

Fison binocular indirect ophthalmoscope

Instructions



All Keeler instruments are designed, made and inspected by experts to ensure first class performance and reliable service for many years to come. The notes provided here will help you to achieve and maintain maximum efficiency from your Fison. It is recommended that these instructions be read through before setting up the instrument for the first time.

The Standard Outfit contains:-

The Fison Binocular Indirect Ophthalmoscope Transformer and cords.

Detachment Charts (1201-P-7000)

16D Condensing Lens (recesses are in the accessory compartment for optional extra lenses 20D and 30D)

Large and small Scleral Depressors (1201-P-6067 and 1201-P-6075)

"Bi-mirror" Attachment (1201-P-6032)

Standard Filter Wheel (1201-P-6024)

The Transformer supplied with the Fison Ophthalmoscope is the Keeler Dualite.

Do not use this transformer for any purpose other than described herein.

There are three models:

Model 1. European Type. 230-240V. 50/60 Hz. Ref: 1951-P-2188.

Model 2. European Type. 200-220V. 50/60 Hz. Ref: 1951-P-2196.

Model 3. U.S.A. Type: 110-130V. 50/60 Hz. Ref: 1951-P-2209.

Input Supply

Each unit is pre-set internally to correspond with the electrical supply of voltage specified on your order. Check the voltage marked on the electrical data label at the back of the unit corresponds with your local supply voltage before connecting.

Should the unit input voltage need to be changed we recommend a Keeler authorised agent or qualified electrician carries out the following instructions.

DO NOT CONNECT TO INPUT SUPPLY

The input voltage selector wire is colour coded.

Model 1. Blue, European Type.
Model 2. Blue, European Type.
Model 3. White, U.S.A. Type.

- a) Remove the bottom cover.
- b) Remove the protective sleeve and unsolder the input selector wire.
- c) Solder the input selector wire to the input voltage terminal required.
- d) Leave all other wires connected to their original terminals.
- e) Replace the protective sleeve on the terminal.
- f) Replace the bottom cover.
- g) Alter the Electrical Data Label.

Important

The transformer is rated at approximately 10 per cent higher than nominal to ensure the stated voltage (e.g. 6V.) is maintained at the bulb, despite resistance in the connecting cord. This has been arrived at in relation to the Keeler cord handle. Check with your supplier for connecting of other manufacturers equipments.

Connecting to the input supply

Connect the cable to a suitable plug (U.S.A. model is supplied with a moulded plug). Electrical input colour codes are:

Models 1 and 2. Live brown, neutral blue.
Model 3. Live black, neutral white.

This unit is earth free. **Do not connect to earth.** Where input supply fused plugs are to be used a 1 Amp. fuse should be fitted.

Fuse

The unit is protected by an anti-surge fuse.

Models 1 and 2. 250mA, 20mm x 5mm.
Model 3. 500mA, 1 1/4" x 1/4".

The fuse holder is on the back panel, the centre plug is a bayonet fit in the socket, access is obtained by pressing and rotating the plug anti-clockwise.

Disconnect from electrical supply before changing fuse.

Thermal cut-out

The transformer is fitted with a thermal cut-out which will automatically interrupt the main supply if any fault should cause the temperature inside the box to rise above 85°C. Should this occur, the On/Off switch will fail to illuminate and the thermal cut-out will need replacing after the fault has been rectified.

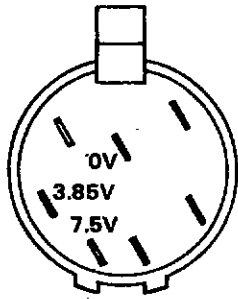
This must be carried out by an authorised Keeler distributor.

Using your Dualite Transformer.

The Dualite is suitable for use with Keeler 3.5V Cord Handles (or any other 3.5V handles with a maximum current rating of not more than 1 Amp) and for instruments requiring a power supply of 6V, 3 Amp, such as Fison Indirect Ophthalmoscope and Halpike Operating Headlamp. However, care should be exercised as this unit has overload facility via the output control, and at maximum will deliver an output of 7.5V. New Keeler Instruments are supplied with the connections correctly made inside the 7 pin plug.

Should the instrument cord become disconnected from the plug or should you wish to power other compatible instruments from the unit.

- a) Remove the securing screw from the plug. Depress the release button on the plug, and pull the body housing apart.



View from rear of plug contact block

- b) Insert the flexible cord through the grommet and base of the plug body, connect (solder) the cable ends to the appropriate terminals.
- c) Tighten the cord grip around the cord.
- d) Re-assemble the plug.
- e) Replace the securing screw.
- f) 3.5V instrument on cord handle. Connect the cord to terminals 0 and 3.85.
- g) 6V instrument. Connect the cord to terminals 0 and 7.5 (see fig).

Electrical supply switch

The amber electrical supply switch at the back of the unit illuminates in the On position only.

Rheostat Control

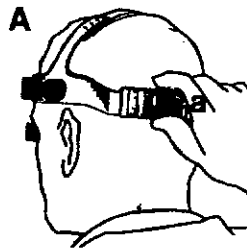
- a) 3.5V instrument. Adjust the level of illumination using either the rheostat on the transformer or the rheostat on the instrument handle, always leave one in the "full on" position. Read only the lower 3.5V, sweep scale. There is no over voltage facility in the transformer when using 3.5V instruments.

- b) 6V instruments. Read only the upper sweep scale. For normal use do not exceed the 6V line. When the maximum brilliance is needed, the rheostat may be used, exceptionally, for short periods in the over voltage area, giving up to 7.5V. Prolonged use at this output will, however, shorten the bulb life, and may cause overheating.

The following fitting adjustments should be carried out with the ophthalmoscope switched off.

A. Headband

1. Turn knob "a" (fig A) anti-clockwise to open headband to required size.
2. Place the instrument centrally on the head, adjusting the cross-strap if necessary, then tighten knob "a" sufficiently to eliminate movement of the instrument whilst providing a comfortable fit.

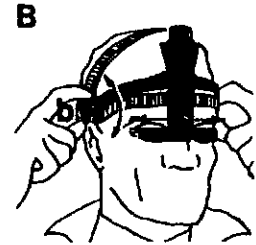


B. Height

1. Loosen the knurled knobs "b" (fig B) on either side of the headband, and raise or lower the metal "overband" until the viewing lenses of the optical unit are in front of the eyes. Tighten the two knurled knobs.

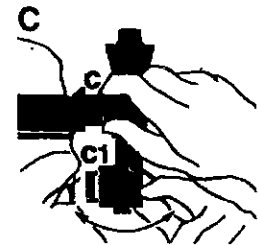
Place a fixation target at about 33cm distance, which is the usual separation between the observer and the inverted fundus image in indirect ophthalmoscopy. One of the pictures on this page will serve as a target.

It is recommended that adjustments "C" and "D" should be inter-related in order to obtain the best visual conditions.



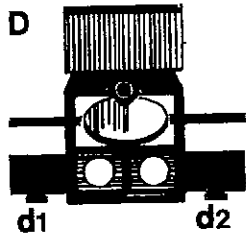
C. Angle of Vision

1. Loosen knurled knob "c" (fig C) and tilt optical unit until the target is seen through the instrument, and the maximum field of view is obtained. Tighten knob "c". The angle of vision normally has a slight declination when performing indirect ophthalmoscopy.



D. Interpupillary Distance

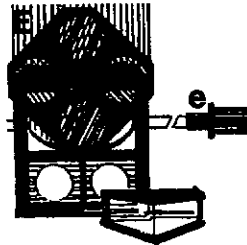
1. The knobs "d1" and "d2" are spring-mounted and self-locking; slide them in and out to adjust eyepiece separation (fig D).
2. Closing first one eye and then the other, make a final slight P.D. adjustment to ensure that each eye is seeing the whole of the fixation target.



NOTE:- If the Ophthalmoscope has been correctly adjusted, a field of view 8cm (3in) square will be obtained. A smaller field of view indicates that the optical unit is not close enough to the observer's eyes. In this case repeat the adjustments B, C and D. Additional +ve lens caps are available for presbyopes wishing to use the ophthalmoscopes without their own spectacles. These caps fit over the existing eye-piece lenses "c1" (fig C).

E. Illumination

1. Switch on the transformer.
2. Rotate knob "e" (fig E) thus tilting the light mirror, until the patch of light is in the upper half of the field of view. If the light patch appears to be off to one side, both P.D. adjusting knobs should be moved in the same direction until centring is achieved.



NOTE:- To facilitate right or left handed operation, rotation knobs are provided on both sides of the mirror. These plastic nylon knobs may be pulled off and sterilised by autoclaving at 134°C.

F. Fundus Examination

The pupil must always be dilated before indirect ophthalmoscopy is undertaken.

1. When the Fison Ophthalmoscope has been adjusted as in sections A to E, take up a position about 40 to 50cm from the patient — see fig 3.
2. Direct the beam of light on to the patient's eye by means of head movements only; DO NOT readjust the ophthalmoscope.
3. Hold the 16D condensing lens (with the more convex surface facing the operator) close to the patient's eye so that the pupil is centred in the lens — see fig 1.
4. Keep the head quite steady and gradually move the condensing lens away from the patient's eye. During this process do not look at the lens but at the red reflex from the fundus which is focussed at a point in space between the condensing lens and the observer. Just before reaching the optimum position for the condensing lens, conditions will be as in fig 2:

5. In the optimum position the condensing lens will be about 6cm from the patient's eye and the image of the fundus will have "expanded" until it appears to fill the entire field of view bounded by the rim of the condensing lens. Reflex may be minimised by tilting the condensing lens slightly.

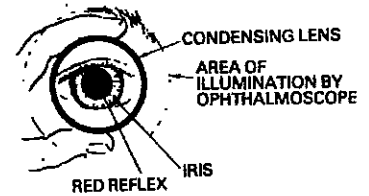


Fig. 1

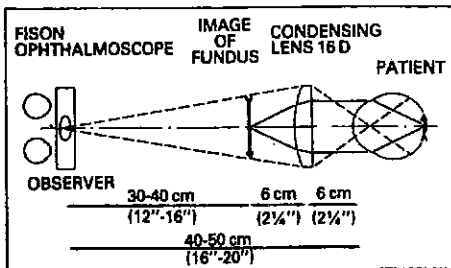


Fig. 2

NOTES

1. If the lens is moved further away from the eye than the optimum position, the image of the fundus will no longer fill the condensing lens and shadows will be seen. Corneal reflex is also greater.

2. The distance of 6cm from the patient's eye to 16D condensing lens, assumes emmetropic conditions. This gives an image of the fundus that is magnified 3.75 x. If the patient is highly myopic the condensing lens needs to be closer to the eye, whilst in hyperopia the lens must be held more than 6cm from the eye.
3. Observers who normally wear corrective lenses for near vision will find that the Fison will fit easily over their spectacles.
4. Aspheric lenses of 20D and 30D power are offered as optional extra accessories. These provide a larger field of view but a smaller magnification - approximately 3 x and 2 x respectively. The 20D lens should be approximately 5cm from the patient's eye, whilst the 30D lens should be approximately 3.3cm from the eye.



Not to Scale

Fig. 3

G. Use of Accessories

1. Detachment Charts

These charts are supplied in pads of 50 (ref 1201-P-7000). A set of colour pencils is provided to facilitate fundus drawing according to the colour convention that is printed on the reverse of each chart.

To make a drawing of a fundus that is being observed by indirect ophthalmoscopy the chart should be placed upside down (fig 4) and the practitioner should draw exactly what he sees.

When viewed the right way up the drawing will show the correct orientation (fig 5). The reason is, of course, that by indirect ophthalmoscopy the aerial image is both inverted and reversed left to right.

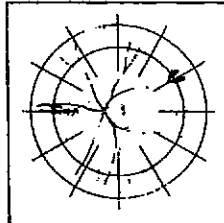


Fig. 4

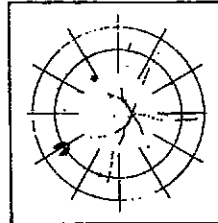


Fig. 5

2. "Bi-Mirror" Attachment

This semi-reflecting dual mirror will provide simultaneously views of the fundus for assistants to both left and right of the observer. The mirror holder should be pushed on the rod below the viewing aperture on the instrument (see fig E). The mirror may be brought into or removed from the line of vision by vertical rotation on the rod, but to do this the filter wheel must be moved temporarily into a horizontal "midway" position.

3. Filter Wheel

The "special study" filter wheel is supplied with a red-free and cobalt blue filter. Any other type of filter for special work may be fitted into one of the two empty apertures. The wheel, which may be rotated in either direction, is simply pushed onto the ophthalmoscope (see fig E) and, if desired, may be left permanently on the instrument.

NOTE:- The case is large enough to accommodate the ophthalmoscope complete with attachments without disturbing the surgeon's individual adjustments. The instrument will thus be ready for immediate use on subsequent occasions.

4. Scleral Depressor

The Scleral Depressor is used to indent the sclera over the peripheral anterior part of the retina so as to make this come into view in the pupil.

The method of using it is first of all to anaesthetise the conjunctiva. The depressor is then placed on the middle or index finger on the left hand, and the end of it is placed over the sclera which is intended to be indented. The Ophthalmoscope beam is then focussed in the pupil when it will be seen that there is a small bulge of retina overlying the place where the end of the depressor lies.

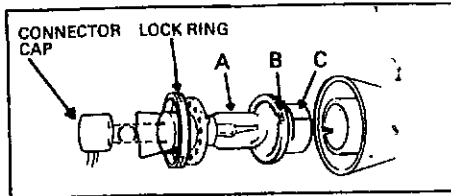
The depressor can be moved about over the sclera so as to bring other parts of the retina into view.

Whilst it is obvious that this scleral depression can be performed through the lid, it is preferable to do it by pressing on the conjunctiva - a more accurate and delicate technique. The depressor should be sterilised by autoclaving or by dry heat before and after each time it is used.

Change of Lamp

1. Remove connector cap.
2. Unscrew lock ring just inside the cooling cowl.
3. Lift out old lamp unit.
4. Insert new lamp unit so that projecting lug A engages in slot B.
5. Replace lock ring and tighten.
6. Replace the connector cap.

**WHEN ORDERING SPARE LAMP PLEASE
QUOTE REF: 1012-P-5006**

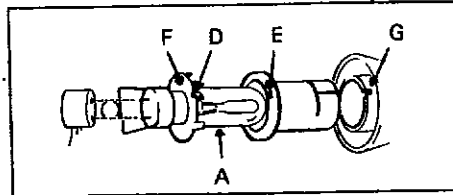


Conversion to Halogen Illumination

To convert a standard Fison to Halogen illumination, order:-
Halogen Bulb Ref. 1202-P-5014 and
Halogen bulb adaptor Ref. 1202-P-7002
and carry out the following procedure:-

1. Remove connector cap.
2. Unscrew lock ring, as illustrated above, and discard.
3. Remove bulb (indicated A in diagram above) and sleeve (indicated C) and discard.

4. Assemble Halogen lamp and adaptor, aligning lug D with hole E and locate bulb flange F by pushing firmly onto adaptor (see diagram below).



5. Push complete assembly into Fison cooling cowl, ensuring that lug D aligns with slot G.
6. Replace connector cap.

Replacement of Halogen Lamp

1. Remove connector cap.
2. Lift out old lamp unit, leaving adaptor in place.
3. Insert new lamp, pushing firmly into adaptor. Ensure that lug D aligns with hole E and slot G.
4. Replace connector cap.

Warning

Halogen cycle lamps are pressurised and get very hot when in use. Care must be taken when replacing lamps. Sufficient time for cooling must be allowed before removing the lamp.

Sales and Servicing

To ensure that first class performance is maintained, your Keeler equipment should be cleaned and generally serviced at regular intervals. Keeler agents will be pleased to help you with this. Please fill in the appropriate details below, and return this leaflet, with the instrument, when servicing is required.

OWNERS NAME.....

SUPPLIED BY.....

DATE.....

REF.....

CLEWER HILL ROAD, WINDSOR, BERKSHIRE SL4 4AA, ENGLAND. TEL: +44 (0) 1753 857177. FAX: +44 (0) 1753 857817.

456 PARKWAY, BROOMALL, PA 19008, USA. TOLL FREE: 1 800 523 5620 TEL: 610 353 4350. FAX: 610 353 7814.

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Printed in England
Ref. EP59-00244