

COLPOSCOPE MODEL 935

OWNER'S MANUAL



Presentation and Use

The sections contained in this Manual were especially grouped to serve the owners of the COLPOSCOPE MODEL 935 from Seiler Precision Microscopes. .

Read this Manual before setting up the equipment, in order to avoid damage from improper usage.

Before using the colposcope, it is necessary to have knowledge of the details of its operation and safety available.

Finally, it is advisable that only personnel who have studied this manual be allowed to operate the equipment.

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TECHNICAL DATA

A - COLPOSCOPE HEAD	
1 -Colposcope Type	Galilean System
2-Binoculars	Straight: Porro Type -160 mm Inclined: 125 mm (Optional)
3-Objective	F=300mm
4-Eyepieces	Wide field type, 12,5x, adjustable
5-Magnifications	Optical head of 3 magnifications: 3x, 7x and 17x (See table)
6-Observation field	See table
7-Illumination field	See table
8- Interpupillary distance	55 - 75 mm
9-Illumination	Lamp 15V-150W
10-Focus a) Macro b) Micro	With stand set movement Gear rack and pinion, Manual
11- Head weight / Cold Light Generator	3.1 Kg / 3.8 Kg
B – STAND SET	
Vertical movement	170 mm
Height between floor and objective	990 to 1160mm
Stand set weight	3.4 Kg

I – COLD LIGHT GENERATOR

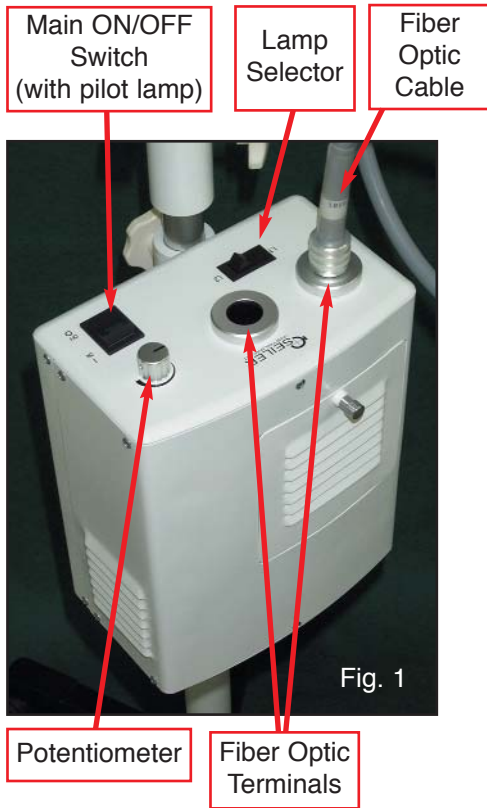


Fig. 1 - FRONT PANEL

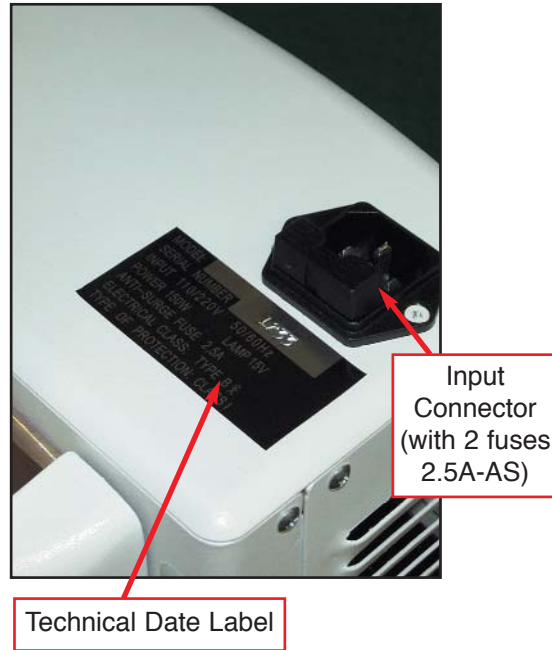


Fig. 1a - REAR PANEL

The illumination system is called the “Cold Light Generator”. It consists of the generator (Fig. 1 and Fig. 1a), the fiber optic cable, and the fiber optic cable terminal, connecting both parts.

As shown in Fig. 1, the generator front panel consists of an ON/OFF main switch (with a pilot lamp), the lamp switch, two connectors for the fiber optic cable and a potentiometer to adjust the colposcope’s illumination intensity.

IMPORTANT: The power supply, located inside the case, automatically adjusts the intake voltage from the wall outlet(100V AC min, to 240 V AC max) to a 15V AC output voltage to the lamp.

II - THE BINOCULARS

The Binoculars are factory shipped separate from the Colposcope itself, inside a plastic bag, packed in a two piece polyurethane case.

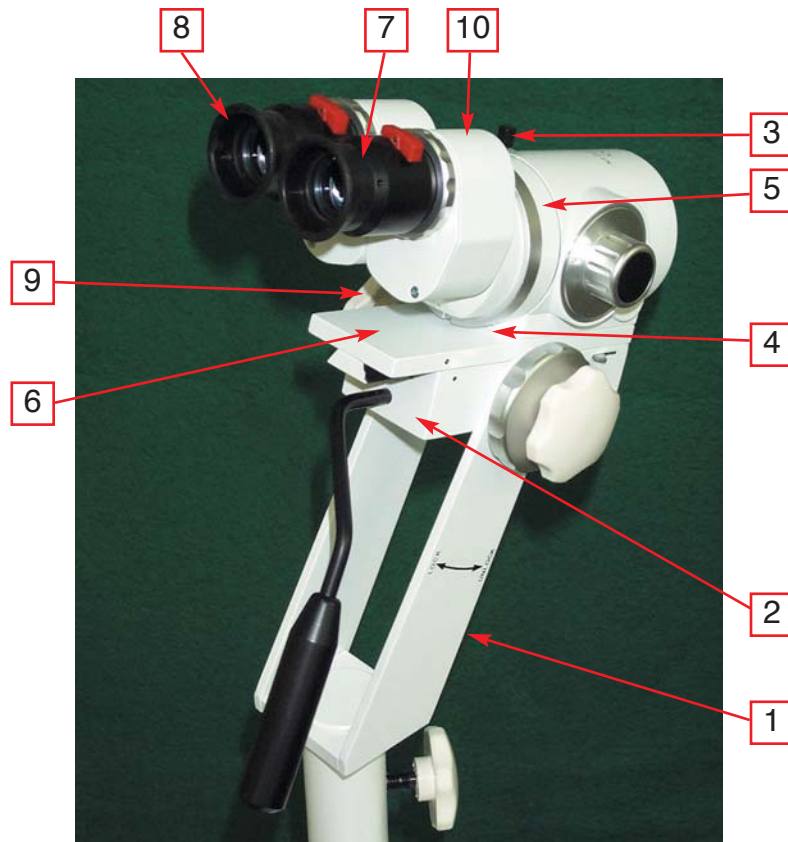


Fig. 2

- | | |
|------------------------------|--|
| 1- Fork | 6- Straight Binoculars |
| 2- "Dovetail" slide | 7- Adjustable eyepieces engraved in diopters |
| 3- Binoculars fixation screw | 8- Threaded eye protectors |
| 4- Guide-Pin | 9- Grooves to set the guide-pin |
| 5- Binoculars flange | 10- Prism boxes |

Binoculars Installation

Refer to the figure 2, the parts shown with numbers, their nomenclature and the following instructions, to set the binoculars.

Before setting up the binoculars to the Colposcope unscrew partially the locking screw (3) .

The **correct position of the Binoculars to the Colposcope** is that the prism boxes (10) are pointed to the opposite side of the “dovetail” slide (2).

Align the guide-pin (4) to the groove (9), adjust the base of the Binoculars to point the flange (5), and set the locking screw (3).

Finally check to be sure the Binoculars are well secured.

The Binoculars Eyepieces

The eyepieces are mounted to the tubes of the binocular housings, as shown in the illustration. Make sure each eyepiece is firmly inserted in the eyepiece tube.

The Eye Protectors

The Eye Protectors (8) are threaded to the Binoculars as shown in the figure 2.

The Eye Protectors (8) protect the eyes, prevent the intake of stray light and create a suitable dark-room for the observer.

Precautions

The Binoculars contain optical parts which require disassembly of the binoculars before cleaning of the parts is possible. Therefore, it is advisable to maintain the binoculars tubes protected against the entrance of environment impurities, primarily dust.

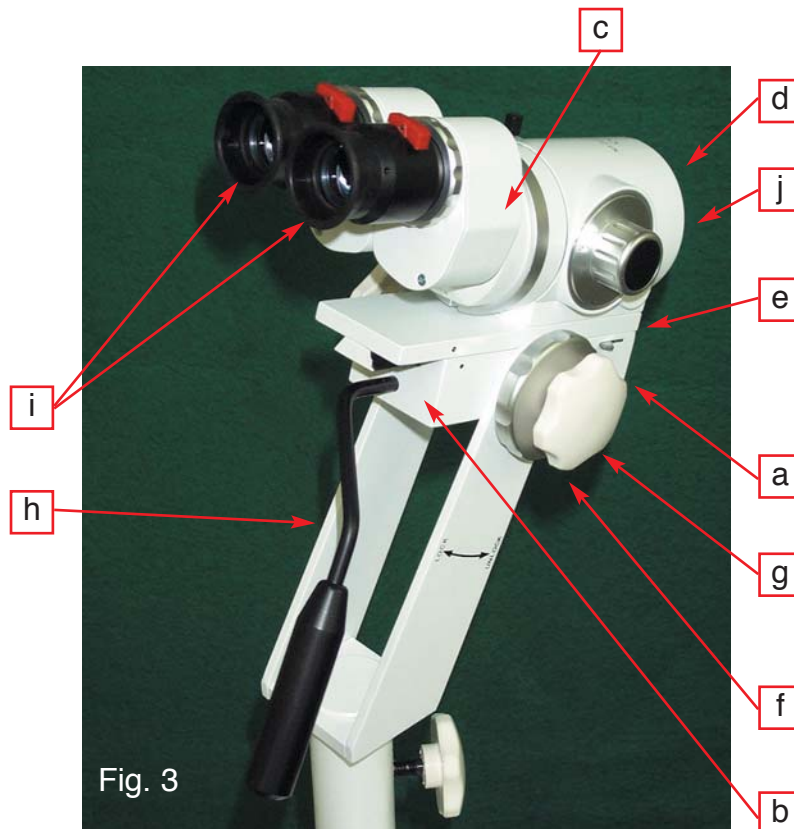
The normal sealing is done with the proper eyepieces that should be kept always installed to the tubes. If there is need to remove the eyepieces, even if for a short time, cover the tubes with a clean cloth.

III – THE COLPOSCOPE HEAD

Composition

The Colposcope Head is composed by:

- The Binoculars,
- One Objective,
- An illumination system, and
- A Fork to support the components and set them to the stand.



- a) Fiber optic connector
- b) Dovetail
- c) Binoculars set
- d) Objective
- e) Color Filter Lever

- f) Progressive Brake Control
- g) Focus Control
- h) Fork
- i) Eyepieces
- j) Magnification Selector

The Progressive Brake System

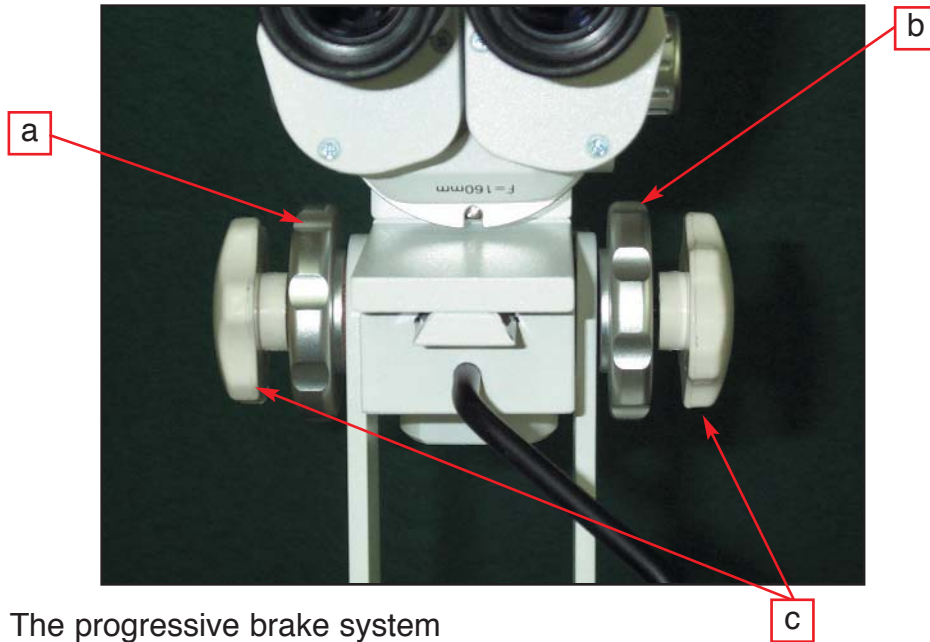


Fig. 4: The progressive brake system

- a) Vertical Turning Brake Control Knob
- b) Focusing Brake Control Knob
- c) Focusing Control Knob

The external WHITE KNOBS ('c', in the figure above), focus the microscope.

The LEFT INTERNAL knob (a) brakes the up and down tilt (vertical turning) movement between the two fork blades.

The RIGHT INTERNAL knob (b) brakes the focusing micro movement.

The two brakes are progressive, that is, the larger the squeeze, the more rigid becomes the movement.

The progressive brakes serve the occasional needs of small displacements in the positioning of the colposcope or in its focusing before or during procedures.

The progressive movement of each one of the brakes is shown in the illustration below, where the arrows indicate the direction of the brake action. They increase the effect of the brakes when turned in clockwise direction, as shown by the arrows.

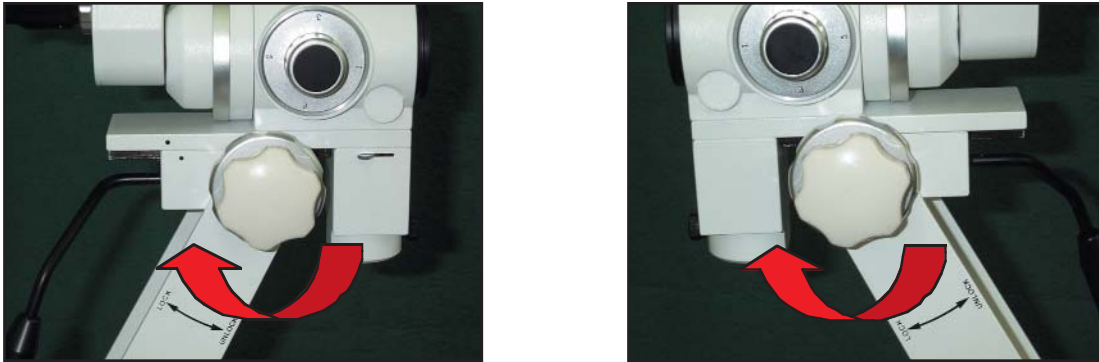


Fig. 5

- a) Vertical Turning Brake Control Knob (internal aluminum knob)
- b) Focusing Brake Control Knob (internal aluminum knob)

We recommend to keep the two control knobs ALWAYS SMOOTHLY ADJUSTED, ensuring relative immobility at the chosen position , both focal and directional, but allowing small displacements in focusing , without the need of moving the brake control knobs.

Filter

The green filter is operated by a lever installed on the side of the Colposcope body.

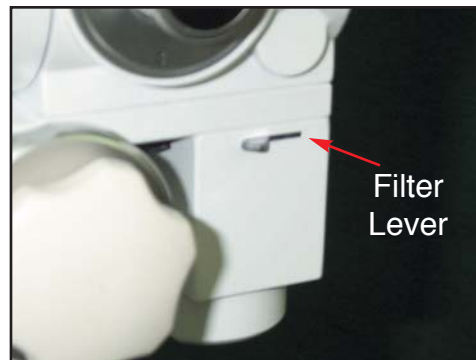


Fig. 6

CLEANING

The Objective, at the bottom of the colposcope body, may be exposed to blood and others typical organic fluids. The spots dim the passage of the light, with loss of brightness in the optical observation.

Alcohol or warm water in a mild detergent, applied with a clean cotton swab can be used to remove all smudges. Apply with soft and CIRCULAR movements. Follow your laboratory's procedures to remove bloodstains or other contaminants from your equipment.

If the objective is too blotched, change to another cotton swab for each circular movement to avoid spreading the impurities again.

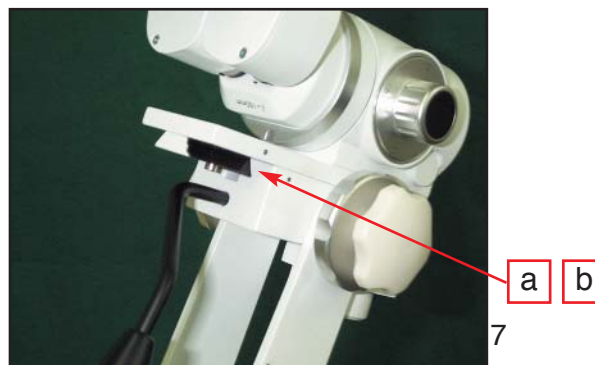
The Objective lens can be protected by use of the Sterilizable Protector Cap. It is fitted on the external diameter of the objective lens and protects it against mechanical damage and against contamination. (catalog # MC-A40)

Clean the metallic parts (chrome-plated or painted) with cotton, alcohol or mild detergent.

Lubrication

At the colposcope head there is a point where lubrication is recommended after some years of use: the micro focusing system ("dovetail").

It slides, and the illustration below shows it displaced at the end of travel.



a) Dovetail

b) Apply, with a cotton swab, a bit of mineral oil.

Figure 7 shows the "dovetail" slide and where to lubricate.

Do not use excessive lubricant.

Important: For lubrication use a light film of mineral oil.

IV - HOW TO FOCUS THE COLPOSCOPE

Preliminarily:

Displace the Articulated Arm of the stand set where the colposcope is fixed, and point its objective to the direction of the field to be observed. Note that the objective, at front of the Colposcope, be positioned at a distance equal the focus engraved in millimeters in the external face of the metallic hoop of the objective. Example: With a 300mm objective, keep a distance of about 300mm between the objective and the specimen.

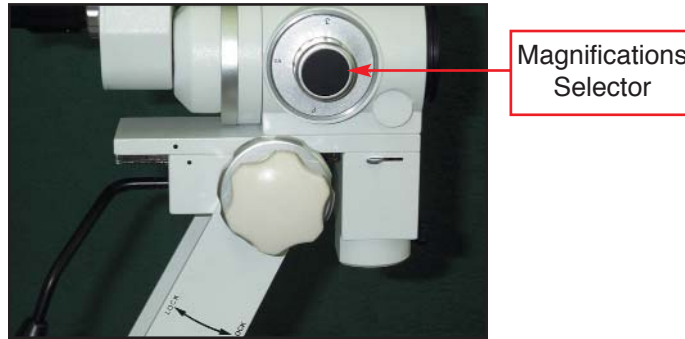


Fig. 8

Focus the observation field

Interpupillary distance adjustment:

Looking now with the two eyes through the two eyepieces, adjust the interpupillary distance as explained below in the items "inclined binoculars" and "straight binoculars", until they are juxtaposed to the two pupils and the vision of the field appears as only one disk, clear and stereoscopic.

With the inclined binoculars grasp each tube of the of the binoculars and move the tubes in or out, so that, as it was already said, the eyepieces are juxtaposed to the observer's pupils.

With the straight binoculars the action of separation or approach is made in a soft and semi-rotation movement, in both of the prism boxes. See Fig 2 (item 10) of the section "The Colposcope Binocular".

Now the binocular vision should be obtained and only eventual small adjustments can still be made in the controls actuated before. It is necessary to reach a **neat and stereoscopic** vision, assured by the quality of the optical system, when the focus is well done.

Parfocalizing Procedure:

- 1) Depress the orange tab on each eyepiece and rotate the zero (0) marking on the index line on the eyepiece tube.
- 2) Turn the magnification drum to the highest setting (5) and focus sharply on a target such as a piece of paper with an "X" drawn on it by using the focusing knobs.
- 3) The turn the magnification drum to the lowest setting (1) and focus by turning eyepieces clockwise or counter clockwise until you reach sharp focus. Be sure to depress the orange tab when turning the eyepiece.
- 4) Now the microscope is in focus for your eyes throughout all the magnification settings.

V – THE LAMP REPLACEMENT

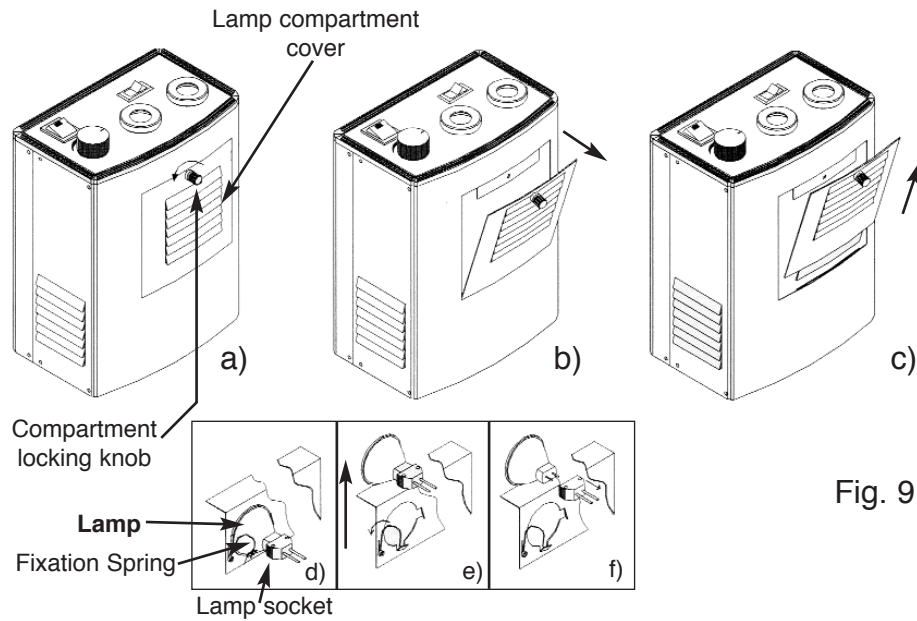


Fig. 9

Attention: Do not touch the old lamp bulb until you are sure it is cold. A hot bulb can cause a very serious burn. Do not touch the new lamp bulb with your fingers. The natural grease of your skin will shorten the lamp life. Always keep at least one spare lamp. The cold light generator has two 2,5A fuses located in the rear panel (input connector).

Important: UNPLUG THE POWER CORD.

- a) Loosen the lamp compartment-cover locking knob by turning the knob counter-clockwise.
- b) Lift the lamp compartment cover, lightly.
- c) Remove the cover, moving it to the indicated direction.
- d) The lamp is set as per illustration of the housing, seen from the rear.
- e) Loosen the fixation spring by turning it slightly counter-clockwise. Remove the lamp, pulling it to the indicated direction.
- f) Pull the socket to the indicated direction.
- g) Mount the new lamp, following the procedures from a) to f) in the reverse order.
- h) Be sure the new lamp is centered on its housing, to assure the optimal efficiency of the illumination system.

VI - COLPOSCOPE FLOOR STAND

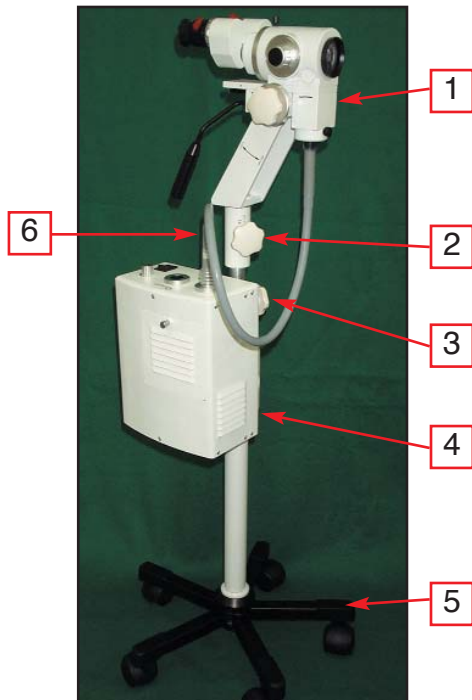


Fig. 10

NOMENCLATURE OF THE NUMBERED PARTS

- 1) Colposcope Head
- 2) Head block knob (**Caution:** Optics will drop when knob is loosened.)
- 3) Column height adjusting knob
- 4) Cold Light Generator (with 2 lamps 15V-150W)
- 5) Base with casters
- 6) Optical Fiber Cable.

A knob located at the stand tube (item 3) fixes the vertical movement of the column.

By turning the knob (item 3) counterclockwise or clockwise, the system can be released or fixed, and the height of the column be adjusted. This control is very easy to handle; the correct height for patient examination will be easily achieved.

VII-ACCESSORIES (OPTIONAL)

A - GENERAL

MC-A131S	Stereo secondary eyepiece
MC-A175	Objective F=175 mm
EFR 64635	Lamp 15V-150W
MC-A198S	Inclined binoculars
MC-A2	Objective F=200 mm
MC-A219S	Beam Splitter 80 / 20
MC-A250	Objective F=250 mm
MC-A3	Objective F=300 mm
MC-A350	Objective F=350 mm
MC-A40	Sterilizable protector for objective
MC-A400	Objective F=400 mm
MC-A50S	Beam Splitter 50 / 50
MC-A217S	Single secondary eyepiece with eyepiece 12,5x

B - PHOTOGRAPHIC SYSTEM

MC-A216S	Complete photographic camera 35 mm, bayonet system (kit)
MC-A233S	Additional objective with 2x magnification for camera with thread
MC-A254	Electronic flash circular
MC-A50S	Beam Splitter 50 / 50
MC-A52S	Photographic camera adapter
MC-A55S	Intermediary ring for 35 mm thread type machine
MC-A550S	Intermediary ring set for 35 mm-bayonet type machine (Pentax MZ-M)
MC-A292S	Revolving adapter for Nikon digital camera (Coolpix® 950)
MC-A294S	Revolving adapter for Sony DSC-S50 digital camera
MC-A305S	Revolving adapter for Nikon digital camera (Coolpix® 5000)

C - VIDEO SYSTEM

MC-A218S	Adapter - F=65mm for video camera with chip 1/2"
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