

[Notified in A.C.Is. for the week ending 28th February, 1940.]

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Regulations
2310

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**REGULATIONS
FOR
ARMY ORDNANCE SERVICES
PART II**

**PAMPHLET NO. 17
1940**

OBTURATORS

By Command of the Army Council.

The War Office,
28th February, 1940.



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PART II

EXERCISE NO. 11

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EXERCISES

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REGULATIONS FOR ARMY ORDNANCE SERVICES, PART II.

PAMPHLET No. 17

OBTURATORS

USE

1. Obturators will always be used according to their date of manufacture, as marked in paint on the cover of the pad. Those of the earliest date will be used first.

2. In consequence of unavoidable slight differences in the dimensions of the seating for the obturator, it is necessary, the first time any pad is used in a particular gun, that a full charge with projectile should be fired to ensure correct fitting of the pad into the coned seating of the chamber.

After its initial use the obturator pad will be marked with the registered number of the gun with which it has been used and thereafter kept in the gun or in the box bearing the gun number.

Refitting may also be necessary when

- (a) the obturator has been reformed ;
- (b) the coned seating for the obturator in the chamber has been repaired.

Refitting will depend on the amount of the reforming or the extent of the repair carried out and will be decided in the case of (a) by the O.C. unit and (b) by an O.M.E. It will be carried out in the manner prescribed above for original fitting.

Fitting or refitting of obturators will be effected at the first opportunity during normal full charge firing, and no special issue of ammunition will be allowed for this purpose (except in the case of B.L. 60-pr. equipments, for which an allowance will be authorized in A.C.Is.).

Pads of old manufacture which are marked "UN-EXPANDED" or "EXPANDED" will have such markings obliterated.

3. Before firing takes place, should the temperature be below 50° F., an obturator in the gun should either be replaced by one which has been kept at a temperature above 50° F., or should be removed from the gun and the pad immersed in hot water for a few minutes.

4. Before firing with reduced charges from a gun having a steep coned obturator, special care must be taken to see that the obturator is properly seated.

5. Wherever possible, *light* adjustment of obturators will be obtained. Where *light* adjustment is not obtainable, *moderate* adjustment will be accepted, but *heavy* adjustment must be avoided. Great care must be taken in carrying out the following operation of adjustment.

ASSEMBLY

6. Remove the axial vent and obturator ; close the breech in order to ascertain the effort required to close with the obturator off ; open the breech and assemble the axial vent and obturator, but without any adjusting discs ; mark the obturator seating of the gun with a series of thin chalk lines parallel to the axis of the bore ; close the breech gently so as to ensure that the forward movement of the obturator is due entirely to the forward travel of the breech screw in locking. Slamming or hard pushing must be avoided. Open the breech gently and examine the obturator pad ; if all round marking is not obtained, remove the axial vent and re-assemble with one adjusting disc ; re-mark the coned seating, clean the obturator pad and close the breech gently as before. Open the breech and, if the marking is correct all round the obturator pad, *moderate* adjustment has been obtained. If all round marking has not been obtained, further discs are added, one at a time, until *moderate* adjustment has been obtained. Remove one disc and re-assemble the axial vent and obturator. This achieves *light* adjustment, which should be considered the normal.

7. If complete marking of the obturator takes place with *moderate* adjustment without the use of adjusting discs, it can be accepted, *light* adjustment not being obtainable in such circumstances. If considerable effort is required to close the breech when no adjusting discs are used, a swollen obturating pad is indicated. The use of such oversize pads should be avoided and they must be brought to dimensions in the obturator press. *Lightly* adjusted obturators must be watched for :—

(a) Dished pads.

(b) A tendency for the adjusting disc to be pushed out by the rear protecting disc and for the split in the

rear ring to hammer it out. A possible result of this is that the edge of the adjusting disc may become splayed out and turned over, causing stiffness in working.

- (c) Cuts in the surface of the adjusting disc, which may be caused by the hammering mentioned at (b) above.

Discs should be replaced as necessary.

8. The whole efficiency of the obturator depends upon the test and adjustment laid down in the two previous paragraphs being carried out with great care, more particularly when about to fire reduced charges in cold weather.

9. After completing the foregoing tests and adjustments, the obturator will be given a liberal coating of tallow, which must be worked well into the pad by opening and closing the mechanism several times, in order to settle the obturator after its adjustment.

10. If difficulty is found in assembling those obturator pads for which no presses are provided, they will be immersed in hot water until pliable, placed in position, the breech closed, and, where practicable, a few blows given to the axial head by means of a stave passed down the bore from the muzzle. In heavier natures of ordnance, after closing the breech, the pad can be compressed, while warm, by screwing up the nut of the vent axial. Pads which cannot be rectified will be returned to Woolwich for adjustment and repair.

11. When fitting the obturator on the vent axial care must be taken to see that the parts are assembled in their correct order. The face of the pad marked "Front" must be towards the muzzle, whilst the discs and rings will be placed in front or rear of the pad as marked. Steel adjusting discs may be required to ensure a proper fit, but in all cases the obturator must be free to turn on the vent axial.

12. As the number of adjusting discs which can be added varies in different guns and howitzers, care must be taken that, by adding an excessive number of discs, the vent axial is not pushed so far forward in the mechanism as to prevent correct assembly of the slide box on the vent axial.

13. If, after adding the required number of discs to obtain *light* adjustment of the obturator, it is found that the lock and box slide cannot be correctly assembled, or that the tube

cannot be inserted, the obturator must be exchanged. If exchanging the obturator does not remedy the defect, the "A" or inner "A" tube will be examined for forward movement and the threads of the breech opening for wear, or setting back. In either case, if this has occurred, the piece will be provisionally condemned. Undue clearance between seating and pad may, in like manner, be due to the threads of the breech screw having worn or set forward, in which case the breech screw will be exchanged and returned for repair.

B.L. 6-in. Mks. VII and VIIv guns will be provisionally condemned when *light* adjustment cannot be obtained with the gauge, testing, seat of obturator, using discs of a total thickness of 0.045-in. In order, however, to ensure that the wear is actually on the obturator seating and not partially due to loss of metal on the breech screw face, the breech screw must, where possible, be exchanged with that of a gun taking a smaller total thickness of discs before a final decision is given.

14. Before assembly the pads and discs will be well covered with tallow.

EXAMINATION

15. Obturators with canvas-covered pads will be examined periodically to see that the canvas is intact and in good condition. If found to be loose, frayed or torn, or to overlap either of the protecting discs or rings, the pad will be exchanged. They must be measured quarterly, and the results compared with the particulars shown in Appendix I. If the obturator is found to be below the minimum limit for thickness it will be soaked in a hot mixture of equal parts of tallow and olive oil.

16. If this treatment does not bring the obturator within the limits shown in Appendix I it will be condemned and exchanged.

17. All obturators for which presses and gauges are provided will be gauged quarterly for thickness by means of the special gauge issued to each battery. Any obturators which do not accept the gauge will be brought to plan dimensions in the press provided. The presses are shaped to receive the obturator, and the earlier Marks are fitted with a steel cover and spring washer which are clamped on after the obturator has been inserted, and so hold it under compression. The later Marks are operated by a differential screw. Recesses

are formed in the periphery of the press to admit of the application of the gauge whilst the obturator is under compression. Should it be found difficult to bring the obturator to plan size in the press, the pad will be warmed through in hot water, and again placed in the press under pressure. The obturator must be gauged and removed every few hours, the exuded oil being wiped from off the press, pad and protecting disc and rings. The operations are to be repeated as often as is necessary a bring the obturator to plan dimensions.

18. Obturators with wire woven pads, whether slow or steep coned, will be exchanged if the outer covering becomes damaged or broken.

19. No limits have been laid down for obturators with wire woven pads, but this type of pad will be condemned and exchanged should a good seating not be obtainable in the gun with the aid of adjusting discs.

20. The protecting discs will also be carefully examined, and if the tin be fused or the steel ring eroded, burred or cracked, they will be replaced by new discs or ring. If the tin is found to be expanded over the circumferential surface of the steel rings of the protecting discs, the expanded tin will be filed away, care being taken not to reduce the diameter of the steel rings.

21. Replacement limits are not given for the diameter of the steel split ring, as, provided they can be correctly assembled without fouling the threads of the breech opening or cone seating, they will, by means of the pressure put upon them in closing, find their seating in the gun. Split rings showing abnormal distortion will be replaced.

22. Special boxes are provided for each nature of obturator in which they will invariably be kept (for either storage or transport) when not in the gun, care being taken that the pads and discs are properly assembled and placed under compression in the boxes.

APPENDIX I.

(Referred to in para. I5.)

REPLACEMENT LIMITS FOR OBTURATORS (CANVAS COVERED)

Nature	Mark of obturator	Max. dia. of edge of steel ring		Thickness of obturator complete		Cone
		Front disc. (Smaller dia-meter)	Rear disc. (Larger dia-meter)	Minimum	Maximum	
B.L. 14-in., Mark VI	I	Inches †	Inches †	Inches 2.73	Inches 2.76	Steep
B.L. 12-in. howitzer, Mk. IV	I	†	†	1.68	1.71	"
B.L. 9.2-in., Mks. X, Xv, X* and XIII..	I	10.2	11.105	1.885	1.905	"
B.L. 9.2-in. howitzer, Mk. II	II	†	11.105	1.885	1.905	"
B.L. 8-in. howitzer, Mk. VIII	I	†	†	1.39	1.41	"
B.L. 6-in., Mks. VII and VIIv	I	†	†	1.29	1.31	"
B.L. 6-in., Mk. XIX	I	6.715	7.28	1.255	1.275	"
B.L. 6-in. 26-cwt. howitzer, Mk. I ..	II	†	7.28	1.255	1.275	"
B.L. 60-pr., Mks. II and II*	I	†	†	1.16	1.18	"
B.L. 12-in. howitzer, Mks. III and V ..	I	†	†	1.14	1.16	"
B.L. 6-in., Mk. XXI	I	†	†	0.89	0.91	"
B.L. 60-pr., Mks. I-I**	I	†	†	1.82	1.91	Slow
	I	†	†	0.95	1.0	"
	I	5.3	5.39	0.89	0.92	"

† Indicates split rings, measurements not taken.

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