

Chapter 35 SIGNALLING LAMPS, TYPE B AND TYPE B, MK. 2

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LEADING PARTICULARS

Signalling lamp, Type B	Ref. No. 5A/2334
Signalling lamp, Type B Mk. 2	Ref. No. 5A/4711
<i>Accessories</i>	
<i>Front glass clear</i>	<i>Ref. No. 5A/2335</i>
<i>Front glass green</i>	<i>Ref. No. 5A/2336</i>
<i>Front glass red</i>	<i>Ref. No. 5A/2337</i>
<i>Carrying case for signalling lamp</i>	<i>Ref. No. 5A/4818</i>
<i>Carrying case for two spare front glasses</i>	<i>Ref. No. 5A/4819</i>
<i>Lamp filament, 12 volts, 30 watt, prefocus cap</i>	<i>Ref. No. 5L 9954401</i>
<i>Lamp filament, 24 volts, 30 watt, prefocus cap</i>	<i>Ref. No. 5L 9954402</i>

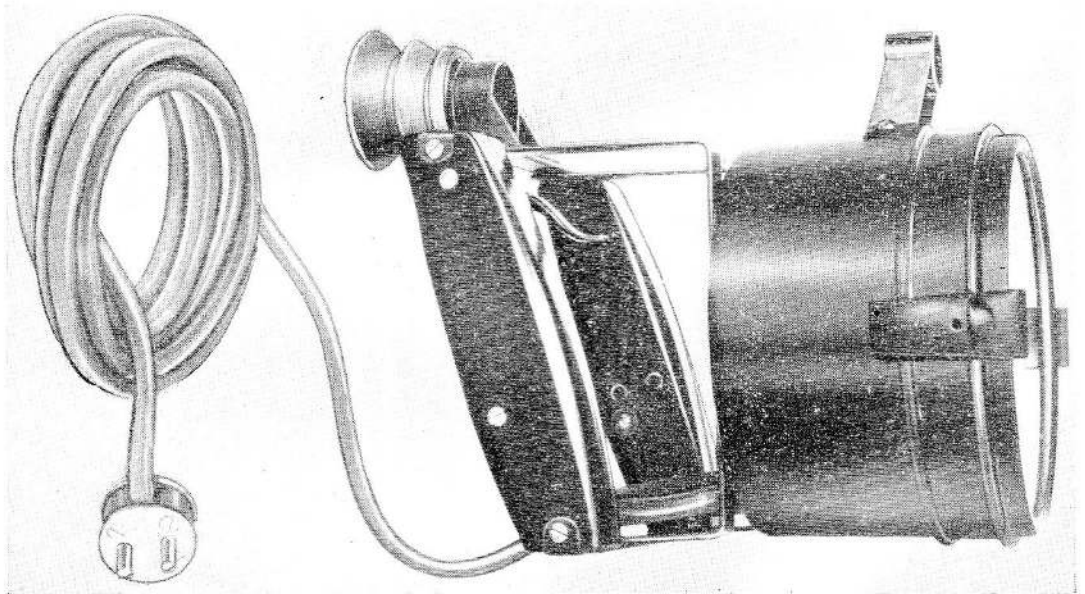


Fig. 1. Signalling lamp, Type B

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Introduction

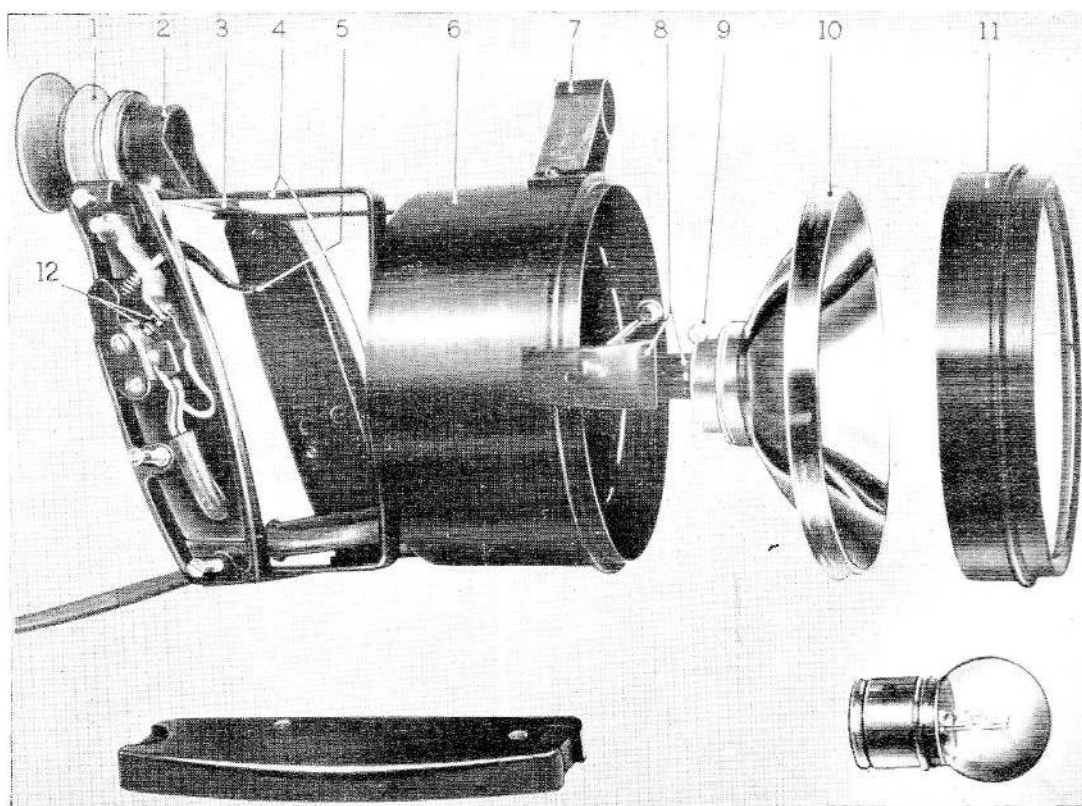
1. The signalling lamps, Type B and Type B Mark 2, are intended for visual signalling by day or by night, and provide a narrow beam of light which is focused on the recipient target by means of two aperture sights. Signals are made by breaking the filament lamp circuit using a trigger switch on the right-hand handle. Signalling speed is governed by the rate of change of illumination of the filament lamp, the time taken for the filament to light up and black out being sufficiently short to allow a normal "sending speed," of 8 to 10 words per minute.

DESCRIPTION

General

2. The two lamps are similar in general construction, the Type B Mark 2 lamp embodying a modified trigger switch which reduces operator fatigue, a modified termination on the reflector, and curved handle

frames. The Type B is the lamp shown in fig. 1 and fig. 2, and details of the Type B Mark 2 switch and right-hand handle assembly are shown in fig. 3. The lamp comprises a paraboloidal reflector which has the lampholder and filament lamp at its centre enclosed within a cylindrical body. The rim of the reflector is spun back to fit over the front of the body and has two pierced holes, one at the 6 o'clock position and one at the 11 o'clock position when viewed from the front. A locating rivet and a spring catch on the lamp body engage with these holes and locate and retain the reflector in the lamp body. The front cover fits over the reflector rim onto the lamp body and is secured by two spring clips which are hinged to the body. The handles are attached to the rear of the body by two frames which are braced by two cross struts. A pair of aperture sights, which are in alignment with the axis of the reflector and the light beam, are mounted one on top of the body and one on the top bracing strut.



- | | | |
|-----------------------|------------------|---------------------------|
| 1 RUBBER EYEPIECE | 5 SWITCH TRIGGER | 9 LAMPHOLDER SIDE CONTACT |
| 2 BACKSIGHT | 6 LAMP BODY | 10 REFLECTOR |
| 3 FRAME BRACING STRUT | 7 FORESIGHT | 11 FRONT COVER |
| 4 HANDLE FRAME | 8 SPRING CLIPS | 12 SWITCH CONTACTS |

Fig. 2. Partially exploded view of signalling lamp, Type B

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3. The lamps are supplied complete with the supply wandering lead and plug but without the filament lamp. The two core, Duprensheathround 6, cable is protected by a rubber sleeve at the entry to the lamp body, and connects to a side contact on the lamp holder and to an insulated terminal on the filament lamp contact block. A connection is taken from the insulated terminal to one side of the trigger switch in the right-hand handle assembly, a second connection from the other side of the trigger switch is connected to the leaf-spring contact in the lamp contact block. The trigger switch is a single-pole switch operated by a mechanically linked trigger. In the Type B lamp the switch has a rigid contact arm coupled to the trigger mechanism and is spring-loaded by a helical spring, connection to the arm-contact is made by a flexible connection as shown in fig. 2. In the Type B Mark 2 lamp the rigid contact arm is replaced by a leaf-spring contact which is operated by an actuating lever coupled to the trigger mechanism as shown in fig. 3. Carrier cases (stowage boxes) are provided one for the complete lamp and a separate box for the alternative coloured front screens; when not in use the lamp and the spare screens should be returned to their respective carrier cases.

Light source and reflector

4. The light source of this signalling lamp is a special filament lamp having a medium pre-focus cap which ensures correct focusing when filament lamps are renewed. Since these filament lamps are intended for use in a flashing circuit their continuous burning life is short, and they should therefore not be used continuously except in an emergency. The centre of the polished aluminium reflector is shaped to take a lampholder, and the connections to the filament lamp are made through a phosphor-bronze leaf-spring contact and a terminal on the side of the lampholder.

Sights

5. The two aperture sights are the foresight, which is riveted to the lamp body, and the backsight which is riveted to the bracing strut between the handle frames. The foresight has two concentric rings, and when viewed through the back-sight the outer ring subtends an angle of divergence of 6 degrees. This is approximately 1 degree more than the angle of divergence of the beam, so that the whole of the beam should fall evenly within the outer ring.

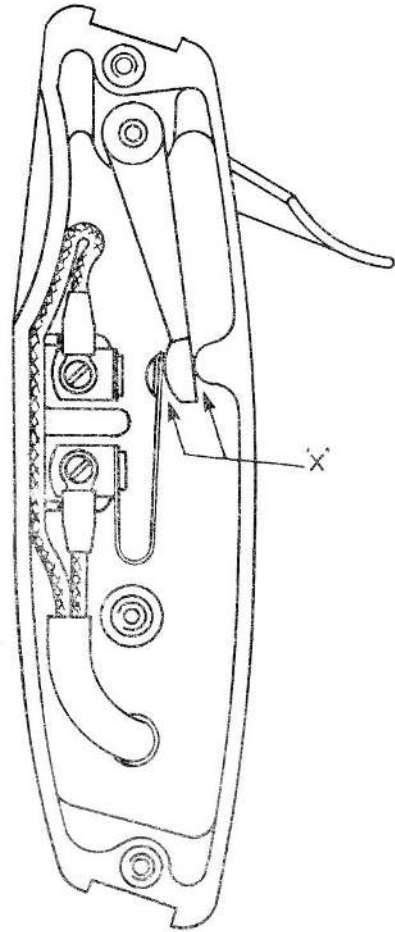


Fig. 3. Right-hand handle assembly of Type B, Mk. 2 lamp

OPERATION

6. In use the lamp is connected to a suitable source of supply and is held in both hands with the rubber eyepiece of the backsight against one eye (*it should be noted that both 24V and 12V filament lamps are provided*). The backsight should be kept approximately concentric with the rings on the foresight, and the target should be viewed through the sights and brought to the centre of the foresight and held there. The foresight is well clear of the body of the lamp so that if the target is lost, a clear view round the sight enables it to be quickly regained. A clear plastic disc is fitted inside the eyepiece to protect the eye when the lamp is used in a strong wind.

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7. For day signalling the target should be held in the inner ring as far as possible, as this is the part of the beam of greatest intensity. For night use the outer ring of the foresight is made visible by a coating of luminous paint, and it is only necessary to keep the target within the outer ring.

SERVICING

General

8. The lamp should be kept clean and moisture free, as moisture on the front glass cover or reflector will cause diffusion and scattering of the beam with loss on intensity. The reflector and the front cover may be cleaned using a soft dry cloth, warm soapy water may be used to remove dirt but the reflector and front cover must then be dried with a soft cloth. **DO NOT USE POLISH, ABRASIVES OR DETERGENTS WHICH WILL DAMAGE THE REFLECTOR.** The cover should be removed from the right-hand handle, and the switch contacts inspected for pitting or burning, if necessary they should be cleaned using contact cleaners or fine emery paper. The spare filament lamp, which is carried in the stowage provided in the back of the lamp body should be checked for serviceability.

Lubrication

9. Lubrication of the trigger pivot-pin bearing surfaces, and of the mating surfaces of the actuating lever and contact spring (Mark 2 lamps only, shown 'X' in fig. 3) may be lightly smeared with grease XG315. This should only be necessary every 12 months during normal use, and every care must be taken to use the lubricant sparingly to avoid contamination of the contacts.

Spare filament change-over

16. When it is desired to change-over the spare filament lamp, or to renew the spare filament lamp, the spring clips should be released from the front cover and the cover removed. The filament lamp should next be removed and the reflector catch depressed whilst the reflector is withdrawn in a downwards direction. After disconnecting the lampholder side terminal the reflector should be placed face downwards on the bench on a soft cloth. The filament lamps may now be changed over, or the spare filament renewed. On reassembly care should be taken to engage the reflector on the locating pin at the bottom of the lamp body.

Right-hand handle and trigger switch renewal

11. Should it be necessary to renew the trigger switch the right-hand complete handle assembly should be renewed. First remove the front cover, the filament lamp, and the reflector as detailed in para. 10, then disconnect the cables from the leaf-spring contact block and unclasp the handle cables from the lamp body. Unscrew the handle fixing screws and ease the handle out of the supporting frame withdrawing the cable from the lamp body. Reassemble in the reverse order.

TESTING

Functional test, sights and beam alignment check

12. A functional test, and sights and beam alignment check, may be carried out using a 24V filament lamp. A stationary object approximately 50 feet from the lamp should be sighted in the centre of the foresight inner ring when viewed through the backsight. When the lamp is switched on the beam should appear directly on the object viewed. If these conditions do not obtain the lamp should be returned for repair.

Trigger torque

13. The torque required on the trigger to operate the lamp should be not less than 12 ounce-inches, or more than 18 ounce-inches, and is approximately equivalent to a pull of 1 lb. at the tip of the trigger.

Switch contact milli-volt drop test

14. When closed with normal finger pressure on the trigger, the voltage drop across the contacts with a current of 10 amps d.c. should not exceed 30 milli-volts. This should normally be measured with the right-hand handle assembly removed from the lamp and connected with a suitable load and supply.

Foresight luminosity

15. The luminosity of the foresight should be periodically checked by storing the lamp in darkness for 24 hours, and then viewing the foresight through the backsight in darkness, after allowing five minutes acclimatisation of vision, the foresight should be clearly visible.

Insulation resistance test

16. The insulation resistance of the lamp when measured with a 250V insulation resistance tester between both pins of the input plug and the lamp body, with the filament lamp fitted and the trigger closed, should be not less than 5 megohms.

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