POLICE CIRCULAR ORDER No. 203

SUBJECT—Maintenance and repair of Small Arms

Maintenance and repair of Small Arms

It seems unnecessary to emphasize the necessity for the best upkeep of Small Arms. Highest standard of general soldierly efficiency can be rendered completely valueless without good and well maintained weapons. High standard of maintenance cab be achieved through proper care, regular inspections and prompt repairs. Timely detection and rectification of defects can also help considerably to keep the arms in serviceable condition at all times. Detection of obvious defects is the responcibility of the user and his commander. Defects should be immediately brought to the notice of authorities concerned in order to enable them to get them rectified by unit armours/workshops. Under no circumstances weapon will be kept in repairable condition.

2. This circular is issued with a view to enable the Officers N.C.Os. and other ranks to find out common defects which occur in Small Arms. In an endeavour to do so details of technical nature have been intentionally eschewed.

Classification of Military small Arms :

3. Since the 1939 War began there have been many advances in the designs weapons and many new types have been introduced into service. It is therefore necessary to have a clear idea under what category each weapon falls. This classification is based on the design of the weapons and their role in battle. The present pendency is towards and automatic or semi-automatic weapon will ultimately increase in fire-power.

4. The categories may be listed as follows :

(i) Machine Carbines

(ii) Pistols (Revolveres and Self Loaders).

(iii) Rifles

(iv) Automatic Rifles (includes self loaders)

(v) Light Machine Guns

(vi) Medium Machine Guns

(vii) Heavy Machine Guns

Arm at Sl. i.ii.iii and v are normally issued to Police Unit.

5. The upper limit for Small Arms has been taken as one inch calibre (inclusive), but certain machine guns upto 40 mm l(inclusive) for each classed as small as with these larger calibres, the degree of portability is probably the deciding factor.

6. In addition to types of weapons mentioned above, Mortars of all kinds, Bomb Throwers, Rocket Lauchers, Projectors and smoke Generators are also treated as Small Arms.

7. Bicycles is also counted as Small Arms for working out the small arms repair should in the Army.

8. Armours are responsible for the inspection and repair of above types of equipment and in addition, they also look after the oil cookers wherever these are held on charge of units.

KNOWLEDGE

Officers

9. It is incumbent upon officers including NCOs to possess a competent knowledge of the inspection and care of small Arms. They should make themselves conversant with the current instruction regarding the maintenance and preservation of Small Arms. It is also necessary for them to learn how to deal with various stoppages that can occur in field or in peace. Occasions may arises when the stoppages/defect can only be remained by change of such components which are supplied as spares with the weapon and are carried by soldiers on range practices and in the field. In order to deal with problems, promptly and effectively, officers, N.G.Os. and other ranks should learn to replace spare parts with the help of tools supplied with the weapon.

Other ranks :

10. Other ranks must posses a thorough knowledge about the correct handling, care and preservation of their personal arms.

RESPONSIBILITY

11. The responsibility for the maintenance of small arms, can be divided as follows :

(a) Other ranks

Other ranks are responsible for :

(i) Daily cleaning and care of their arms at all times

(ii) The bring to the notice of the Pl/Coy Camdr defects noticed in their arms for immediate repairs. Such repairs are free and there should not be any hesitation or delay in taking the arms to the armours for repair.

(b) Platoon Commanders

They are responsible, to their Company Commanders for the condition of the arms on their charge and for instructing their men in the care thereof so that no unnecessary deterioration may occur and the arms may be kept in such a condition as to be always capable of accurate and rapid fire.

To ensure this, they should see that :

(i) the arms of their platoon are inspected daily

(ii) Damage to arms, and any deficiencies, re-brought to the notice of Coy Comd.

(c) Reserve Inspector/Company Commanders

They are responsible that :

(i) Their NCOs have a good knowedge of the inspection and care of small arms

(ii) Damage is reported, to enable armourer to carry out necessary repairs

(iii) The arms of their Copys are in a perfectly clean and serviceable conditions

(iv) The instructions for the proper use of cleaning material are taught to their men by subordinate commanders.

(v) Small arms, machine guns, mortars and connected stores are inspected and cleaned as soon as possible after firing and normal parades.

(vi) Once a week all arms are wiped free from oil and inspected by an officer

(vii) Raw linseed oil is applied according to the instruction laid down in EMER (I) SA and MG, SA/AO 33 No. 4 Issue 1 dated 1st October,1951.

(d) S.P./Bn. Commander

They are responsible

(i) For the efficient performance of the above duties of their subordinates

(ii) That action is taken on inspection reports of the A.I.A. and the unit Armourers.

(iii) Form a system in their unit that defects are at once brought to notice and repairs executed.

(iv) That inspections are carried out regularly by Company Commanders and armorers including arms of detachment.

(v) That the Armorers and his assistants are efficient and have necessary facilities to carry out their duties and are fully equipped with tools and gauges.

(vi) That men are charged for damage to arms due to neglect

(e) Armourers

The armourer's duties are laid down in EMER (1) SA and MG, SA/A 410 No. 1 Issue 1 dated 1 Jul. 52, P.M. Appendix 75 and Police Order No. 209 which should be in the possession of all units. They are responsible :

(i) For the execution of all regimental repairs to small arms, bicycles and oil cookers

(ii) For the browing of arms where facilities exist

(iii) For advising officers and NCOs of his unitin the correct maintenance of Small Arms

(iv) For training the NCOs and four men per Coy in special maintenance of Small Arms

(v) For maintaining, serviceable and complete the tools authorised under WET and PET

(vi) For periodical inspection of all arms and their accessories.

(f) Repairs which are to be carries out by 3rd/4th echelon wksps will not repeat not be attempted by unit armourers.

(g) A record of all periodical inspections will be kept which will be produced at the annual inspection of arms by AIA.

CLEANING OF BORES.

12. There are three kinds of fouling which can cause damage to the bores of barrels :

(i) Carbon fouling after firing

(ii) Superficial fouling

(iii) Metallic fouling

13. Carbon fouling, also known as internal fouling enters the pores of the metals and if not quickly and positively removed will cause corrosion and will ruin the bore. The correct method of removing it is by :

(i) cleaning with boiling water as soon as possible after firing ;

(ii) carefully drying the bore;

(iii) oiling

14. If boiling water is not available cold water can be used. Barrels must be carefully cleaned and inspected daily for about a week.

15. superficial fouling which is the normal dust from the air and dirt deposited in the bore by contact may be removed by ordinary cleaning with the help of a pull through. This will also cause corrosion if not removed.

16. Metallic fouling or nickeling if excessive, causes roughness on the edge of the lands, and appears as whitish streaks. Serious cases require the attention of the armourer. If not removed in time it can increase to the extent that the bullet will be restricted from passing through the bore and may cause bulging and brust bores. Delay in its removal will make it a potent factor in the creation of rust, very probably in part, because galvanic action is set up between the deposit and surface of the steel.

17. New barrels take a high polish. A bore where once becomes rusty requires more care as rust attacks a rough surface more readily than a smooth one.

18. Points to bear in mind when using a pull-through.

(i) Exchange a worn pull-through cord

(ii) Before use draw the pull-through through, the closed to remove grit etc.

(iii) Fit a piece of flannelette, 4x2", to the pull-through by folding it into 3 folds. Insert it into the centre loop of the cord and fold it back round the cord away from the weight.

(iv) Drop metal weight of pull-through into the bore, from the breech end over the bridge charge guide and allow the weight to pull the cord through the bore until sufficient cord emerges, from the muzzle end, to be held by the hand.

(v) Pull cord lightly until the flannelet to just enters the chamber. The toe of the butt should rest on the ground.

(vi) Take a firm grip on the cord and make sure it is in linc with the bore, then with one motion pull the flannelette complete through the bore.

Note :—If the cord is not held in line with bore, and is not pulled in a straight line, it will rub against the side and wear the muzzle. This defect is known as Cord Wear.

19. After cleaning, the bore should be oiled and should not be allowed to remain dry unless the weapon is to be inspected or is to be fired.

20. To oil the bore, soak a piece of flannelette, approximately 4"X11/2" in oil, lubricating, attach it to the pull-through in the end loop and pull it through the bore. This should be repeated several times to ensure that all parts of the bore are coated with oil.

21. It is seldom that carbon and superficial fouling cannot be removed from bores by the users. If carbon is not fully removed by washing, the bore can be again washed. The hotter the water and the greater the amount of water that is passed through the bore, the easier it will be to remove the carbon. Water should be poured through the bore by using the proper funnel provided.

22. Should a pull-through cord break in the bore the weapon should be taken immediately to the Armourer who is equipped with special tools to remove broken pull-throughs. No attempt should be made by users to remove it or damage to the bore will occur.

23. In the event of fouling not being completely removed after washing and continued pulling through with flannelette, the wire guaze may be used out only with the authority of an Officer/JCO.

24. Fit the guaze to the pull through cord by inserting it through the loop of the cord nearest to the weight and rolling it tightly round the cord in 'S', shape. If not rolled tightly the guaze may catch on the breech face, when being pulled through the bore, and bunch up on the cord thus becoming too large to enter the chamber.

25. When correctly fitted to the cord the guaze should be drawn once or twice through the bore in the same manner as when using flannelette. The guaze should be used as little as possible as it causes the bore to wear out. After use, the guaze should be removed and replaced by flanneltte and the bore pulled through again.

26. Washing again, with hot water, can be resorted to, if necessary, and if the area of fouling is reduced, the procedure of using alternatively guaze and flannelette should be continued until the bore is clean.

27. If after repeated attempts, as described above, the fouling is not completely removed, the rifle should be sent to the Armourer for special cleaning.

28. Attempt to remove metallic fouling should be made by the normal use of the pull through as described above. When it cannot be removed, a double pull-through fitted with a wire guaze should be used under the supervision of a officer/JCO. When using the double pull-through one person should hold the weapon, in a horizental position and two persons one on each end of the cords should pull the guaze backwards and forwards in the area where the fouling is located. When an Armourer shop is available the weapon can be held much firmer in a vice and wherever possible this should be done. Pull-through cord should be pulled straight through the bore otherwise there will be a danger of barrel becoming "cordworn".

29. All cases of metallic fouling which cannot be removed by users will be sent to the Armourer

DAILY CLEANING

30. The exterior of the weapon shpuld be cleaned daily and all dust and dirt removed. Special attention should be kept clear and all working surfaces and wood work should be cleaned with a cloth. Bores of weapons in the hands of Troops, should be pulled through and re-oiled daily and those in Kots examined daily and pulled through at the discretion of the Officer Commanding depending upon climatic condition and storage facilities.

POINTS TO BE OBSERVED AFTER FIRING

31. The bore should be washed through with hot water as soon as possible after firing. This will ensure removal of carbon deposited in the bore. The bore will then be dried and lightly oiled, and should be pulled through and reoiled daily for one week to prevent corrosion through sweating.

32. Hot water should be poured carefully through the bore by using the special funnel issued. This is to avoid the water pouring over the weapon and entering crevices, joints between metal part and wood work should this happen the weapon cannot be properly dries without complete stripping it. If the weapon is not properly dried there is a good chance of metal parts rusting and wood work rotting.

33. The face of the bolt should be cleaned carefully with oil and cloth for atleast three days in succession to prevent carbon deposit forming a ring around strikier point hole and to prevent corrosion. No abrasives should be used.

COMMON FAULTS IN RIFLES

34. The following remarks on rifles, cover the main points of failure disclosed by inspection

(a) Failure on the pant of units to arrange evacuation of 3/4 echelon repairable, unserviceable, obsolets weapons to workshop/ord.

(b) Cord wear through improper use of pull-through (see para 18). This can be avoided by strict supervision by Commanders during cleaning and maintenance parades.

(c) Corrosion, attributable to negligence and ignorance. The percentage of this defect is very high. This reduces the life of the weapon and results in inaccurate shooting. Subordinate Comdrs. should be given more training to detect this defect.

(d) Loose a tock butts, caps nose, cocking pieces, retaining spring, backsights, protectors, strikers triggers guard and screws.

(e) Faces of bolt heads should be cleaned and oiled after firing; otherwise bolt heads become ringed.

(f) Damage to boss of nose cap prevents the bayonet from fitting.

(g) Dirty magazines prevent correct functioning of platform springs.

(h) Screw heads damaged through careless use of screw drivers. A small mark by the armourer should be made to prevent screw working loose. When so punched to remove the screw, the bour should be removed with a fine cold chisel and the screw driver applied.

(i) Loose backsight leaves and bright caps due to thowing backsight violently on the front hand guard. The glare from the bright caps reflects on the eyes and may cause inaccurate shooting.

(j) damaged or broken locking bolts due to holding back the bolt by applying catches safety whencleaning and then forcing bolt home.

(k) Split fore-ends mainly due to incorrect fitting and loose front trigger guard screw. Split fore-ends affect the acoracy of rifles. Split fore-ends near cap nose are due to twisting of rifles when withdrawing bayonet from dummies during bayonet training.

(l) Unnecesssary deterioration of wood work through rough handling. hand guards split due to the attempted cleaning of inaccessible parts. Wood work not preserved with Raw Linseed Oil. Soldiers carry more than one rifle on their shouoders. Metal work of one rifle damages the wood work of the other rifle. A shouldier should not carry more than one rifle.

(m) Rifles not stripped enough often by Armourers. Dirt between stock and barrel and in mechanism causing misfires. This mainly applies to units located in dusty locations.

(n) Chamber dusty and rusty causing hard extraction. Sticks cleaning chambers not used.

(o) Broken hand guards rear due to non-provision of tool removing hand guard.

(p) Rust due to putting a plug in the muzzle or wrapping the bolts in rags. Both are forbiden. Breech cover and muzzle covers are authorised for rifles used in sandy areas.

(q) Unstrengthened rifles used for firing grenades and casing undue damaage to the wood work. CO should get the required number of rifles strengthened (see AO 879/43 and EMER (I) 8AC 303 No. 3 issue 1).

(r) Deficient, particularly safety catches, due to insufficient attention being given to the tightening of screw and lack of inspection.

(s) Blades foresight filed down to zoro a rifle. It affects interchangeability of blades foresights and is strictly forbidden.

(t) Plates butt of rifle No. 4 become unserviceable due to striking of butts violently against ground while coming to attention position. This is against Drill Regulations and should be stopped in order to avoid an unnecessary loss to the State.

Small stones put in magazine to produce sound during rifle and ceremonial parades. Such magazine cannot be expected to function satisfactorily.

(u) Washer screw guard trigger front, in a rifle No. 4 deficient. This washer plays a vital role during the firing. Its absence can be detected by the head of the screw sitting low down in its scating.

(v) Loss of springs extractors due to manipulation of bolt without assembling it properly. Rifles should be modified vide EMK (I) SA & MG No. SA/C 507 No. 3. If the bolt is operated without assembling it correctly, for Head Breech Bolt. (Rifle No. 4 MK 1.)

(w) Barrels bulged and cracked. This is caused by the rifle being fired with some obstructions in the bore. Usually the obstruction is dirt which has entered the bore through the muzzle being inadevertently stuck into mud, soil, or sand during training or in action. Special care should be taken when crawling with the rifles or when coming under fire from an enemy. When one naturally throws one's self on the ground as quickly as possible. If possible the bore should be pulled through before firing but in action there may not be time for this and all effort to keep the muzzle clear of the ground should be taken. Another cause found mainly near ponds, lakes, canals and rivers, is mud deposited in bores by hornets. These insects build their nests, of mud, in blind holes about the size of the bore of a rifle, and if allowed to will quickly deposit a considerable amount of mud. If found the nest must be removed by use of a cleaning rod and the bore then pulled through with flalnnelette. No attempt to remove it, by firing must be made or a bulge or burst will almost certainly be the result.

Rifles kept in Kots should be left with the bolts open as this will deter the hronet from using them for for nesting. Nickel deposit will cause bulge, or burst barrels as explained above and regular inspection is necessary to prevent this.

(x) A great number of rifles require adjustment to pull off. There should be two distinct pulls and no drag in 2nd pull. Weight of the second pull has been increased from 5-6 lbs to 5-61/2 lbs (EMEK (I) SA and MG SA/C 309 No. 1 Issue 1, 17 Mar 47 refers.

35. COMMON FAULT IN CARBINES MACHINE STEN 9 MM.

(a) Incorrect assembly of spring return. Many cases are seen where the return spring has been assembled with the collar at the rear instead of at the front. This causes thes gun to work sluggishly and the collar to stick and jam in the housisng. When this occurs it is difficult to remove the spring with a direct pull and the unorthodo methods adopted usually damage the collar and distort the spring.

(b) Machine Carbine, oiled or greased before use. Carbines Machine Stem do not rrequire lubrication before firing. Oil or grease in the mechanism accumulates grit and dust which clogs and impairs the functioning of the gun. Grit and dust bound with oil or grease from a perfect abrasive or grinding paste and will cause rapid wear of the inner components. Stens received from Ordance will be stripped and throughly de-greased, dried, and reassembled and will not be lubricated. Only the bore will be lightly oiled, lparticularly after washing out after firing. Magazines in particular will always be kept clean and dry.

(c) Mk 2 & Gun—Damage to Catch, nut barrel. Unless the catch nut barrel is lifted properly when screwing and unscrewing the barrel nut the teeth of the catch become damaged and eventually shear off so that the catch will no longer lock the nut. Great care must be taken to see that this catch is properly operated when the barrel is to be removed or replaced.

(d) Mk 2 Gun—Barrels incorrectly assembled. When assembleing the barrel of the Mk 2 carbine, the dash lines or last three figures of the gun number, stamped on the barrel should be kept in alignment with the foresight. These marks are stasmped after the gun has been zeroed by rotation of the barrel, and will always indicate when the barrel is correctly assembled.

FILLERS MAGAZINE STEM 9 MM MK 4.

36. A high percentage of these fillers become unserviceable due to care less removed of the fillers from the magazine. When the filler is assembled to the magazine there is hardly any chance of its getting damaged. In order to remove it from the nagazine, the spring should be lifted first and then the filler pulled down in order to disengage its hook from the recess in the magazine. If the precaution is not followed and efforts are made to pull the filler straight off, its hook will break and thus render it unscerviceable.

37. COMMON FAULTS IN GUN MACHINE STEN

(a) Both barrels not equally used. The barrels must used equally during firing and drill. This will obviate undue wear on one barrel.

(b) Gas regulator holes not cleaned after firing.

(c) Butt plates NK I not stripped often enough. Failure to do this will allow an accumulation of dust sand under the plate.

(d) Sleeves bipod not cleaned with wire brush.

(e) Bipod not numbered with the regd number of gun (AO 13/43 refers).

(f) Breech Block faces ringed. Softlead pencil should be rubbed around the firing hole before firing.

(g) Incorrect use of tool removing fouling, Bren 303" MG MK I.

(i) This tool has been introduced for use with all makes of Bren LMGs which are fitted with MK 2, 2* or 3 Gas cylinders.

(ii) The distinguishing feature between MK I Gas Cylinder and the MK 2 and 3 in that in the former type slongated gas ports are positioned around the periphery of that surface of the gas cylinder on which the biped sleeve fits where as these ports are eliminated on the marks 2 and 3 cylinders and are replaced by an internal cannelure.

(iii) The tool is similar in appearance to a pair of pliers and fouling is removed by inserting the nose portion of the tool into the gas cylinder bore until the cutter blades engage in the cannellure. The tool will always be rotated in a clockwise direction to allow the cutteras to clear all fouling.

(h) Guns fitted with MK 1 Gas Cylinder will not be cleaned with the above tool. Wire and Mop Brush should be used to clean these.

(i) Excessive sand or dust accumulation in the body and gas cylinder due to their free entry through gas escape holes. This wil cause unsatisfactory firing performance. To avoid such accumulations the following procedure will be adopted.

(i) Gas Escape holes at the front of the gas cylinders. Over the holes by tape insulating 1/2 in. The tape will be blown off automatically on commencement of firing.

(ii) Gas Escape holes on the sides of the gas cylinders over each set of holes with a strip of tape Firing will not ensure automatic removal of the tape but this does not affect firing performance. The tape can be removed just before firing commences or as opportunity offers.

(iii) Tape Inaulating 1/2" may be demanded 1 at finally the scale of 10 oz per gun and subsequently as required.

COMMON FAILTS IN PISTOLE & REVOLVERS

38. COMMON FAULTS IN GUN MACHINE STEN

(a) Not clearned immediately after firing. This results in corrosion and pitting.

(b) Shield damaged by cleaning rod

(c) Stocks, side niot strippod often enough. Metal portion under stocks becomes rusty. Stocks should be removed every month and mineral jelly or graphi be grease applied on meta; after cleaning.

(d) Firing pin holes enlarges by firing the weapon with a bent firing pin. This defect can reach such an extent that the body or shield become a unserviceable (Pistols signal mostly affected).

(e) Barrels of pistola signal open when the hammer is in the cocked poaition. It is dangerous. Safety cAtch to be adjusted before use.

39. D. Ia. G. shall pay particular attention to the maintenance of Small Arms during their inspection of the district unit Headquarters.

(VIB-1-72)

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BM/18.1

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