JCJ

OBSOLETE

OBSOLETE

CONFIDENTIAL

THIS SPECIFICATION, or any Patterns, Drawings, or other information issued in connection therewith, MAY ONLY BE USED for a specific order, placed by an OFFICER OF THE WAR DEPARTMENT, OR OF THE MINISTRY OF MUNITIONS, and is NOT TO BE USED for any other purpose whatsoever, WITHOUT THE EXPRESS WRITTEN SANCTION OF THE ARMY COUNCIL, OR MINISTRY OF MUNITIONS OF WAR.

SPECIFICATION No. SA. 452.E

Rifles, No. 3, Mk. I*(T) — .303-in, pattern .14, Mk. I*, W(T); complete with model 1918 telescopic sight and leather caps and strap, fibre case with leather sling and cap, cleaning cloth and wire brush; normal butt only.

Specification to govern No. 3 Mk. I* (F) to No. 3 Mk. I*(T)

(1) Alteration of rifles.
(2) Supply of telescopic sights with fittings for attachment to rifles.
(3) Inspection of (1) and (2).

D. G. M. D.
R
515

Approved, 31st December, 1918

1. The Rifle Sighting Telescopes and Fittings must conform in all particulars with the sealed pattern and standard gauges, subject to such limits and dimensions as are shown in the accompanying drawings A. I. D. 1623, 1624, 1646, 1647 1675 and DD(E)676 of current issue, and to the conditions laid down in this Specification.

2. If one-fourth of any delivery be found inferior to the sealed pattern, or contrary to the terms of this Specification, the whole consignment will be liable to rejection.

Contractors are advised to submit a sample delivery for inspection and report, before proceeding with deliveries in bulk.

3. The quality of the material to be as specified herein, and, where no instructions are given, both material and workmanship to be of the very best description.

In cases of doubt as to the suitability of any of the material for the purpose intended, early reference is to be made to the Chief Inspector of Small Arms, Royal Small Arms Factory, Enfield Lock, in order to avoid the delay which would be caused by the rejection of such material after delivery.

Except with the sanction of the Chief Inspector of Small Arms no change is to be made in the quality or nature of the material used or in the methods of treatment and manufacture where such are laid down in the specification, drawings or contract.

4. No advantage whatever to be taken of any omission of detail in this Specification, as a full explanation of any part of the work not fully shown or understood can be obtained from the Chief Inspector of Small Arms.

5. The Telescopes and Fittings to be finished in every respect in the most complete manner and to the entire satisfaction of the Chief Inspector of Small Arms, who shall be at liberty to inspect, either personally or by deputy, the work during its progress, and to reject any unsuitable or defective material or workmanship, and to whom reference should be made for any information, or if any discrepancy be found to exist between the pattern, drawings, and this Specification.

6. If found more convenient to both parties, the inspection may be carried out on the Contractor's premises, in which case suitable accommodation must be provided by the Contractor.

7. All supplies to be marked with the name or initials of place of manufacture or manufacturer, or usual trade mark.

IMPORTANT DETAILS

8. The external and internal diameters of the body tube must agree with the dimensions on the drawings, and must pass, respectively, ring and plug gauges held by the Chief Inspector of Small Arms.

9. The Telescope must be free from parallax with respect to an object at 200 yards distance.

10. The screw-actuated movement of the sighting pointer must be absolutely free from backlash. The elevating screw must conform strictly to the dimension given on the drawing. The sighting pointer must, during the whole of its travel for range elevation or depression, move without any lateral displacement from its own vertical.

The Apex of the pointer should be central when the Range Drum is fixed at 600 yards elevation.

11. All Telescopes with fittings attached must be interchangeable among themselves and with the sealed pattern fitted Telescope held by the Chief Inspector of Small Arms, and any Telescope must fit properly upon any fitted Rifle held by the Chief Inspector of Small Arms. When so fitted, the optical axis of the Telescope with the neutral axis of the Prism in a vertical position must coincide with line of open sights of the rifle within 6 minutes tolerance on either side of the normal. The graduations on engraved ring of adapter Prism Cell are to be 3 minutes apart, 5 divisions on each side of the normal.

12. The claws of the front Telescope fitting must be capable of being forced closely up against and bear on the pin of the front body fitting.

13. The locking bolt must ensure the drawing down of the shoulder of the rear Telescope fitting firmly on to the top of the rear body fitting.

14. All keyways and tommy slots must be cleanly and squarely cut and must conform to dimensions of the drawings.

15. The body tube must be of cold drawn mild steel and in one piece with an expanded end as shown in the drawing.

16. The Object Glass Cell and Connecting Tube. - The screwed connecting tube is to be a good screw fit in the body tube, and must be shouldered down on to the latter, when in position for the diaphragm, in such a way that it may be securely held by one positioning screw. The object glass cell must screw into the connecting tube without shake, and must be held firmly in its final position by a set screw when adjusted to eliminate parallax.

17. Prism, Prism Cell and Adapter. - The prism is to give 30 to 40 minutes deviation of angle when turned through 180° and must be securely retained in its cell by means of a feather and featherway, and an efficient cement. The key slots in the prism cell are to be cut at right angles to the neutral axis of the prism. The prism cell must be a good push fit into its adapter and must be securely held by the grub screws provided, and must be so positioned that the centre of thin edge of the prism is situated at 12 o'clock.

18. Erector Lens Tube and Focussing. - The erector tube must be a good sliding fit in the body tube and the whole of the slot in the latter must be covered by the washer for any position of the erector. The washer must be a close fit on the body tube to exclude dust and moisture.

The position and length of the slot must be such as to provide for a range on either side of the position for normal sight of 5 diopters. The screwed clamping ring and the screwed locking ring must together hold the erecting lenses in their cell securely against all vibration.

19. Diaphragm and Pointer. - The diaphragm carrying the vertical pointer and horizontal wire must be a perfect fit, and not bind in any part of its travel in the V slides. The vertical pointer must be securely fixed at its base, and the horizontal wire must also be securely fixed at each end, must show no apparent sag, and must be in contact with the pointer at the point of crossing. The diameter of the horizontal wire and of the vertical wire is to be within the limits shown on the drawing. Both wires in the finished state must be free from the possibility of rust. The vertical wire is to be coned and truncated at its free end. The angle of the cone is to be between 70° and 85° and the diameter of the flattened apex is to subtend an angle of between 3' and 2'. The angle between the two wires must be accurately 90°.

The Pointer must be correctly in the centre of the field of view, with a toleration of 10' of angle on either side of the centre.

20. Stop. - The aperture of the stop must be truly circular and concentric with optical axis of the telescope.

LENSES

21. All lenses must be perfectly centred. Where the curved surface of a lens is in contact with the shoulder of the cell, the shoulder must be curved to the same radius as the lens. It must not be left with a sharp edge for the lens to rest upon.

22. Object Glass. - The object glass is to be an achromatic cemented doublet. The edges of the lenses are to be ground to the exact diameter of the object glass cell so as to fit it without shake. A featherway is to be cut in the rim, which is to fit accurately over the pin in the object glass cell, and the lens is to be efficiently cemented in its cell.

23. Erector Lenses. - The erector lenses are to be two in number, and each is to consist of an achromatic doublet. The two doublets are to be identical.

24. Eyepiece Lenses. The eye lenses are to be two in number and similar in construction. Each lens is to consist of an achromatic doublet. They are to be held in position against a stop ring securely soldered into the expanded end of the body tube by means of a screwed clamp ring. The latter is to be well shouldered home before the hole for the keep screw is drilled and the spring separation ring, between the eye lenses, should then be under compression.

OPTICAL CONSTRUCTION

25. The object glass is to have an effective aperture of not less than 18 mm. The magnification is to be three diameters. The field of view is to be not less than $7\frac{1}{2}$ degrees. The complete system of the Telescope is to be achromatic. A margin of $\pm$ 5 per cent. is allowed on the above optical data.

The eye relief, i.e., the distance from the eye to the exit pupil of the telescope, when the full field is obtained, must be between 2.7/8" and 3.1/4".

26 deleted.

TELESCOPE AND RIFLE FITTINGS

27. The Brackets must be a good fit on the body tube and when secured in position must cause no deformation of the latter. The fittings must be made of good mild steel and in strict accordance with the dimensions of the drawings. The bearing surfaces of the fittings on the Rifle and Telescope must be tinned before sweating.

28. Rifle Fittings. The positioning of the front and rear fittings must not cause undue strain on the claws of the front fittings.

The front and rear fittings on the rifle must be securely attached, and the holes cleanly cut so that the projections on the Telescope fittings may enter without any undue force having to be used.

Care must be taken, in drilling the holes for the front fittings on the body of the rifle, that no injury is caused to the resistance shoulders on the body. The drawing must be carefully adhered to in this respect.

When the sight is locked to the rifle, there must be an appreciable fit between the contact at the pin of the front body fitting and the front surface of the hole in the rear body fitting, and there must be no undue bending strain of the body tube of the Telescope, and the sighting pointer must be parallel to the vertical plane passing through the axis of the rifle, as determined by a gauge held by C.I.S.A.

SCREW THREADS

29. All screws, both in Fittings and Telescopes, are to be of the B.A. Standard series, except the elevating screw, vide para.10 of this Specification.

MATERIAL AND WORKMANSHIP

30. The materials are to be of the best quality, thoroughly sound, and free from defects. The workmanship is to be carried out in the best and most substantial manner, to be equal to that of the sealed pattern in every respect, and to the entire satisfaction of the Chief Inspector of Small Arms.

The steel is to consist of good quality mild steel.

The brass tubing is to be the best triplet drawn.

The brass is to consist of:-

Copper not less than 60 per cent.
Zinc not more than 40 per cent.
Other materials, nil.

The Contractor is to submit, free of charge, samples of the various materials for analysis and testing, if required to do so by the Chief Inspector of Small Arms.

31. NO PATCHING OR STOPPING TO HIDE DEFECTS IS TO BE MADE WITHOUT AUTHORITY. ALL SHARP CORNERS AND EDGES MUST BE REMOVED.

32. All lenses are to be of the best quality glass, finely annealed, perfectly polished, colourless, free from striæ, flaws and defects of figure, and reasonably free from bubbles.

33. The internal surfaces of the Telescope are to be covered with a thoroughly adherent dull black coating.

The steel body tube of the Telescope, together with the Telescope fittings and the Rifle fittings, are to be browned.

The external brass parts are to be black/stove enamelled.

34. All leather is to be prime British tanned, and free from impurity, or other matter (especially glucose) not required in the preparation of leather of the best quality. All stitching is to be between 9 and 11 stitches to the inch, and must be securely fastened off. The threads used are to be made from good flax or hemp, and are to be well waxed. All edges of leather work are to be cleanly cut. Exposed edges of seams are to be neatly and smoothly rubbed down.

35. The instrument is to be marked as indicated on the Drawing.

36. The Telescope with its fittings sweated on is not to exceed 15½ oz. in weight.

COURSE ON INSPECTION AND PROOF

37. The Telescopes and fittings will be submitted for inspection in the finished stage.

38. The definition and flatness of field of the Telescope will be tested by means of a board having painted upon it concentric circles and radiating lines, and a plate having various shaped holes cut in it. The Telescopes will be directed towards the centre of the board or plate focussed for the centre of the field of view.

The circle and lines on the board, and the holes in the plate, must be clearly and sharply defined, without any colour fringes, over at least 5½ degrees of the field. No light reflected from the interior surface of the body must reach the eye.

39. The whole of the lenses, when viewed by transmitted light, must be prefectly free from any appearance of greyness or cloudy surfaces. Any such defect, causing a milky appearance or any want of brilliancy of the object viewed, will render the Telescope liable to rejection.

40. Any defective centering, as is indicated by different colour fringes on different sides of the object viewed will render the Telescope liable to rejection.

41. The Telescope will be tested for parallax by focussing it on an object at 200 yards distance. There must be no apparent movement between the object and the pointer, when the eye is moved in the rear of the eyepiece horizontally and vertically to the axis of the Telescope.

42. Each Telescope fitted Rifle will be subjected to an adequate firing test.

43. Telescopes and fittings will be subject to testing by, and the final approval of, the Chief Inspector of Small Arms or an Officer deputed by him.

44. Telescopes after approval will be marked thus ↑

H.W. TODHUNTER, Lt.-Colonel,
Deputy Assistant Controller
Munitions Design.

MINISTRY OF MUNITIONS OF WAR,
WHITEHALL PLACE, S.W.1.

NOTE. - This Specification is to be returned to the Chief Inspector of Small Arms, Royal Small Arms Factory, Enfield Lock, on completion of the (Tender
(Contract.

Amendment to

Specification SA.452

Rifles, No.3, Mk.1*(T)

Authority	Letter	Amendment
A3/254/ R/173 CIA(16)1/2/6	D	S.A.452 Specification endorsed - "OBSOLESCENT"
Encl.7 to 7/Gen/101 10-1-47 I.I.W.17	E	S.A.452 Delete endorsement "OBSOLESCENT" Substitute "OBSOLETE"