

[Notified in A.C.Is. for 12th June, 1940]

26
Regulations
2150

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REGULATIONS

FOR

ARMY ORDNANCE SERVICES

PART II

PAMPHLET No. 18

1940

**Instructions for Examining
Aiming Rifles and their Fittings**

REGULATIONS FOR ARMY ORDNANCE SERVICES, PART II

PAMPHLET No. 18 (1940)

Examination of Aiming Rifles and their Fittings.

1. Aiming rifles and their fittings will be examined annually by Ordnance Mechanical Engineers, or, failing them, Inspecting Ordnance Officers as follows :—

2. The exterior of the barrels should be examined to see that they are free from rust and burrs, and that all working surfaces are in good condition.

All assembling marks should be examined to see that they are perfectly legible.

3. The interior of the barrels should be thoroughly cleaned before examination. If the rifling is very badly worn or corroded by rust the barrel must be condemned.

4. The bores should be gauged, using the appropriate gauges or plugs, as shown in Table I.

5. Instructions for gauging :—

- (a) 1-in. Elswick " B." The gauge, plug, bore, low limit for provisional condemnation should be screwed on to the graduated rod and passed down the bore. If the gauge will not pass the barrel must be condemned.

If this gauge passes through, then gauge, high limit for bore, at the muzzle end should be applied. This gauge is a taper plug with a distance flat placed in the position of the condemning limit.

If this gauge can be made to enter the muzzle up to, or beyond, the flat, the barrel must be condemned.

Should the bore pass both the above tests the gauge, high limit for bore, at breech end should be used. This gauge should enter the breech end of the bore up to the flat marked LOW, but must not go up to the flat marked HIGH. If this test fails the barrel must be condemned.

- (b) .303-in. Act as detailed in Instructions to Armourers, 1931, Section 6.

6. The expanding and adjusting frames and dummy cartridge cases should be examined to see that they are sound, work freely, and are free from burrs (neglect to do this may lead to serious damage to the interior of the parent gun).

7. Springs and other small fittings should be examined to see that they are sound and in a serviceable condition.

Any burrs found to exist on any part of the rifle should be removed with a smooth file.

8. The breech blocks should also be examined to see that the various parts are sound, that they lock correctly in the barrel, breech ring, or dummy cartridge case, and that the points of needles are free from burrs and indentations.

9. The insulation of terminals and electric needles should be tested to ensure that it is perfect.

An accumulation of dirt or grit in the interior of the breech block is liable to cause a short circuit.

NOTE.—Particular care should be taken to see that the set screw of the front adjusting frame of the 1-in. Elswick "B" rifle is tightly screwed up before the rifle is inserted in the parent gun.

10. To gauge the protrusion of the needles or strikers of aiming rifles, proceed as follows :—

- (a) 1-in. Elswick "B." Swing breech block and carrier into the loading position, press in the "catch, retaining, breech screw," and revolve the breech screw into the closed position, folding down the

cam lever. Apply the gauge to the front face of the breech screw. With the Mark II rifle (percussion only) the striker must be in the unlocked position.

- (b) .22-in. Q.F. 18-pr. guns. The protrusion in the case of these rifles is governed by the note on instructional print R.G.F. 11090/141A, a copy of which is issued with each rifle.
- (c) .22-in. Q.F. 3·7-in. howitzer. This aiming rifle is fixed by the mechanism supplied with the .22-in. rifle short R.F., Mark IV.
- (d) .303-in. Q.F. 3-pr. 2-cwt. Lower the breech block of the gun, withdraw rifle slightly, press the striker through the breech block as far as it will go, and apply the gauge to front face of the breech block of the aiming rifle. Care should be taken to see that the anti-fouling cylinder is tightly screwed on to the muzzle end of the rifle, and that the screw, securing, anti-fouling cylinder to the disc front is screwed hard down.

11. The protrusion of the needles, strikers or firing pins may be adjusted in the following manner:—

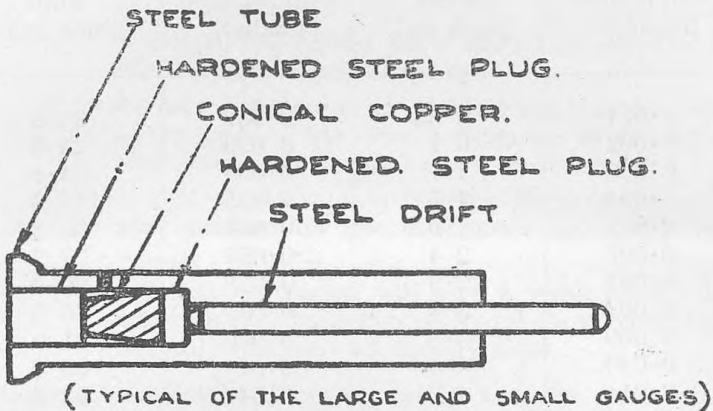
- | | | |
|---------------------------------|----|--|
| 1-in. Elswick " B " | .. | Renew leather washer or other insulation under head of needle; should this be insufficient, the firing pin or needle should be replaced. |
| .22-in. Q.F. 18-pr. gun | .. | Replace firing pin. |
| .22-in. Q.F. 3·7-in. howitzer.. | | Replace needle. |
| .303-in. Q.F. 3-pr. 2-cwt. gun | | Replace striker. |

TO TEST BLOW OF STRIKER.

12. After it has been ascertained that the protrusion of the striker is correct, the blow of the striker should be tested by means of the gauge testing blow of striker.

13. The gauge consists of a steel body made to the same external dimensions as the service tubes for the various guns.

It is recessed in the head to receive two small hardened steel plugs with a conical copper between them, as shown in the accompanying drawing :—



The hole running through the gauge is for the insertion of the drift to knock out the plugs and copper after taking the blow.

14. The thin plug should always be put in first ; its use is to close the drift hole, and to give a good flat bearing for the base of the copper.

15. The coppers are issued practically correct in length to 0.001-in., but should always be measured before use to make sure of this, and to see that they have not been used before.

16. After filling the gauge it is placed in the prepared cartridge case, and then placed in the chamber of the aiming rifle in the ordinary way and the striker snapped on it.

After snapping, the gauge is removed, and the plug and copper are tapped out with the drift.

The copper is again measured with the micrometer, and the decrease in length is obtained. The corresponding blow in inch lb. is obtained from the following Table.

17. The condemning limit for blow is 22-in. lb. The mean of three readings should be taken as the correct blow of the striker.

0.35-IN. COPPERS.

Compression (inches).	Blow (inch lb.).	Compression (inches).	Blow (inch lb.).
0.001	0.35	0.032	21.8
0.002	0.7	0.033	23.0
0.003	1.1	0.034	24.1
0.004	1.5	0.035	25.3
0.005	1.9	0.036	26.5
0.006	2.4	0.037	27.7
0.007	2.9	0.038	29.0
0.008	3.4	0.039	30.3
0.009	3.9	0.040	31.6
0.010	4.4	0.041	33.0
0.011	4.9	0.042	34.3
0.012	5.5	0.043	35.7
0.013	6.1	0.044	37.1
0.014	6.7	0.045	38.5
0.015	7.3	0.046	40.0
0.016	7.9	0.047	41.5
0.017	8.6	0.048	43.0
0.018	9.3	0.049	44.5
0.019	10.0	0.050	46.0
0.020	10.7	0.051	47.5
0.021	11.5	0.052	49.1
0.022	12.3	0.053	50.7
0.023	13.1	0.054	52.3
0.024	13.9	0.055	53.9
0.025	14.8	0.056	55.5
0.026	15.7	0.057	57.2
0.027	16.6	0.058	58.9
0.028	17.6	0.059	60.6
0.029	18.6	0.060	62.3
0.030	19.6	0.061	64.1
0.031	20.7	0.062	65.9

18. A variation in the strength of the blows, or weak blows, may be due to one or more of the following causes :—

- (a) Variations in the quality of the coppers. Variations of 4 per cent. in the value of the blow given by

different coppers may be expected to be met at times.

- (b) The first blow may be weaker than the succeeding ones if the striker point is soft. If a weak blow is obtained, the striker point should be examined to see if it is flattened or set up.
- (c) If the cartridge case is too tight in the chamber, some of the force of the blow is expended in driving the case home, and a weak blow may be expected.
- (d) Dirt, rust or obstruction in some parts of the striker may prevent its free movement and a low blow will be recorded.
- (e) Insufficient protrusion will give a weak blow. This will probably be indicated by all three blows being not only low, but all exactly alike.

Constant testing is liable to flatten out the point of the firing pin ; if this occurs the pin should be changed.

For this reason the strikers or firing pins should not be subjected to repeated testing ; only three blows should be taken at each test, and the test should not be repeated unless the readings are obviously erratic.

NOTE.—Of the aiming rifles at present in the service, the only one fitted with a separate mechanism is the 1-in. Elswick " B," Mark II. In order to take the strength of blow in this type of aiming rifle, a Mark II percussion cartridge case should be bored out to take the gauge testing blow of striker, large.

TABLE I.

(Referred to in para. 4.)

GAUGES FOR TESTING BORES.

1-in. *Elswick "B" Aiming Rifle.* (V.A.O.S., Section M 3)

Gauges—

Plug, bore, low limit, for provisional condemnation.

High limit for bore—

At breech end.

At muzzle end.

Rod, graduated.

• 303-in. *Aiming Rifle.* (V.A.O.S., Section B 2)

Gauges, armourers', plug—

• 303-in.

• 307-in.

• 308-in.

• 310-in.

Lead.

Rod, Mark II.

By Command of the Army Council.


THE WAR OFFICE.

12th June, 1940.

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