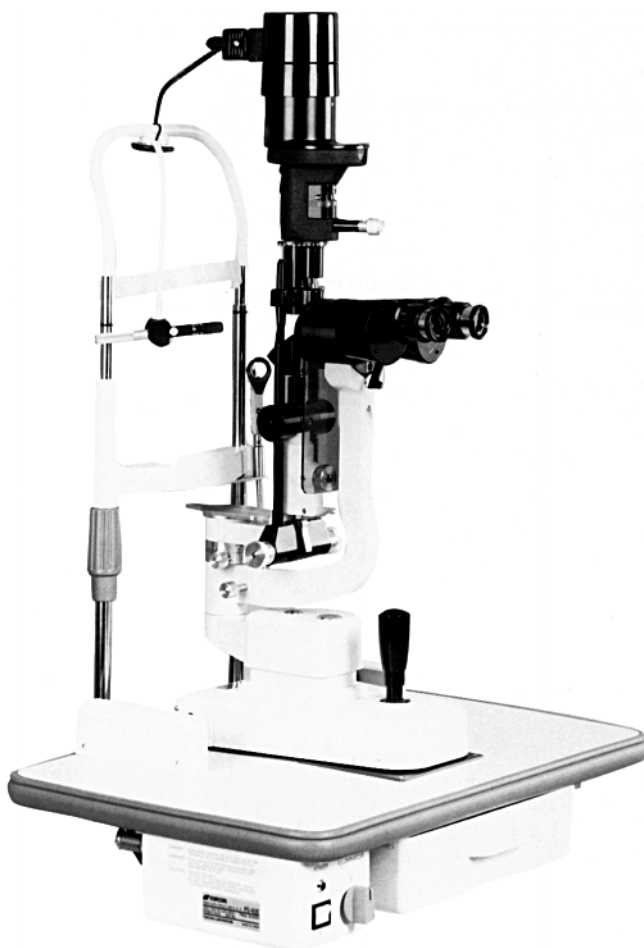


# SLIT LAMP **SL-3C**



Thank you for purchasing the TOPCON Slit Lamp SL-3C. To get the best use from the instrument, please carefully read these instructions and place it in a convenient location for future reference.

## **PRECAUTIONS**

1. Always use or keep this instrument where it will be unaffected by heat, humidity or dust, and avoid exposing the instrument to direct sunlight.
2. Check that all cables are correctly and firmly connected.
3. Never touch the lens or prism surfaces with your finger or with any hard object.
4. Always turn the power source off before disconnecting the cables or when replacing the bulb.
5. When disconnecting the cables, do not use excessive force and never attempt to unplug the connection by directly pulling on the cable.
6. If any trouble occurs with your instrument or its accessories, first refer to the troubleshooting guide in this manual and carry out the checks listed.  
If nothing is found by your check, then ask your authorized dealer or TOPCON to service it.
7. Always turn the power source off and replace the cover on the instrument when it is not in use.

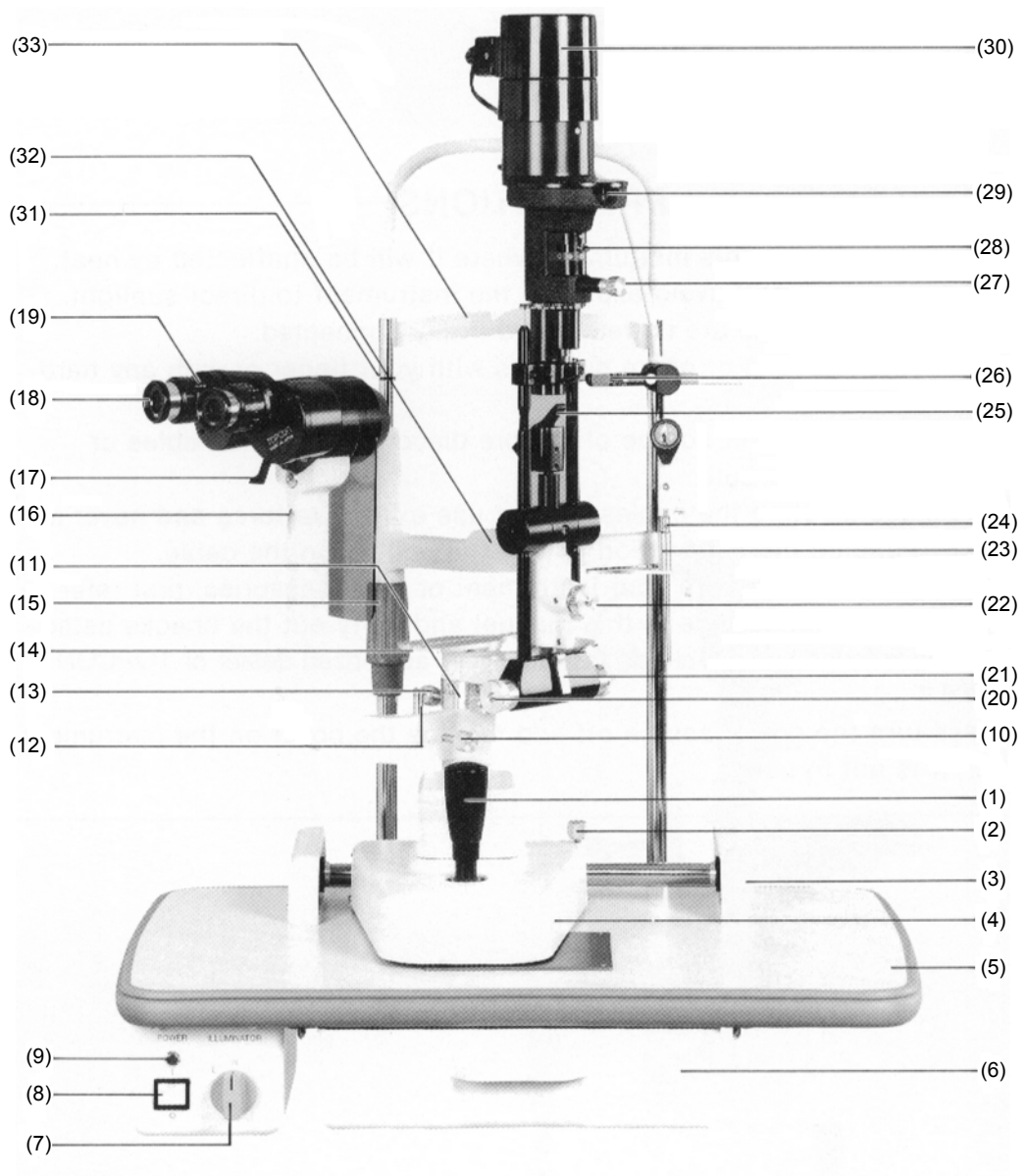


Fig. 1

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# 1. NOMENCLATURE

## (1) Omni-directional Joystick

For fine control of the instrument, incline this lever toward the intended direction. Turning the joystick controls the vertical movement.

## (2) Cross-Slide Locking Screw

## (3) Rail Cover

Covers the base tracking system.

## (4) Cross-Slide Base

Supports the microscope and illumination arms; moves in response with the joystick.

## (5) Table-Top

## (6) Accessory Drawer

For storing the focusing test rod and other accessories. (Not supplied with unit Model Slit Lamp.)

## (7) Brightness Control Knob

Three brightness levels are available - L(low), N(normal), and H(high). Avoid using the instrument continuously at the high setting as the service life of the bulb will be shortened.

## (8) Main Power Switch

## (9) Pilot Lamp

## (10) Microscope Arm Locking Knob

Locks the rotational movement of the arm.

## (11) Angle Scale

: Match the long center line on the microscope arm with the protractor scale on the illumination arm for establishing angles between the two arms.

: When the '0' setting on the protractor is matched with the shorter index line toward the practitioner, the right ocular will be occluded.

: When the '0' setting on the protractor is matched with the shorter index line toward the patient, the left ocular will be occluded.

## (12) Click-Stop Roller

Indicates when the illumination arm is at the center or '0' position with the microscope arm, or at 10° to either the right or left of the central position.

## (13) Illumination Arm Locking Knob

When the knob is tightened, the illumination arm is coupled to the microscope arm, and they will rotate together. When loosened, the illumination arm rotates independently.

## (14) Hruby Lens Guide Plate

Also used as a mounting plate for the applanation tonometer.

## (15) Chin-rest Elevation Control

## (16) Microscope Attaching Screw

## (17) Magnification Changer Lever

## (18) 10× Eyepiece

A 16× Eyepiece is also supplied as a standard accessory.

**(19) Diopter Adjustment Ring**

To obtain a properly focused image before using the instrument, properly adjust the eye-pieces (See 3.1)

**(20) Slit Width Control Knob**

The slit width can be continuously varied from 0 to 10mm. A convenient scale is engraved on the left knob to provide approximate indications.

**(21) Illumination Inclination Lever**

Four 5° inclination stops are provided - up to 20°.

**(22) Slit Centering Knob**

Loosening the knob allows the illumination to be moved from the parafoveal position for indirect retro-illumination. Tightening the knob brings the illumination into a parafoveal position with the microscope optics.

**(23) Hruby Lens Holder****(24) Hruby Lens**

Used for observation of the fundus and posterior segment of the vitreous body.

**(25) Mirror**

Both long and short mirrors are provided. The long mirror is routinely used for most examination procedures. The short mirror is used when the long mirror interferes with the observation pathway, such as during funduscopy.

**(26) Fixation Target**

Two types of fixation targets are available. One allows for diopter adjustments to aid the patient's ability to view the target clearly while the other is an illuminated fixed spot target.

**(27) Aperture and Slit Length Control Knob**

By turning this knob, the illumination aperture and length of the slit are controlled. Rotating the lamphouse in the horizontal direction by this knob rotates the slit.

**(28) Filter Selection Lever**

Four filters are built-in

**(29) Aperture and Slit Length Display Window****(30) Lamphouse****(31) Level Marker**

When the horizontal center of the patient's eye is placed in line with this reference mark, the elevation of the microscope, which is controlled by the joystick, will also be at its center position.

**(32) Chin-rest****(33) Forehead Rest**

## 2. ASSEMBLY

These instructions are for assembling the Model SL-3F,3FD. Slit Lamp after all the components have been carefully removed from the shipping carton.

### 2.1 Components

---

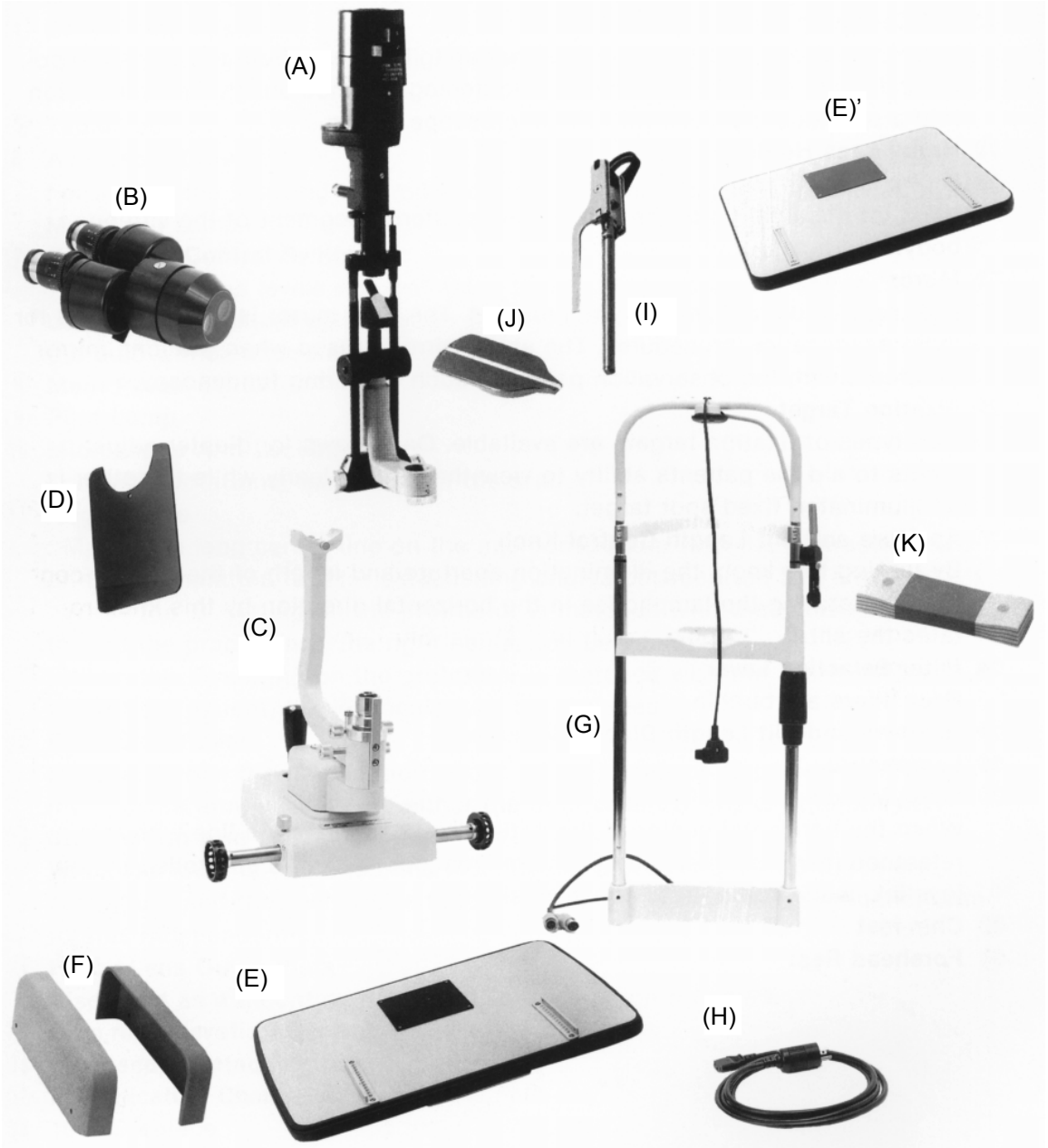


Fig. 2-1

Description	Q'ty
(A) Illumination Assembly	1
(B) Microscope (with 10× magnification eyepieces)	1
(C) Cross-Slide Base Assembly	1
(D) Breath Shield	1
(E) Table-Top with Power Supply	1
or (E)' Unit Model Table-Top with Power Supply	1
(F) Rail Cover	2
(G) Chin-Rest Assembly	1
(H) Power Cable	1
(I) Hruby Lens	1*
(J) Hruby Lens Guide Plate	1*
(K) Chin-Rest Paper	1
(L) 16× eyepieces	2*
(M) Focusing Test Rod	1
(N) Fixation Target	1
(O) Short Mirror	1
(P) Spare Long Mirror	1
(Q) Spare Illumination Bulb	2
(R) Spare Socket	1
(S) Spare Fuse	1
(Taped onto the rear of the power supply)	
(T) Spare Chin-Rest Paper Pin	2
(U) Brush	1
(V) Dust Cover	1
(W) Instruction Manual	1
(X) Accessory Box supplied with Unit Model Slit Lamp	1
(Y)-1 Screwdriver (large)	1
(Y)-2 Screwdriver (small)	1
(Y)-3 Philips screwdriver	1
(Z) Wrench (not supplied with Unit Model Slit Lamp)	1

(\* Optionally available in some regions.)

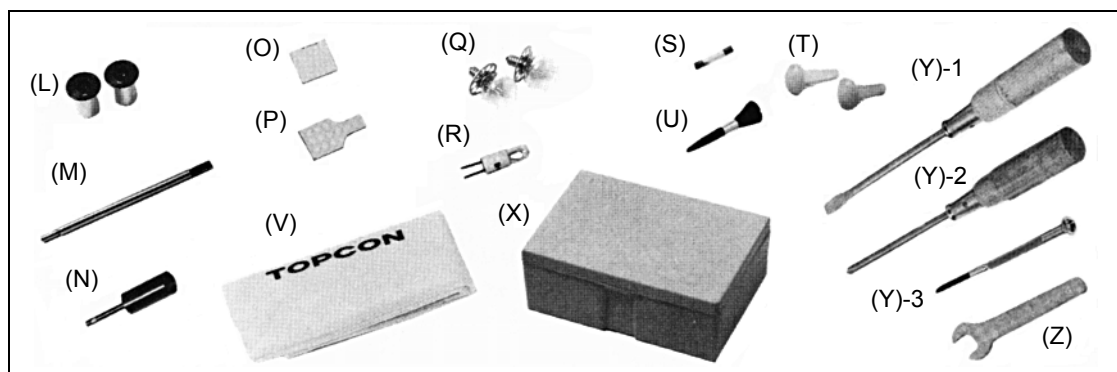


Fig. 2-2



## 2.2 Assembly Procedure

No special tools are required. Included tools are:

- Large screwdriver ((Y)-1)
- Small screwdriver ((Y)-2)
- Philips screwdriver ((Y)-3)
- Wrench (Z)
- (not supplied with unit model slit lamps)

### (1) Selecting Voltage and Fuse

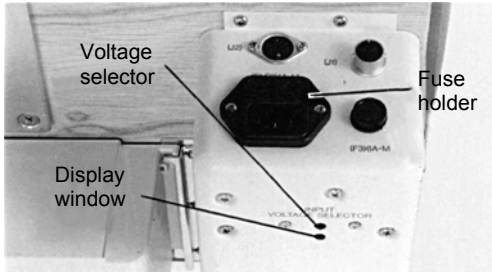


Fig. 3

- \* Check the setting on the voltage selector, which is located on the bottom of the power supply.
- \* If the selector does not match the outlet voltage, turn the selector to the proper setting with the screwdriver ((Y)-1).
- \* Turn the center of the fuse holder with the Philips screwdriver ((Y)-2), remove the fuse and check its rating. Insure that the fuse is the correct rating for the supplied voltage:  
100V or 120V – 1A  
220V or 240V – 0.5A

### (2) Mounting the Table-Top (E) or (E)'

- (a) To attach the table-top on the instrument table, use the four 8 × 24mm bolts with locking washers.

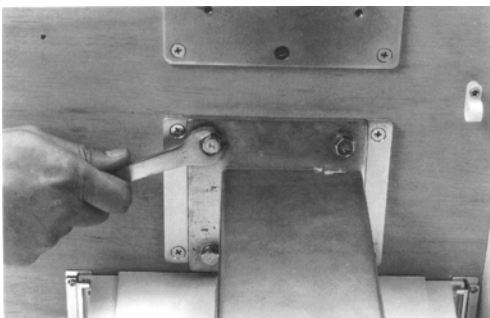


Fig. 4

- \* Raise the table-top to allow the bolts to pass through the mounting flange.
  - \* Place the table-top on the mounting flange of the instrument table and screw the bolts into the mounting bracket. The controls of the power supply should face the practitioner. Tighten the bolts securely with the included wrench (Z).
- (b) To attach the unit model table-top to the Ophthalmic Unit:

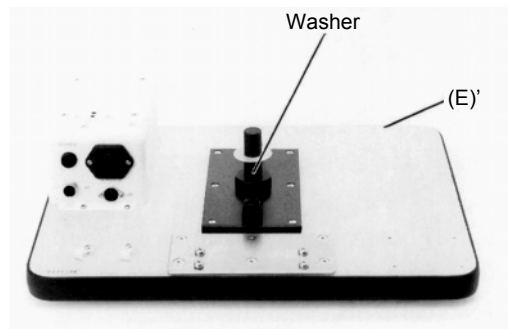


Fig. 5

- \* Peel off the tape which secures the plastic washer to the mounting bracket's shaft.
- \* Insert the shaft of the mounting bracket into the hole of the arm on the ophthalmic unit. The plastic washer should be between the mounting bracket and the arm.

Note:

The power supply is attached to the left side of the unit top (practitioner's view). If the ophthalmic stand is located to the left of the ophthalmic chair, the power supply must be relocated to the right side of the unit top to prevent interference with the arm. In the instance, remove the four wood screws which attach the power supply to the unit top, re-position the power supply in a similar position to the right side of the unit top, and re-attach the power supply with the four screws.

### (3) Mounting the Chin-Rest (G)

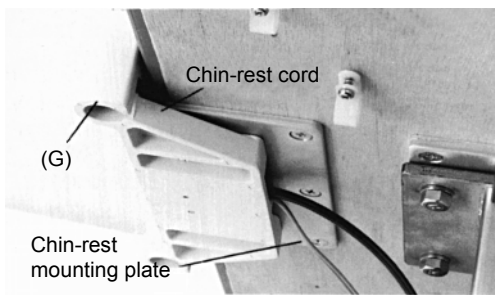


Fig. 6

- \* Remove the four screws which are attached to the chin-rest mounting plate with Philips screwdriver ((Y)-3).

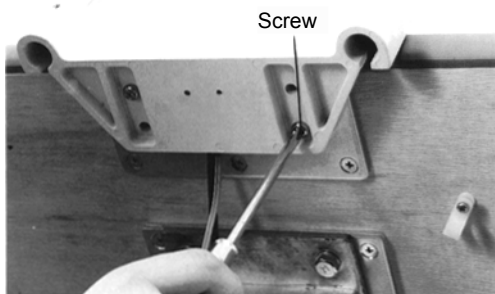


Fig. 7

- \* Place the chin-rest cord in the gap between the chin-rest mounting plate and the chin-rest assembly. While making sure that the cord is not being pinched by the mounting plate, re-tighten the previously removed screws.

### (4) Mounting the Cross-Slide Base Assembly and Rail Covers

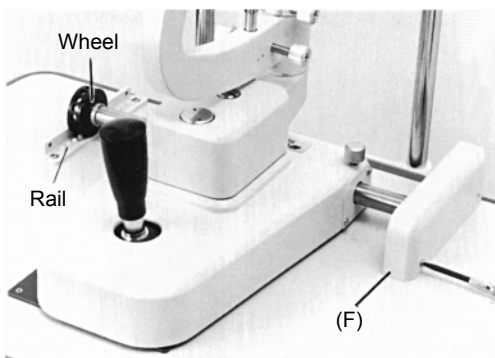


Fig. 8

- \* After checking to see that the main unit moves smoothly on the rails. Remove the four screws which are attached to the rails with the screwdriver((Y)-3), Place the rail cover to the rail, re-tighten the previously removed screws.

### (5) Mounting the Illumination Arm

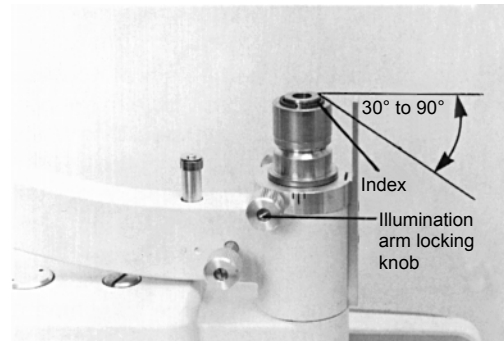


Fig. 9

- \* Loosen the illumination arm locking knob which is located on the base assembly.
- \* Turn the brass bearing on the arm support shaft so that the red dot is 30° to 90° from the shaft index.
- \* Loosen the set screw in the illumination arm with the screwdriver ((Y)-2).

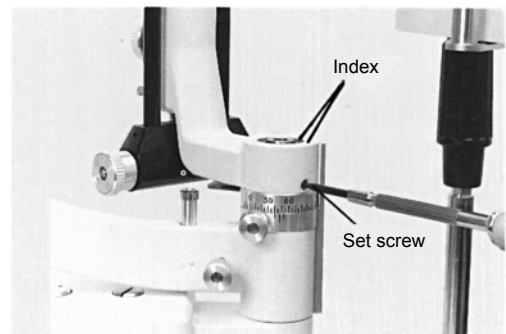


Fig. 10

- \* Lower the illumination arm carefully into position while lining up the two red dots.
- \* When the dots are properly aligned, re-tighten the set screw firmly to properly secure the illumination arm to the shaft of the base assembly.

## (6) Mounting the Breath Shield

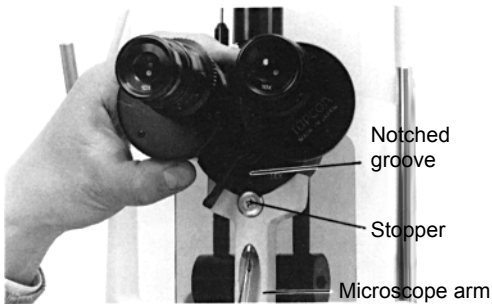


Fig. 11

- \* The microscope body has a notched groove and tapped screw-hole in the bottom of the central barrel section. While firmly holding the microscope from the top, place the body assembly on the microscope arm matching the notched groove with the stopper on the arm.

- \* Support the microscope with one hand and tighten the microscope attachment screw securely onto the body with the large screwdriver ((Y)-1).

Note:

Avoid touching the front lens of the microscope or the lens surface of the eyepiece.

## (7) Mounting the Breath Shield

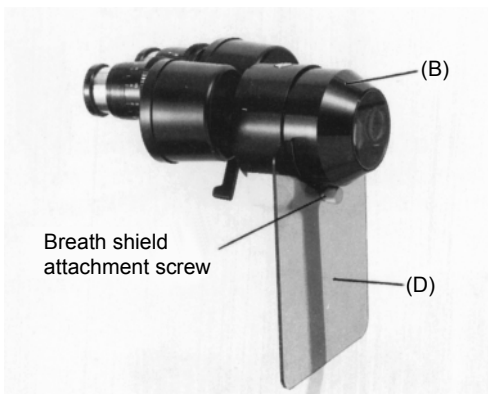


Fig. 12

- \* Remove the breath shield attachment screw from the microscope arm.
- \* Pass the attachment screw through the opening in the breath shield and re-screw into the arm.

## (8) Removing the Illumination Arm Shipping Pad

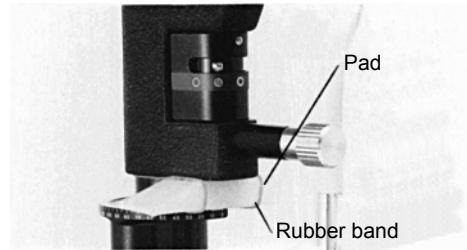


Fig. 13

- \* The pad is attached to protect the slit closure mechanism of the illumination arm assembly during shipping.
- \* Remove the rubber band and gently pull the pad out.

## (9) Connecting Cables

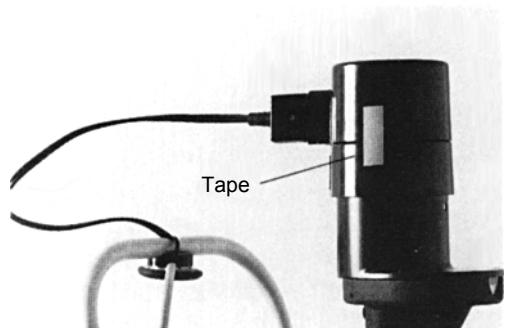


Fig. 14

- Connect the cable from the top of the chin-rest to the lamphouse cover on illumination arm.
- \* Peel off the tape which secures the lamphouse cover during shipping.
- Connect the chin-rest cable, main body cable and power cable to the power supply.

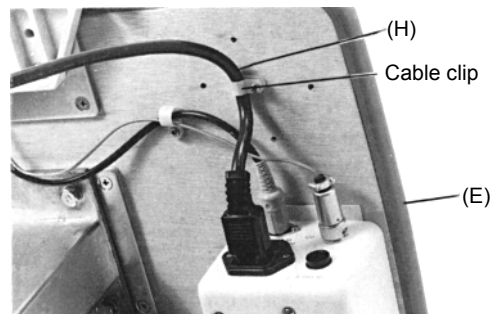


Fig. 15

- (c) Remove the cable clips from the bottom of the table-top, slip them over the chin-rest and power cables and re-attach them to the table-top.

### (10) Mounting the Hruby Lens and Hruby Lens Guide Plate

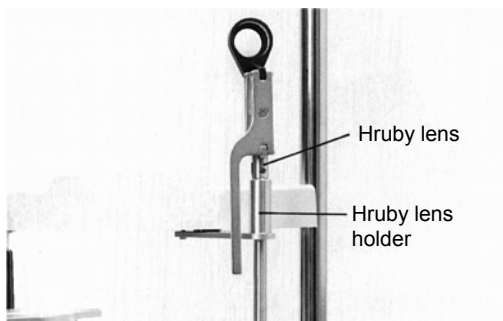


Fig. 16

- \* Insert the Hruby lens and Hruby lens holder, which is located on the chin-rest assembly. Do not touch the lens surface.

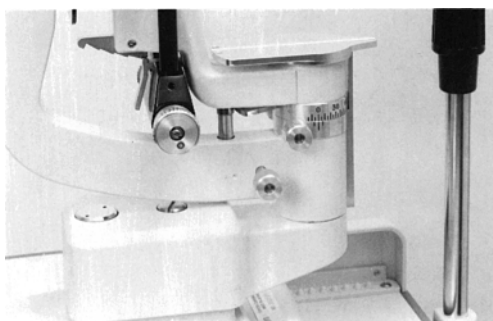


Fig. 17

- \* Place the guide plate in the hole of the main body's carrier arm. The pointed end should face the chin-rest.

### (11) Installing the Chin-Rest Paper

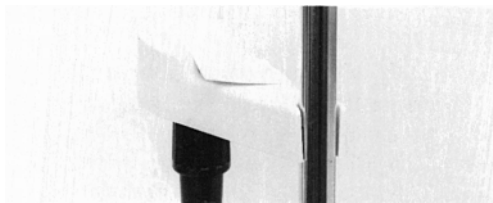


Fig. 18

- \* Remove the two pins from the Chin-rest.
- \* Place the pins through the holes in the chin-rest paper. Remove the wrapping from the chin-rest paper.
- \* Align the pins with the holes in the chin-rest and secure the paper to the assembly.

### (12) Spare Parts

- \* With the table model, an accessory drawer is provided to store the spare parts ((K)-(U)).



Fig. 19

- \* With the unit model, an accessory box is supplied to store the spare parts ((L)-(U)).

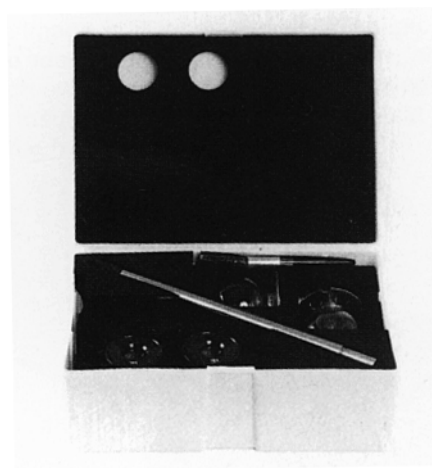


Fig. 20

## 2.3 Checking Procedure

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### (1) Power Plug

- \* The instrument is supplied with a 3-wire plug. If the plug does not match the power outlet, either replace the plug or use an approved adaptor.
- \* Make sure that the instrument is always properly grounded.

### (2) Illumination and instrument Functions

- \* Turn the power supply on and observe that the illumination is passing through the opened slit controls.

- \* Check to insure that the fixation device is illuminated.

- \* Check to see that the slit width and length controls, filter lever and magnification changer lever operate smoothly and properly.

- (3) After the installation is completed, turn the power supply off and cover the instrument with the dust cover.

### 3. OPERATION PROCEDURES

#### 3.1 Preparation — diopter compensation and interpupillary distance adjustment

Before using the instrument, always carry out the diopter compensation and interpupillary distance adjustments.

##### (1) Use of the focusing test rod

The focusing test rod, which is a standard accessory, is used to establish the proper microscope settings for each use. The rod is inserted in the hole, which normally contains the Hruby lens guide plate. Place the rod in the hole and turn it so that the flat black surface is perpendicular to the microscope's objective lens.

##### (2) Preparation of illumination unit

Turn the main power switch (8) ON. Set the brightness control switch (7) at the 'N' position, then set the slit width control knob (20) so that slit size is approximately 2 to 3mm wide.

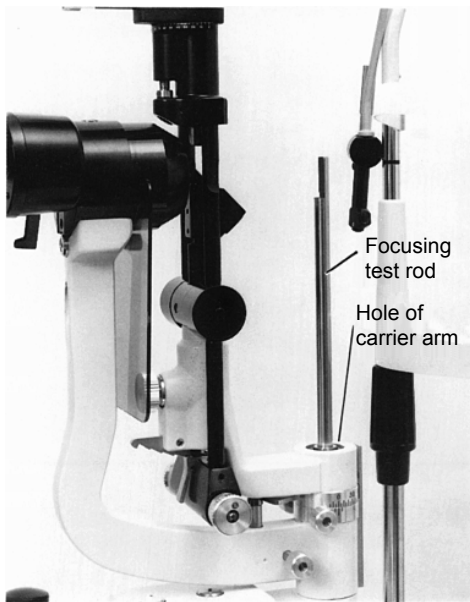


Fig. 21

##### (3) Diopter compensation

To establish the current dioptric setting:

- \* First, turn the eyepiece ring in a counter-clockwise (+) direction until it stops.
- \* Now, turn the ring in a clockwise direction until a sharp, slit image is seen on the focusing test rod.

- \* Follow the same procedure for the other ocular.

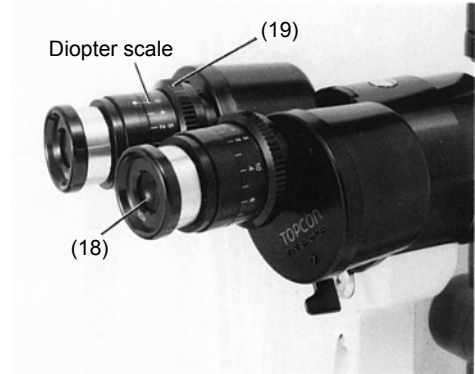


Fig. 22

- \* Denote the diopter values on each ocular for future reference.

##### (4) Interpupillary distance adjustment

While looking through the eyepieces at the image on the focusing test rod, adjust the converging binocular's prism box, so that the image is fused and a stereo-scopic image results. For operator's comfort, since each eyepiece can be moved independently insure that both eyepieces are at the same height.

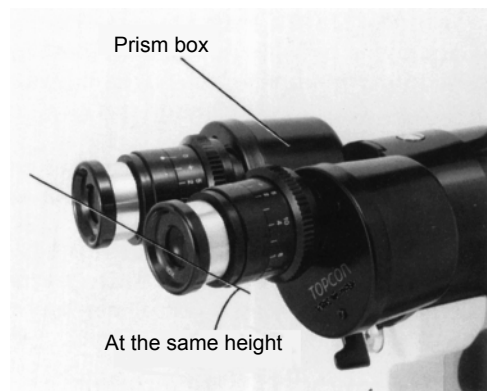


Fig. 23

### 3.2 Patient position and fixation target

#### (1) Positioning patient's head

Have the patient place his chin on the chin-rest (32) and forehead against the forehead rest (33). Adjust the chin-rest elevation control (15) so that the patient's outer canthus is at the approximate height of the level marker (31).

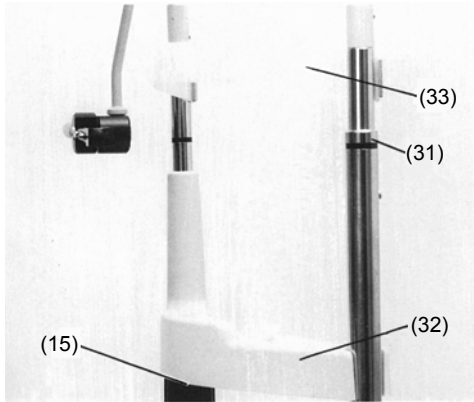


Fig. 24

#### (2) To establish patient fixation

To maintain patient fixation, have the patient observe the fixation target (26) with the eye not being tested. To alter fixation, move the position of the target by the fixation target lever.

The fixation target, which allows diopter compensation, provides a dot and concentric circle target. The ring target permits focusing in the range from  $-15D$  TO  $+10D$ .

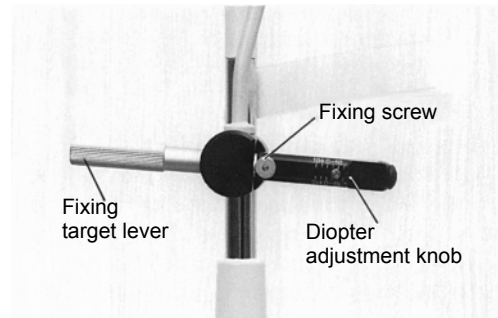


Fig. 25

#### Fixation target allowing diopter compensation

The luminous target is used for examination of myopic eye exceeding  $-15D$ . To replace the target, loosen the locking screw and remove the target assembly. (Avoid overloosening the screw, or it may drop.)

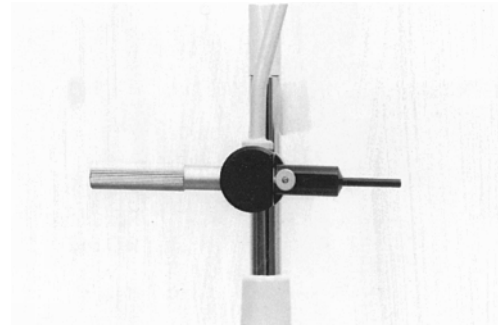


Fig. 26

#### Luminous fixation target

### 3.3 Base operation

#### (1) Horizontal gross adjustment

To adjust the microscope's position horizontally, move the base (4) while keeping the joystick (1) in the vertical position.

#### (2) Horizontal fine adjustment

For fine adjustment, such as alignment or focusing, tilt the joystick (1) to the left or the right.

#### (3) Vertical fine adjustment

For fine vertical adjustment, turn the joystick (1) clockwise to raise the microscope and counter-clockwise to lower it.

#### (4) Locking the base

To lock the base (4), tighten the cross-slide locking screw (2).

#### (5) Focusing

\* Gross adjustment for alignment of focusing is done by the operation described in (1).

\* Fine adjustment for alignment or focusing should be done by the operations described in (2) and (3) while looking through the microscope.

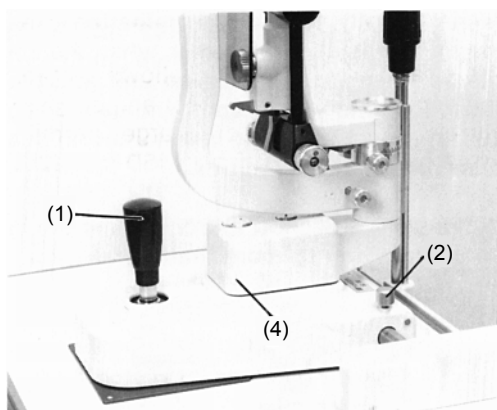


Fig. 27

### 3.4 Operation of the illumination unit

#### (1) Altering the slit size

By operating the slit width control knob (20), the slit width can be changed from 0 to 9mm (at the 9mm size, the slit becomes a circle). The scale should be used simply as a guide-line. Your examination purpose will dictate the correct slit size.

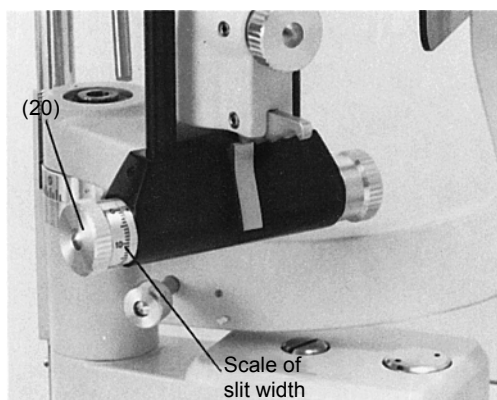


Fig. 28

#### (2) Changing aperture and slit length

By operating the aperture and slit length control knob (27), 7 different circular beams of light are available at full aperture: 9, 8, 5, 3, 1 and 0.2mm dia.. With a slit image, the slit length can be changed continuously from 1 to 8mm with this knob.

The values obtained are indicated through the display window (29).

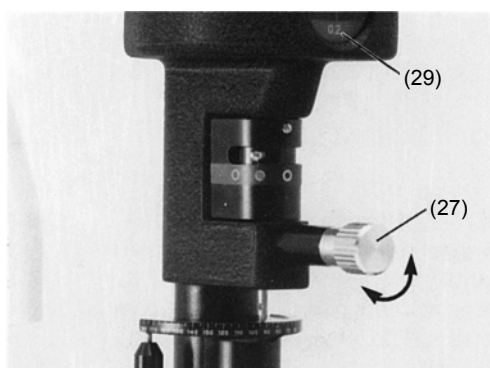


Fig. 29

#### (3) Rotating the slit image

By moving the aperture and slit length control knob (27) horizontally, the slit image is rotated from the vertical through any oblique angle to the horizontal.

The angle of image rotation is indicated by the rotation angle scale.

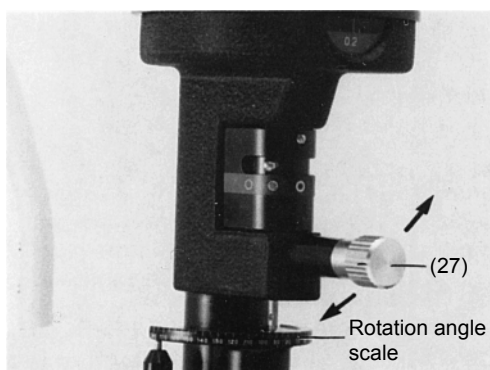


Fig. 30



**(4) Decentering the slit beam**

The illumination can be moved from the parafoveal position with the microscope by loosening the centering knob. The illuminated image then would move away from the center of the microscopes field of view. It is of particular benefit in indirect retro-illumination techniques. To return the slit image to the center of the field of view, tighten the slit centering knob (22) firmly.

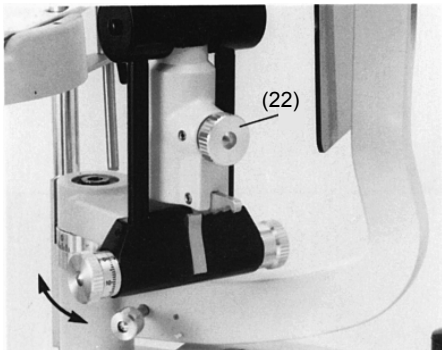
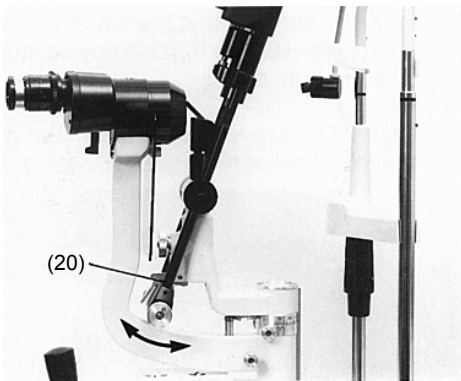


Fig.31

**(5) Oblique illumination**

Oblique illumination is used for sectional or fundus examination by use of a contact lens, etc. (i.e. gonioscopy). As the inclination lever (21) is released, and the arm is pulled towards you, the illumination unit inclines by 5° steps to 20°. Since the illumination unit may contact the patient's face, pro-



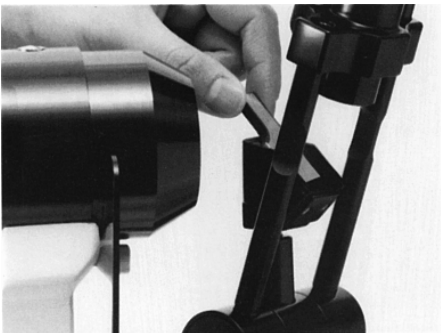
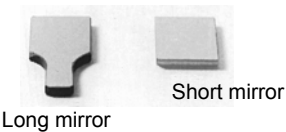
ceed carefully.

Fig. 32

**(6) Reflection mirror**

Two mirrors are supplied with the SL-3F.3FD one is a long mirror (25) and the other is a short mirror which has no protruding surfaces. Usually, for most examina-

tions, the long mirror is used. However,



when the angle between the illumination unit and the microscope is within approximately  $3^\circ$  to  $10^\circ$ , the observed image is disturbed. In this case, use the short mirror.

When using the short mirror, incline the illumination unit to more than  $10^\circ$ .

Fig. 33

\* Replacing the mirror

- 1) Set the angle between the microscope and illumination arms to exceed  $30^\circ$ .

- 2) Incline the illumination column at  $10^\circ$  or more.
- 3) Remove the long mirror by holding on to the extended surface.
- 4) Insert the beveled side of the short mirror.
- 5) When removing the short mirror, since it has no extension, use an object with a sharp end to carefully push it out as shown below.

Fig. 34

Fig. 35

### (7) Filter selection

By shifting the filter selection lever (28), four different filters can be inserted into the illumination pathway.

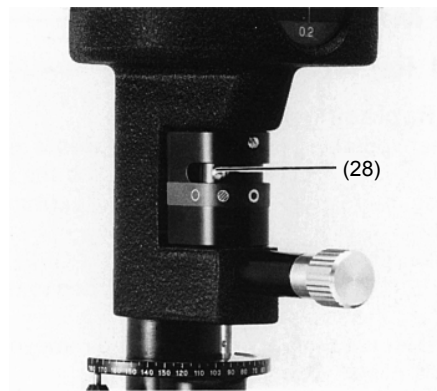
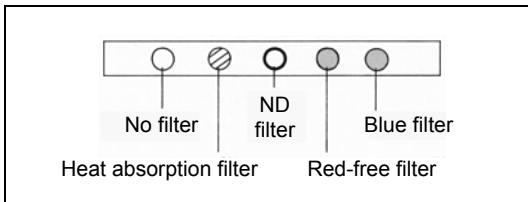


Fig. 36

Usually, the heat absorption filter is used for patient comfort.

## 3.5 Fundus observation with the Hruby lens

In routine applications, only the anterior segment of the vitreous body can be examined because of the refraction effects of the cornea and crystalline lens. However, with the Hruby Lens, examination of the fundus and the posterior segment of the vitreous body is possible.

Operation procedure:

- (1) The pupil should be well dilated by administering a mydriatic approximately 20 minutes before the examination.
- (2) Insert the Hruby Lens guide plate (14) into the hole at the rotational axis of the illumination and microscope arms.
- (3) Raise lever (A) shown in the illustration below, and move the Hruby Lens holder toward you so that it now can move to the right and left under the chin-rest. Insert the lower end of the Hruby Lens (24) shank in the groove on the guide plate.
- (4) Center the illumination and microscope arms so that they face the patient's eye.
- (5) Align lever (B), shown in the illustration below, with the center of the microscope's field of view. Then move the lever (B) backward and forward to position close to the patient's eye.
- (6) Use the joystick (1) to focus on the fundus. The slit width and length will have to be adjusted to reduce the undesirable reflections seen in the field of view.
- (7) To view a different segment, either turn the microscope and illumination arms or

have the patient alter fixation by manipulating the fixation target.

- (8) If the long mirror interferes in the examination, replace it with the short mirror.

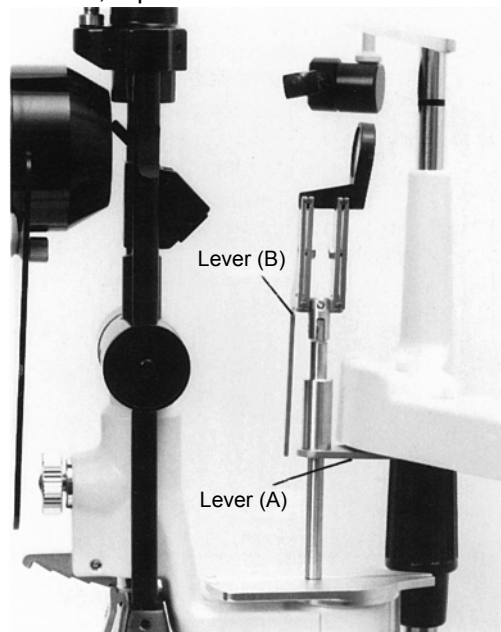


Fig. 37

Note:

When moving the instrument to examine the fellow eye, first have the patient move away from the chin-rest and the patient's nose may come in contact with the Hruby Lens.

- (9) After the procedure, move the Hruby Lens to the storage position on the right side of the chin-rest.

## 4. MAINTENANCE

### 4.1 Replacing the bulb

#### (1) Replacing the main bulb

When replacing the main bulb, use care and follow the prescribed procedure, as the internal metal components become extremely hot.

- \* Turn the main power switch (8) OFF.
- \* Pull out the plug which is attached to the lamphouse cover (30)
- Turn the lamphouse cover and remove it from the illumination unit.
- \* Remove the old bulb — use care as it may be extremely hot — and replace it with a new bulb. The groove in the bulb flange should be properly aligned with the socket, otherwise uneven illumination will result.
- \* Replace the cover in its original position and turn in a clockwise direction. Insert the connecting plug.
- \* Turn the main power switch ON and check to see that the new bulb is illuminated.

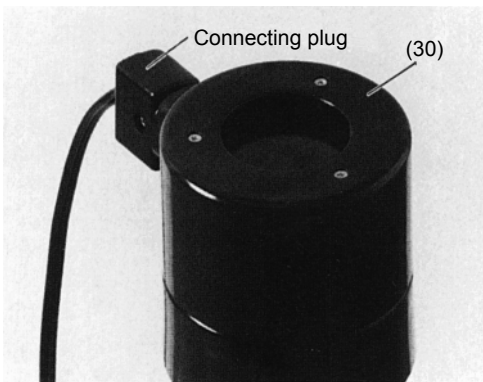


Fig. 38

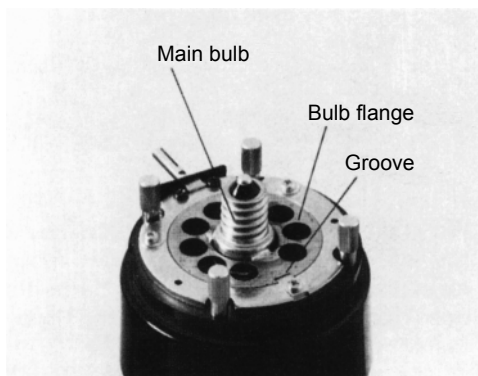


Fig. 39

#### (2) Replacing the fixation target bulb

- \* Turn the main power switch (8) OFF.
- \* Loosen the locking screw and remove the fixation target. (Do not over-loosen the locking screw, or it may drop.)
- \* Hold the top of the bulb and pull it out; then insert the new bulb.
- \* Insert the fixation target, then tighten the locking screw.
- \* Turn the main power switch ON and check to see that the fixation bulb is properly illuminated.

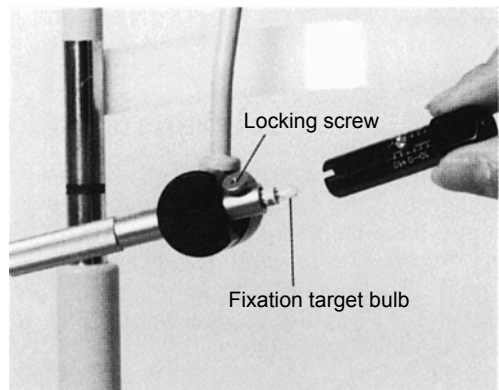


Fig. 40

## 4.2 Replacing the fuse

- \* First, turn the main power switch (8) OFF, and remove the power cable from the outlet.
- \* With a screwdriver, turn the center of the fuse holder.
- \* Replace it with a new fuse and then tighten the center of the fuse holder.
- \* Always use the same type of fuse as indicated in the holder.
  - 100V or 120V — 1A
  - 220V or 240V — 0.5A



Fig. 41

## 4.3 Replacing the chin-rest paper

If the chin-rest paper supply is depleted, remove the pins on the chin-rest, place the new package of paper over the chin-rest and replace the two locating pins.

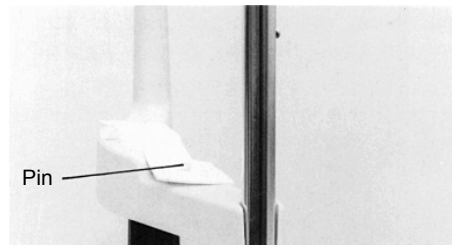


Fig. 42

## 4.4 Adjustment of the slit width control knob

If the movement of the slit width control knob (20) becomes too light and the slit width tends to collapse, adjust the tension by tightening the screw in the center of the knob.

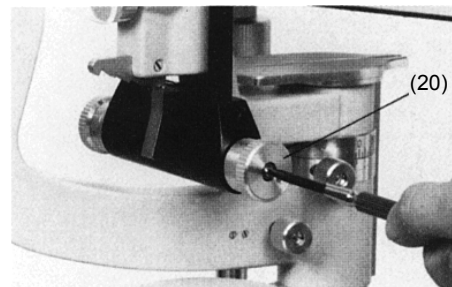


Fig. 43

## 4.5 Adjustment of the inclination movement

If the tension on the inclination mechanism becomes too light, the proper movement can be re-obtained by tightening the screws on both sides of the pivot joint.

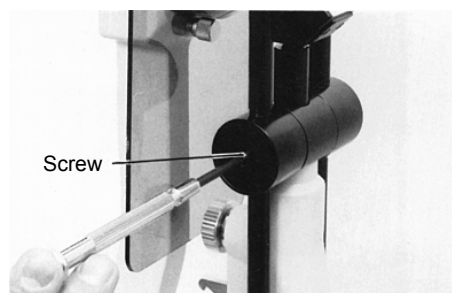


Fig. 44

4.6 Cleaning

(1) Cleaning the lens and mirror

If any dust settles on the lens or mirror, remove it as follows:

Use the cleaning brush, which is included in the standard accessories, to remove the dust. In case any dust still remains, wipe it off using a soft cotton cloth moistened with a little alcohol. Never use your finger or any hard object for cleaning.

(2) Cleaning the gliding plate, base rail and shaft

If the gliding plate or cross-slide rail and shaft are dirty, an unsmooth vertical or horizontal movement of the cross-slide results. Clean them by using a dry cloth.

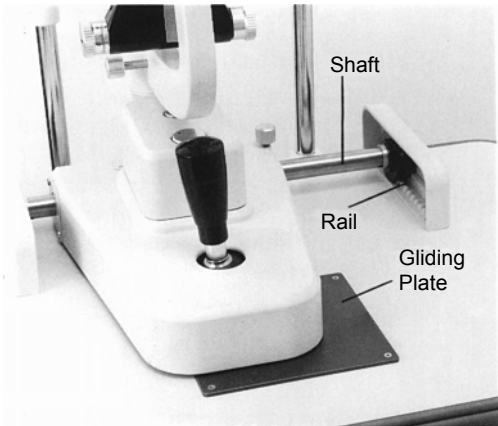






Fig. 45

(3) Cleaning the plastic parts

To clean the plastic parts, such as chin-rest and forehead rest, use only a cloth moistened with a solution of neutral detergent and water to wipe off the accumulated dust. Avoid using other types of cleansers.

4.7 Ordering supplies

To order the following replacement parts, be sure to specify the product name, part number and quantity required.

Product name	Part number	Appearance
Main Illumination bulb	40340 20700	
Fixation target bulb	40350 42110	
Chin-rest paper	40310 40820	
Fuse 1A(100V,120V) 0.5A(220V,240V)	44630 60070 44630 60080	

## 5. BEFORE REQUESTING SERVICE — TROUBLE SHOOTING GUIDE

If any problem should occur, first consult the following trouble shooting table, and follow the suggested instructions. Then, if the trouble is not corrected, contact your nearest TOPCON dealer.

Trouble	Possible Cause	Remedy	Refer to
No illumination	Power cable is not properly connected to the power outlet.	Connect cable to the outlet.	P.7
	Main power switch is still OFF.	Turn main power switch (8) ON.	—
	The plug on the lamp house cover is loose.	Insert the plug firmly.	P.7
	The bulb has burned out.	Replace the bulb.	P.15
	Fuse has blown.	Replace the fuse.	P.16
Slit light is too dim	The bulb is not correctly inserted.	Insert bulb correctly.	P.15
	Filter lever is at ND position, or at an intermediate position.	Set the filter lever (28) to the correct position.	P.14
	Voltage selector setting is incorrect.	Check voltage selector and set it to the correction position.	P.5
Fuse has blown	Voltage selector setting is incorrect.	Check voltage selector and set it to the correction position.	P.5
	Type of fuse used is correct.	Replace with the correct type as specified.	P.16
Slit width closes by itself	Tension on the slit width control knob is too weak.	Tighten the slit width control knob (20) to adjust the tension.	P.16
Fixation bulb does not light	The connecting cable between power source and chin-rest is not correct.	Insert the power cable firmly in outlet.	P.7
	The fixation target bulb has burned out.	Replace the fixation target bulb.	P.15

## 6. OPTIONAL ACCESSORIES

### 6.1 Pachometer Attachment

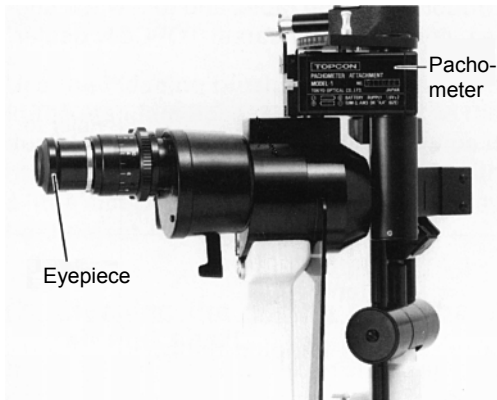


Fig. 46

Used for measuring the corneal thickness

- Two LED alignment targets are projected onto the cornea to assure repeatable alignment of the slit beam. With the Mishima-Hedby method, the slit beam can be accurately positioned perpendicular to the corneal surface.
- A separate LED illumination is placed near the scale to enhance reading, even in a darkened environment.
- A magnifier is placed over the scale for easier reading.

### 6.2 10× Measuring Eyepiece

When this accessory is used in place of the normal eyepiece, linear and angle measurements become possible. It is used for the fitting of toric contact lenses as well.

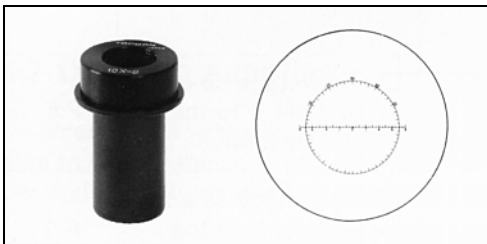


Fig. 47

#### Scale Specifications

- Linear Scale: 16mm  
0.5mm minimum graduations
- Angle Scale: 360°  
5° minimum graduations

#### Measuring Parameters

- Linear Scale: To be used at 10× magnification only
- Diopter Compensation: -5D to +3D
- Range:
- Angle Scale: No limitations

### 6.3 Applanation Tonometer

Depending on personal preference, either the Haag-Streit AG Model R-900 or Model T-900 could be used for measuring intraocular pressure.

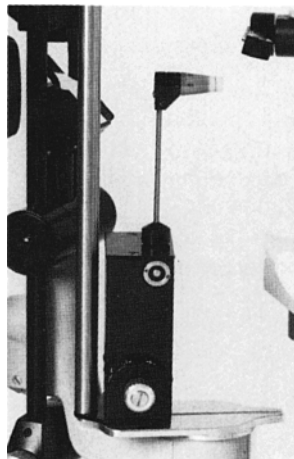


Fig. 48 **1000R  
Model R900**

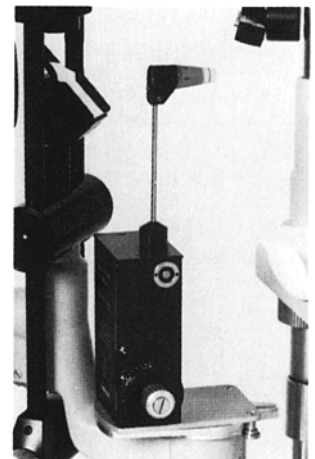


Fig. 49 **Model T900**



## 7. SPECIFICATIONS

### Microscope

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Type:	Stereoscopic microscope
Magnification Selection:	Two steps by objective lens rotation
Eyepiece:	10× and 16× (16× eyepiece is optionally available in some regions.)
Magnification Ratio: (Field of view)	

Objectives × Eyepieces = Magnification/Field of View

1×	10×	10×	18mm dia.
1.6×	10×	16×	14.5mm dia.
1×	16×	16×	11.25mm dia.
1.6×	16×	25.6×	9mm dia.

### Interpupillary

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Distance Adjustment:	10× magnification eyepieces — 55mm to 82mm 16× magnification eyepieces — 51mm to 78mm
Diopter Adjustment:	10× magnification eyepieces — ±8 diopters 16× magnification eyepieces — ±10 diopters

### Illumination

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Slit Projection	
Magnification:	2/3×
Slit Width:	Continuous form 9mm to 0mm (at 10mm, slit becomes a circle)
Slit Length:	Continuous form 8mm to 1mm OR Aperture settings at 9, 8, 5, 3, 2, 1, and 0.2mm dia.
Slit Angle:	0° to 180° with horizontal scanning capability
Slit Inclination:	5°, 10°, 15°, and 20° steps
Filters:	Blue, red-free, 13% ND, and heat-absorbing
Lamp:	6V, 27W tungsten lamp

### Base

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Longitudinal Movement:	90mm
Lateral Movement:	100mm
Fine Base Movement: (with joystick)	15mm
Vertical Movement:	30mm

### Chin-rest

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Vertical Movement:	80mm
Fixation Target:	Luminous target 6V, 0.2A bulb

### Hruby Lens

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Hruby Lens:	−58.7 diopters (optionally available in some regions)
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### Power

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Input (primary):	AC 100V, 120V, 220V and 240V; adjustable by built-in voltage selector
Frequency:	50/60 Hz
Output (secondary):	5.1V, 6.2V and 7.5V for main bulb 5.1V for fixation bulb
Power consumption:	45VA

### Dimensions & weight

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Table model:	550mm × 370mm
Unit Model:	440mm × 350mm
Weight:	21 kg. (table model) 20 kg (unit model)

\* Subject to change in design and/or specifications without advance notice.



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