm signal is given by conducting officer, when detail have reached 90 yds. On this signal telephone orderly gives one short ring to butts and targets are exposed. Firers halt and fire one round. The order "Advance" is then given and the same procedure repeated at 80 yds, 70 yds, 50 yds and 30 yds approximately.

Firing positions : 90 yds and 80 yds—kneeling.

70 yds, 50 yds and 30 yds—standing.

Targets : 90 yds and 80 yds, Fig 2 ; 70 yds and 50 yds, Fig 4a ; 30 yds, Fig 5.

Time of exposure : Two seconds.

Bayonets will be fixed for No. 4 rifle with Mk II backsight.

NOTES.—According to visibility and standard of training, etc., the positions may be varied. In the same manner targets and exposures may be altered to decrease or increase the difficulty of the practice.

The standard to aim at should be one accurate shot in one second.

## LMG GROUPING PRACTICES

## APPENDIX "B"

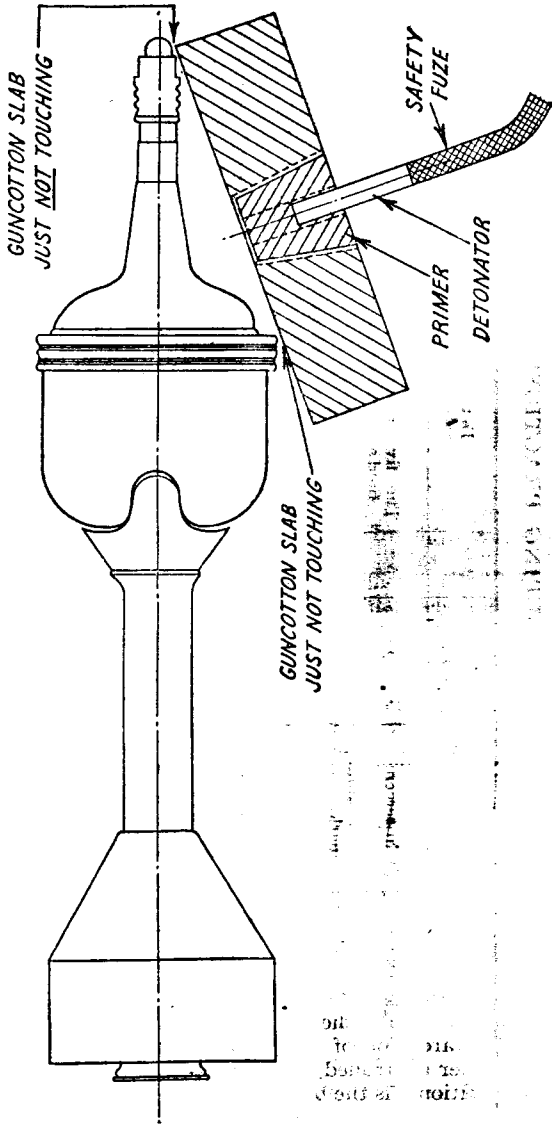
No.	Practice	Target	Distance in yards	Rds	Detail	Remarks
1	Single rounds	Plain screen with 1-inch black aiming mark.	25	5	<p>The five rounds to be fired singly at the same aiming mark.</p> <p>OBJECT: To test accuracy of aim combined with trigger pressing.</p>	<p>SCORING: None—but position and shape of groups will be criticized.</p>
2	Automatic firing.	Plain screen with 1-inch black aiming marks.	25	10	<p>To be fired in bursts of four or five rounds, each at different aiming marks.</p> <p>OBJECT: To practise holding, aiming, and regulating length of burst.</p>	

NOTES.—1. At 25 yds sights should be set at the elevation required to hit 1-in right and 1½-in high of the point of aim.

2. The above practices, although designed for the 30-yds range, may be fired at 100 yds if desired.

APPENDIX "C"

METHOD OF DESTROYING "BLIND" PIAT BOMBS IF FITTED WITH 426 FUZE





## ADDENDUM

1. **SAT, Vol I, Pamphlet 4.**—The following amendment should be made to Lesson 6 :—

Para 3, line 6, after " RD 1179 " *add* " (tropical climates only). In climates other than tropical, oil 'A' will be used."

2. **Bren LMG.—Zeroing.**—It has been found that guns zeroed in accordance with the teaching in SAT, Vol I, Pamphlet No. 1, Appx I, invariably shoot low at the longer ranges when the barrel becomes heated.

To overcome this, the method of zeroing will in future be as follows :—

- (a) Fire the gun from the tripod, the firer's holding position being exactly as it would be if firing from the bipod.
- (b) Fire a burst of 10 rounds into the bank to warm up the barrel.
- (c) Follow this, while the barrel is still hot, with 5 single rounds, each aim being carefully laid.

The results from a correctly zeroed gun should be :—

Range	Sighting	Position of MPI in relation to point of aim	Permissible variation allowed
100 yds	200 yds	5 ins directly above	Not exceeding 2 ins above or below.
25 yds	200 yds	1 in right and 1½ ins high	Not exceeding ½ in above or below.

If it is necessary to fire a check group after any adjustment, the barrel should again be warmed up prior to firing the group.

3. **SAT, Vol I, Pamphlet 21.—Machine Carbine, 1944.**—Lesson 2 for both Thompson and Sten Machine Carbines.

*Delete* last sub-para and *substitute* :—

" When firing single rounds the stud will always be set at ' Repetition . '

For hip firing, the carbine will normally be fired in bursts, and if likely to be so used the stud should be set at ' Automatic '. Bursts should rarely be of more than two or three rounds.

When shoulder controlled, single rounds, or double tap, with the stud at ' Repetition ', is the best method of dealing with the enemy."

4. **PIAT Zeroing.**—The PIAT requires zeroing for accuracy in the same way as any other weapon. The method of making adjustments is simple, being as follows:—

- (a) *Vertical error.*—This is corrected by loosening the lock-nut above the foresight bed and unscrewing or screwing up the foresight. As a rough guide, one complete turn of the foresight gives a variation of 8 ins at 50 yds and 12 ins at 70 yds.
- (b) *Lateral error.*—This is corrected by loosening the two small nuts outside and the large lock-nut inside the foresight casing, and unscrewing or screwing up the axis screw. As a rough guide, one complete turn of the axis screw gives a variation of 8 ins at 50 yds and 18 ins at 70 yds.

The following table gives all other information:—

Conditions	Type of Backsight	Range at which fired	Sighting used	No. of bombs	Target used	Accuracy required
If using live or inert bombs	Mark II	70 yds	70 yds	Fire 5 bombs and take the mean.	A large steel plate or derelict tank for live bombs.	Sufficient accuracy to ensure that the centre of the target is hit.
	Mark III	50 yds	50 yds			
If using practice shot.	Mark II	77 yds	70 yds		A 6 ft screen with an aiming mark for practice shot or inert bombs.	
	Mark III	55 yds	50 yds			

**NOTE.**—If using a new weapon, at least 6 bombs should be fired before zeroing, in order to settle down the spring.