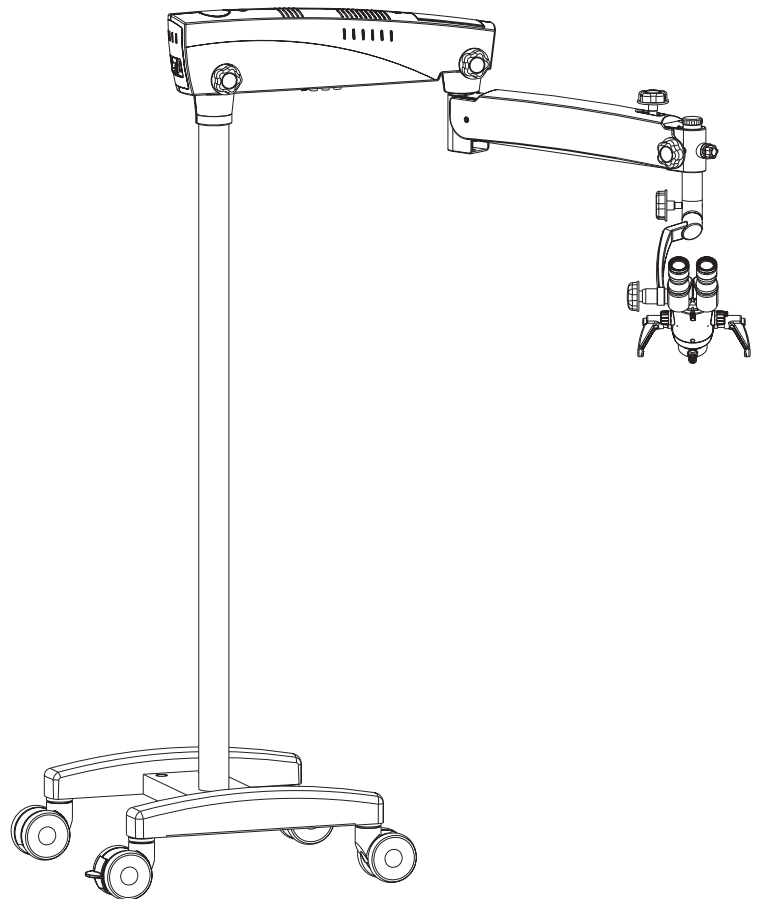


PRIMA ENT User Manual

Operating Surgical Microscopy



To ensure proper use of this instrument as well as to avoid injury while operating instrument, understanding this manual completely before use is highly recommended.

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1 INTRODUCTION

The LABOMED Prima ENT is a surgical and diagnostic microscope, which is adaptable for different surgical needs without compromise to performance.

The microscope provides extremely high optical image quality, good depth of focus and wide field of view for precise surgery. Illumination control, inbuilt tilt, adjustment of the observation head help to reduce the surgeon's work fatigue and allow comfortable use over long period.

Salient features of this Microscope are:

1. The observation head can easily be positioned with the help of suspension arm .
2. An advanced 5-step magnification changer allows an optimal magnification for a particular surgery from five different magnifications.
3. Cold light illumination with a high intensity 50W LED lamp is provided using a fiber optic guide for proper illumination. The illumination is further adjustable up to its most suitable brightness using intensity control knob suitably located at the suspension arm, and is easily approachable to the surgeon.
4. When the microscope is not in use, the suspension arm can be folded over the main body to store it compactly.
5. Rigid H-form base with castor wheels provides greater stability as well as mobility to the instrument.

2 SAFETY INSTRUCTIONS

1. This microscope is manufactured according to the safety norms as per CE regulation and FDA approved .
2. This microscope is intended for use only as prescribed in this manual.
3. Servicing and repairs are allowed through authorized persons only.
4. Replace burnt out fuses by live fuses of the same type only (rated voltage, rated current, switch – off characteristics.)
5. Use mains plug and mains socket both with protective earth conductors only.
6. Do not use force while fixing cable connections. If the male and female parts do not readily connect, make sure that they are appropriate for one another. If any of the connectors are damaged. Please contact the representative.
7. Make sure that inlets and outlets of ventilation system for cooling the housing are open (not covered).
8. The microscope is built for use in dry rooms only. Take care that no fluids enter the microscope components. Do not place any fluid-filled container on top of instrument.
9. Microscope is protected against overheating through a thermal cut-off.
10. The manufacturer will not accept any liability for damage caused by unauthorized persons tampering with the instrument; this will also forfeit any rights to claim warranty.
11. It is recommended to use the instrument only with the accessories supplied. In case you wish to use other accessory, make sure that LABOMED has certified that its use will not impair the safety of instrument.

Very important: For identification, service people must know the serial number of the microscope.



3 SPECIAL INSTRUCTIONS

3.1 Before every use and after re-equipping the instrument

1. Check all Electrical connections.
2. Attach sterilized covers, panels or caps which have been re-moved or opened.
3. Pay special attention to labels on the instrument, such as caution label, warning triangles with exclamation marks or notes.
4. Do not cover any ventilation openings.

3.2 When instrument is in use

1. Avoid looking directly into the light source, microscope objectives lens or light guide.
2. When the illumination is on, the light guide must be connected at both ends. Otherwise there is a risk of fire or burn injuries.
3. Any kind of radiations has a detrimental effect on biological tissue. This also applies to illuminating the surgical field, therefore adjust the brightness and duration of illumination on the surgical field to the absolute minimum required.
4. Adjust tension of suspension arm as per convenience.

3.3 After every use of the instrument

1. Switch off the Mains supply to the instrument.
2. When the microscope is not in use, the suspension arm can be folded over the main body for compact storage.

4 UNPACKING

The appliance is delivered in sub-assembled groups along with one set of Installation Kit and one instruction / service manual.

Please check following at the time of unpacking:

1. Mobile supporting base with brakes on castor wheels, or the type of mounting system
2. Column, depending on the type of mount ordered
3. Swivel arm and Suspension arm assembly with fibre optic cable and illumination assembly
4. Cover for swivel arm (pre-fitted to the microscope)
5. Inclined arm with magni-changer assembly and objective (as ordered)
6. Observation Head, as ordered
7. Paired Eye Pieces, as ordered
8. Power Cord
9. Set of sterilizable caps
10. Installation Kit
 - a) Allen Wrench 5.00mm
 - b) Allen Wrench 8.00mm
11. Operating Manual

5 DESCRIPTION OF PARTS

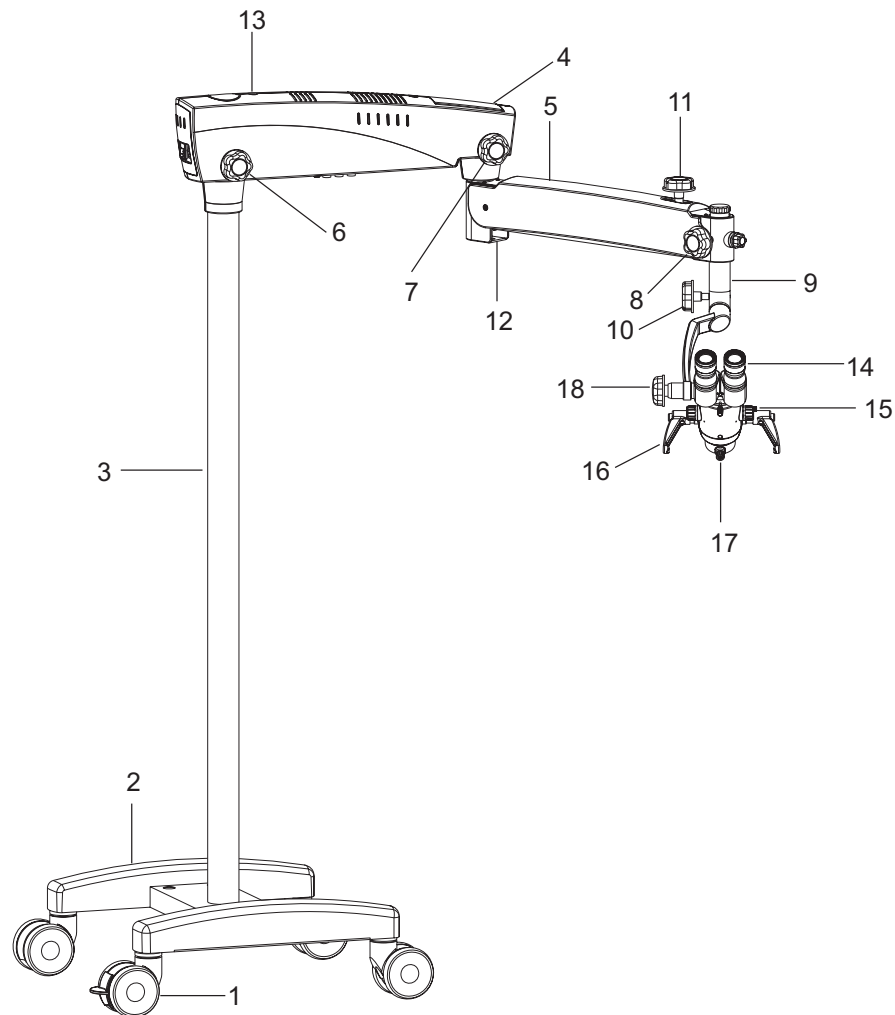
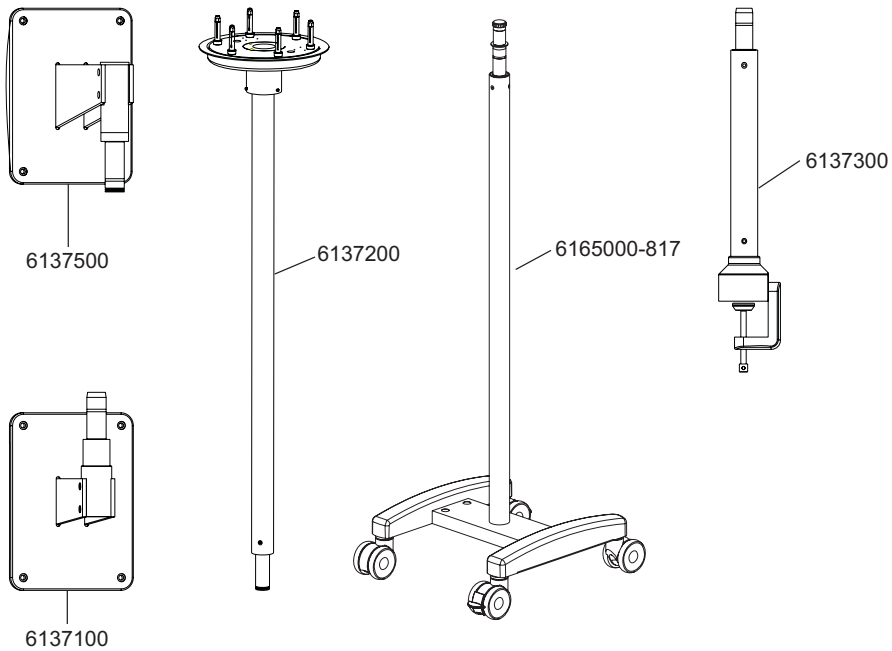
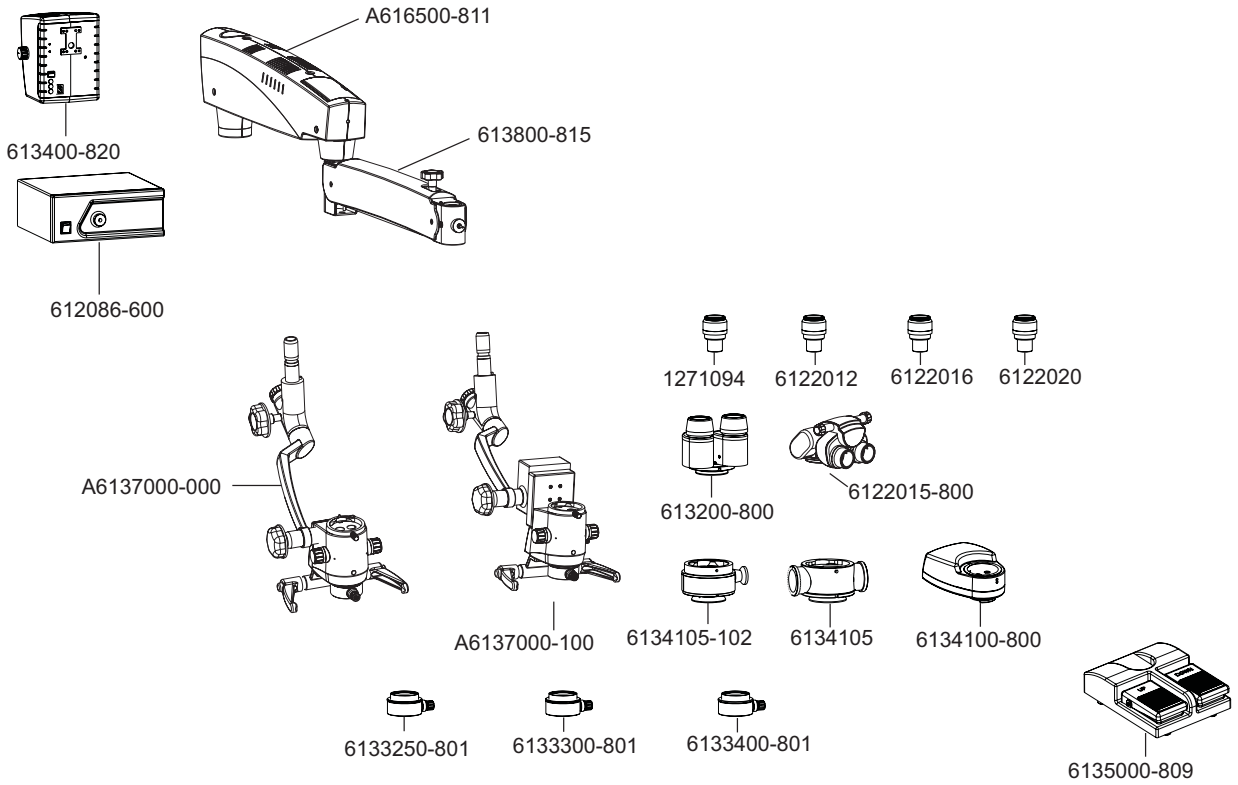


Fig. 1

- | | |
|--|--|
| 1. Wheel with brake | 2. Metal base |
| 3. Column | 4. Swivel arm |
| 5. Suspension arm | 6. Swivel arm locking knob |
| 7. Suspension arm movement locking knob | 8. Coupling movement locking knob |
| 9. Inclined coupling | 10. Inclined coupling movement knob |
| 11. Suspension arm hydraulic movement lock | 12. Suspension arm spring tension adjustment |
| 13. Swivel arm covers | 14. Binocular head with eyepieces |
| 15. Magni-changer | 16. Handles |
| 17. Common main objective | 18. Magnichanger inclination movement lock |

6 SYSTEM DIAGRAM



7.1 The base is installed by fixing the column on the base. Engage the column to the indexing screw (A), see Fig. 2. Align the tapped hole of the column in the screw seat, hold the upright firmly and tight the allen screws from the bottom of the base. See Fig.3.

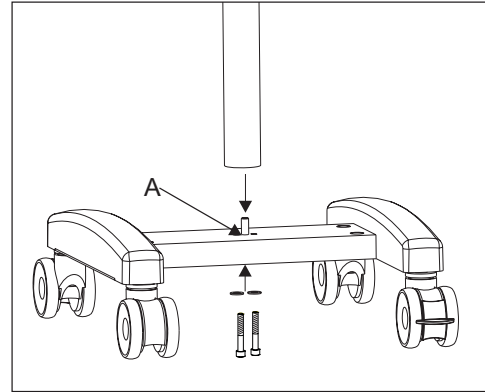


Fig. 2

7.2 After fixing the upright to the H shape base, make sure the parts are fitted to each other properly.

7.3 Retrieve the swivel arm and suspension arm assembly from the packing box.

Install the swivel arm assembly on the upright holding shaft (1). See figure 4.

Lock the swivel arm with threaded plug from the top.

Loosen the swivel arm lock knob A and suspension arm locking arm B knobs so that it can be rotated.

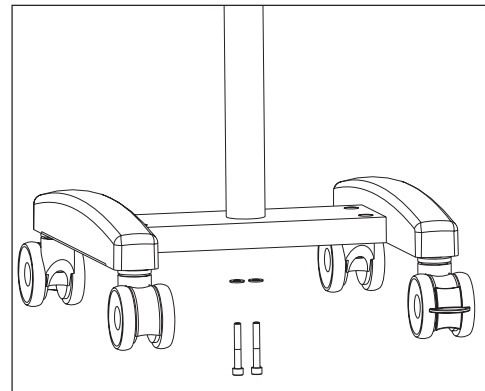


Fig. 3

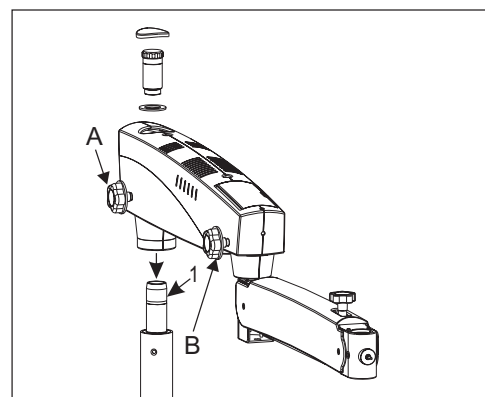


Fig. 4

7.4 Retrieve the inclined coupling assembly from the packing. Install the coupling to the suspension arm by sliding the guiding shaft (1) to the suspension arm. Make sure to loosen the locking screw (2) before sliding in the guiding shaft. Lock the inclined coupling with the threaded plug (3). See figure 5. Install all locking knobs to the suspension arm, inclined coupling and magnichanger locking knob.

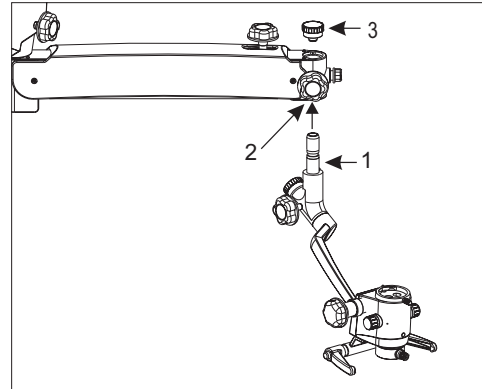


Fig. 5

7.5 Install the binocular head and eyepieces on the magni-changer. Secure the binocular head with head locking screw. See figure 6.

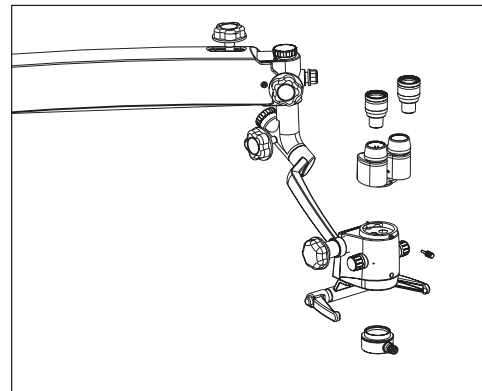


Fig. 6

7.6 Remove the caution label from the suspension arm. Remove the protection screw (1) from suspension arm by using allen screw 5.0. Replace the protection screw with the locking knob, riser washer and sterilizable cover (2). Tight it fully.

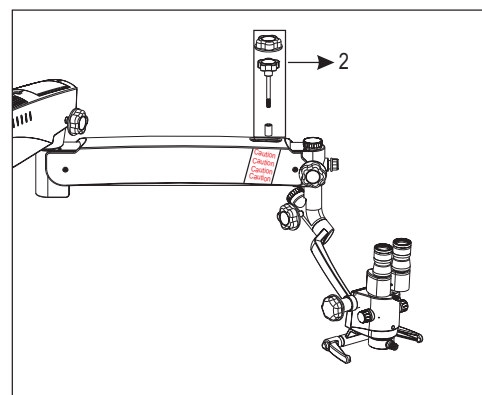


Fig. 7

8 Electrical Connections

Connect the power cable to the AC inlet socket (2) provided on the illumination box.

Switch on the power from on/off switch (2).

Note: The line voltage of the electrical system is set in the factory the rated line voltage of the country of destination which must be either 110V or 220V AC. The line voltage at the sight of installation must lie within the admissible voltage range. If this is not the case you must not operate the system.

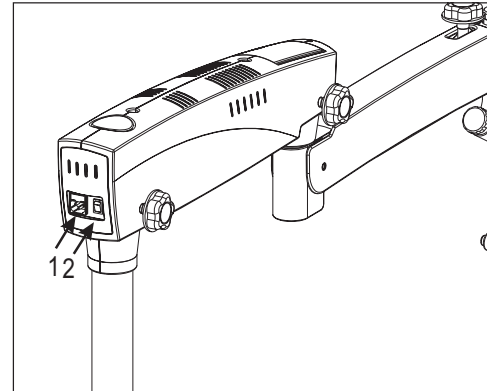


Fig. 8

9 Controls

9.1 ON/OFF switch (Shown as 2 in fig. 8 above)

It is located under the swivel arm. At 'ON' position, green LED glows and cooling fan starts running. Keep the intensity control knob at minimum level before switching on the system.

To save burning life of lamp, switch OFF the appliance if the microscope is not in use for longer time.

9.2 Intensity control knob

It is located in front of the suspension arm (A). Brightness of field of view can be adjusted as per user comfort using intensity control knob.

9.3 Brakes

Locks the stand from unwanted movement by pressing down the two brakes provided on caster wheels. To unlock press upper portion of brake. See Figure 9.

9.4 Swivel arm locking knob

This knob helps you to lock the movement of swivel arm at the desired position after initial focusing of the attendance area by turning it clockwise.

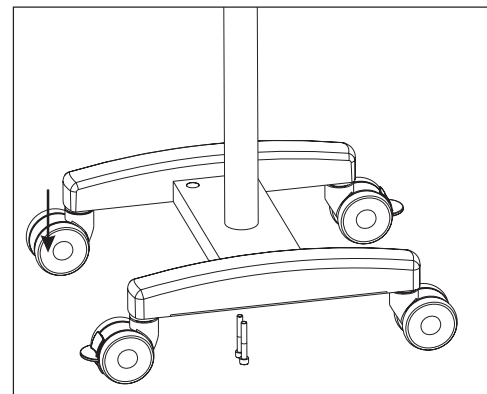


Fig. 9

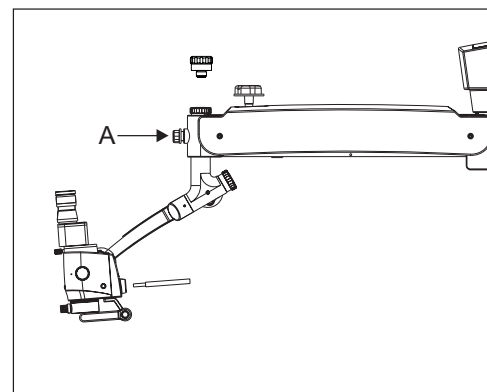


Fig. 10

10 INSTRUCTIONS FOR USING THE MICROSCOPE

Setting up of Microscope:

- 1 Lock all the brakes on base wheels after setting up of microscope on the attendance area for stability.
- 2 Adjust tension on suspension arm using tension adjustment screw as per your convenience by turning the knob clock wise or anti-clock wise.
- 3 Lock the Up & Down movement of suspension arm using locking knob after coarse focusing of the attendance area.
- 4 Adjust the eye distance as per IPD scale according to your convenience.

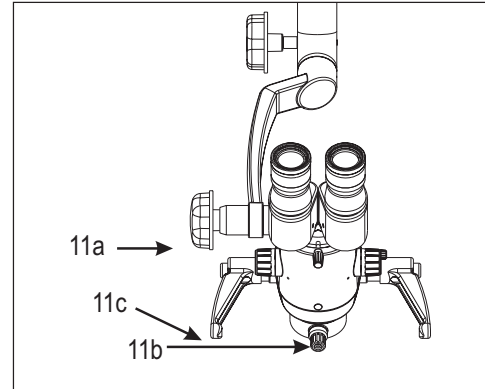


Fig. 11

Setting up of magnification (Ref. Fig. 11)

- 1 Adjust to highest magnification with one of the rotating knobs (11a) provided at magnification changer.
- 2 Fine focusing is done through FOV knob (11b).
- 3 Absolute centering of observation area in field of view can be done by manual handle(11c).
- 4 Make sure that the magnification changer is engaged in the index point at the click stop position.
- 5 The illumination is controlled through the control knob (A), fig. 11. Rotate it clockwise or anti clock wise to achieve desired illumination level.

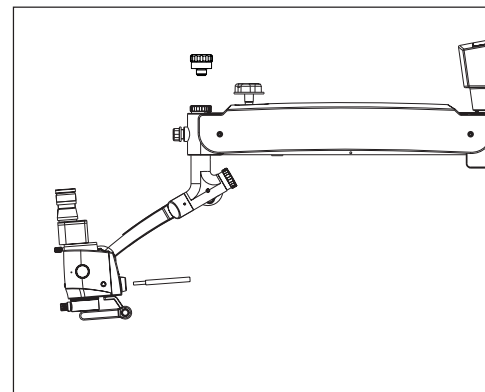


Fig. 12

11 How to focus the object

1. Adjust both the eyepieces to '0' diopter adjustment.
2. Adjust IPD of the observation head using IPD scale.
3. Bring highest magnification factor in the click stop position using one of the knobs provided at the magni-changer unit. By doing so observation area will remain par-focalized in all magnifications.
4. Fine focusing is done by using FOV knob (1) by turning it clockwise or anti clockwise.

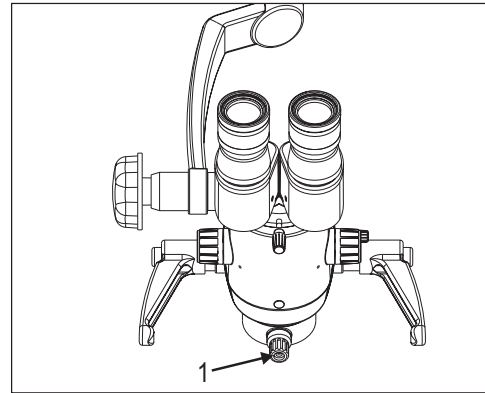


Fig. 13

12 Changing the objectives / eyepieces

1. The objectives can be taken out by rotating it in anti-clock wise direction. It can be threaded in by rotating in clock wise direction.
2. To install the eyepieces, insert in the eye tubes of observation head.
3. A range of objectives/eyepieces can be selected by choice.

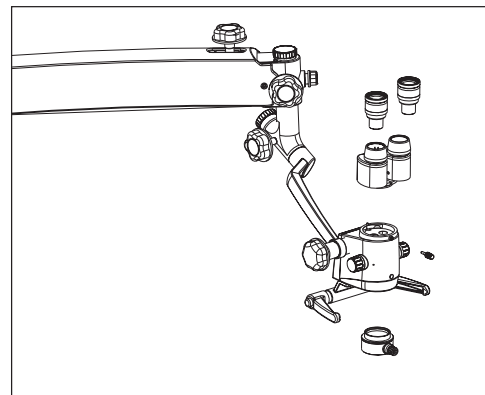


Fig. 14

13 Replacing the illumination source

Open the swivel arm cover's. Detach the fibre optic cable and replace the illumination assembly A with new assembly. Secure back the arm cover's.

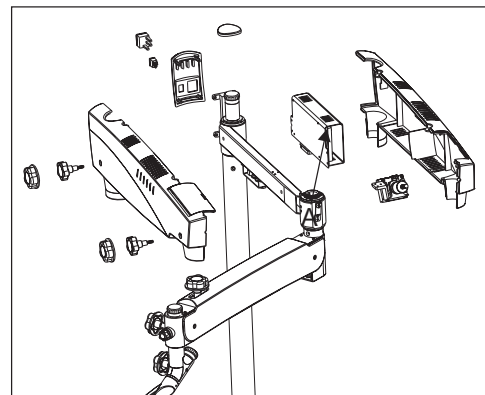


Fig. 15

14 Fuse replacement

The fuse is located with the AC inlet, provided near the on/off switch. Use a flat head screw driver to open the fuse compartment. Two fuses are provided in this, i.e. one is live fuse and second as spare fuse. Replace the blown fuse with live fuse and secure back the fuse compartment.

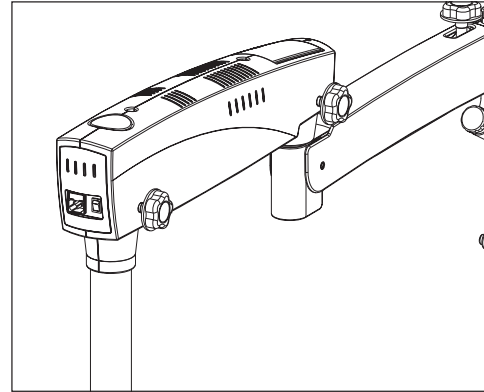


Fig. 16

15 Adjustment of Tension while using Accessories

After Supplementary accessories are mounted, the additional load of suspension arm must be compensated by adjusting tension on tension control screw provided on suspension arm by moving it clock wise or anticlockwise.

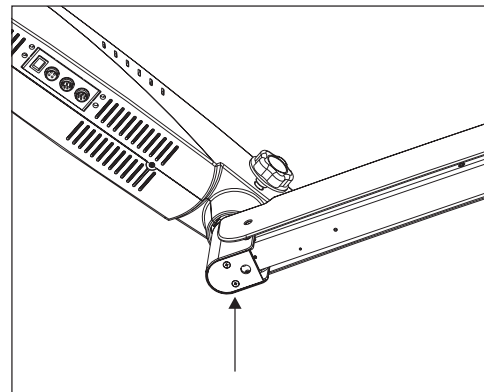


Fig. 17

16 Disinfection and Sterilization**For Diagnosis:**

Moisten smooth cotton with antiseptic fluid (for example Sagrotan – P); when required, clean often touched parts, like rotating knobs, handles and so on.

After surgery:-

Sterilizable polymer covers are provided on every part that require to be touched during operation. Sterilize them after every use of the instrument.

17 *CLEANING AND SERVICING*

17.1 Cleaning of optical surfaces:

Remove coarse dirt particle with a clean dry air from optics outer surfaces (Objectives, Eyepieces).

Moisten smooth cotton cloth with lens cleaning agent and wipe on the lens surface gently starting from the middle of the lens to the outer edge.

17.2 Cleaning of mechanical surfaces:

All mechanical surfaces of the equipment can be cleaned by wiping with a moist cloth. Don't use any aggressive or abrasive cleaning agents.

Any household dish washing fluid can be used for cleaning residue.

17.3 Servicing:

Service whenever required, inform after-sale service.

18 TROUBLESHOOTING TABLE

Problem	Possible Cause	Remedy
No Illumination at all	Power cable not plugged	Plug in power cable.
	Power switch not pressed	Press power switch
	Defective instruments fuse	Change instrument fuse
	Defective power cable	Change power cable
	Line power failure	Contact in-house Technician
	Failure of suspension system electronics	Contact service dept.
	Light guide not properly inserted in lamp or microscope.	Insert light guide to the maximum intensity.
Insufficient Illumination	Brightness level set too low	Adjust brightness using the brightness control knob.
	Light guide not properly inserted in lamp or microscope.	Insert light guide to the maximum illumination
	Defective light guide (illumination not uniform)	Change light guide.
Halogen lamp in the illumination system remains dark, and fan is running	Knob for brightness control	
	Lamp module has no contact.	Insert lamp module properly.
Halogen lamp goes constantly off and on during operation.	Defective halogen lamp.	Switch to backup lamp.
	Ventillation slots are covered or contaminated	Ventillation slots must be clear, clean them if necessary.

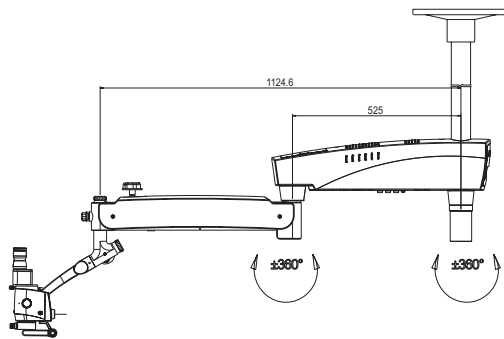
Problem	Possible Cause	Remedy
	Thermal cut-off in lamp housing is contaminated.	Clean thermal cut-off with a dry brush; blow it clean, if necessary
	Defective fan. Failure of system electronics.	Contact service dept. Illuminate surgical field using an Or illuminator. Contact service dept.
Up & Down motion of screw on suspension system too stiff	Friction adjustment screw on suspension system tightened too firmly.	Loosen friction adjustment screw on suspension system as require
Microscope Unstable	Brakes on wheels not	Use Brakes. used.
No image visible in field of view.	Magnichanger is not indexed properly.	Index magnichanger properly.

Technical Data (Specifications)

Binocular tubes	Straight, 90 degree
Eyepieces	WF 10x/16mm with eye guards; optional WF 12.5x/16mm; WF 16x/16mm; WF 20x/12mm
Apochromatic magnichanger	0.4x, 0.6x, 1.0x, 1.6x & 2.5x
Objective	f=250, manual fine focus, optional: f=300mm, f=400mm; motorized fine focus
Light source	50W LED
Built-in filters	Green & Yellow
Vertical movement of arm	600mm
Microscope carriers	120° ENT carrier
Accessories	Assistant Binocular attachment Beam splitter integrated digital camera Module; Double Beam splitter; 0-210° inclinable ergo tube
Type:	Floor stand
Base (Dimensions):	600mm width 620mm length
Stand Height:	1677mm
Weight of complete microscope:	72 Kg. Approx.
Elevation Stroke:	600mm
Stand Height in Horizontal Position:	1100mm
Field of illumination with F.O.V.	f=200mm objective; Ø85.0mm

Dimensions

Ceiling Mount



Wall Mount

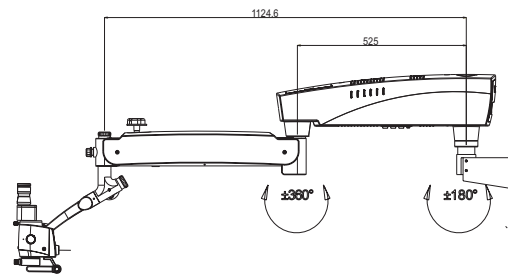
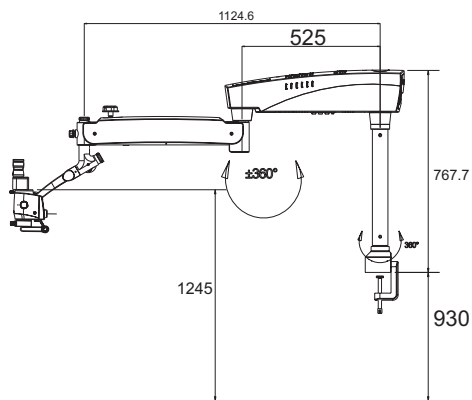
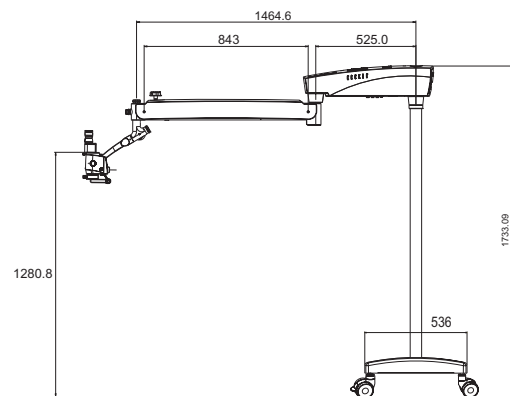


Table Mount



Floor Mount





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