

MT5500

SERIES

MEASURING MICROSCOPE

INSTRUCTION

MANUAL

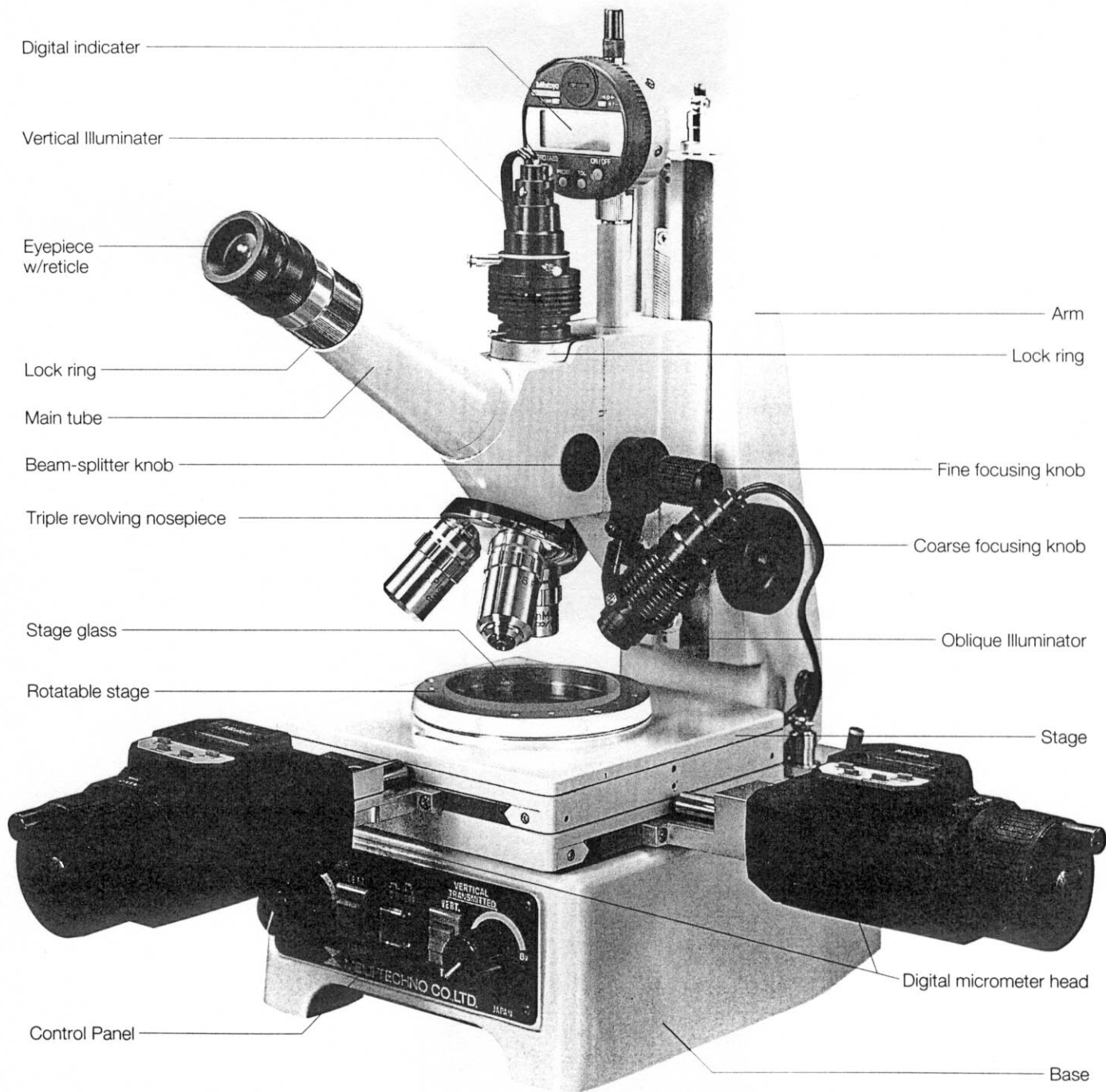


MEIJI TECHNO CO.,LTD.

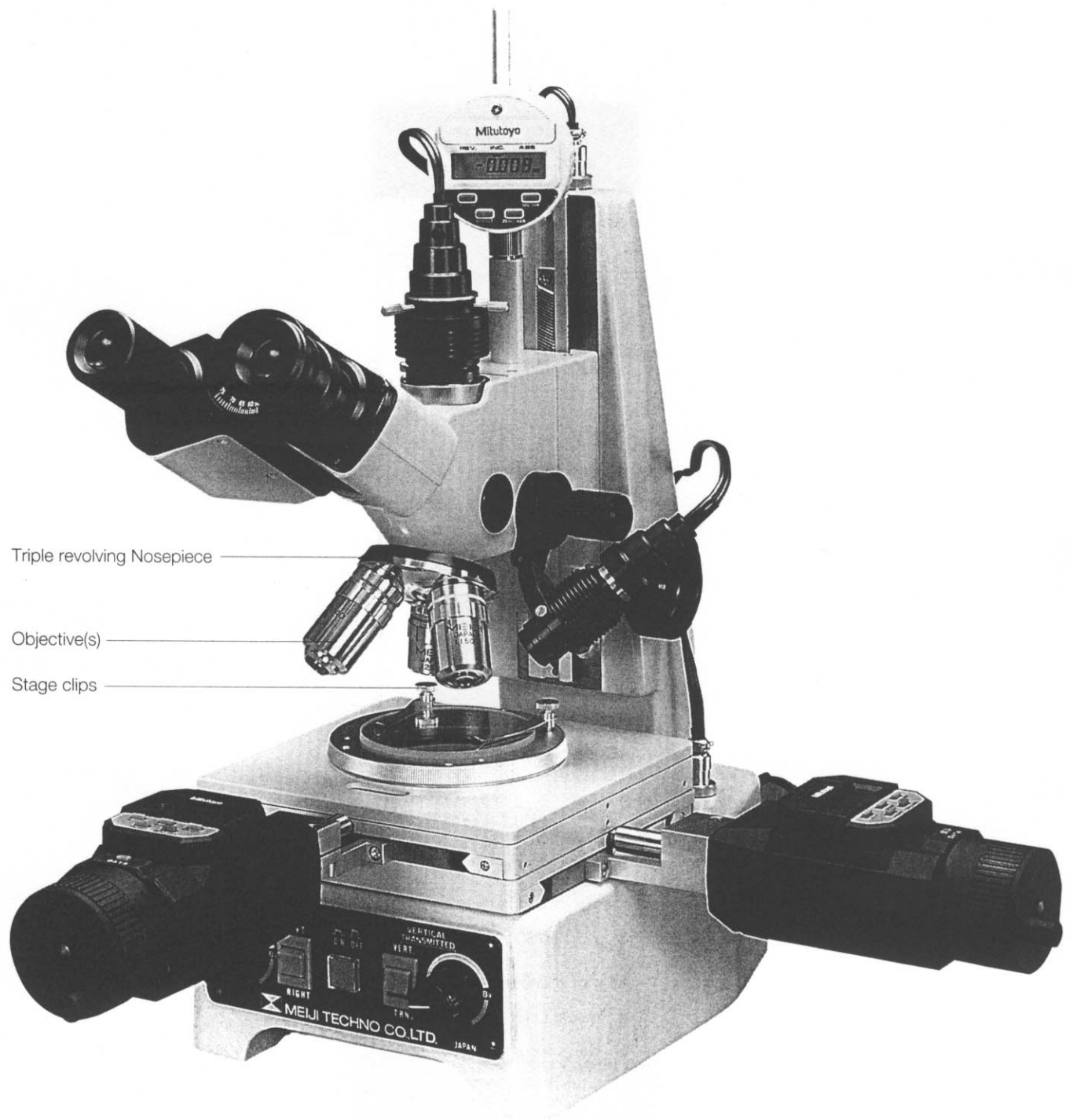
Japan

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Model MT5530D



Model MT5550D

1. UNPACKING, ASSEMBLING, PREPARATION

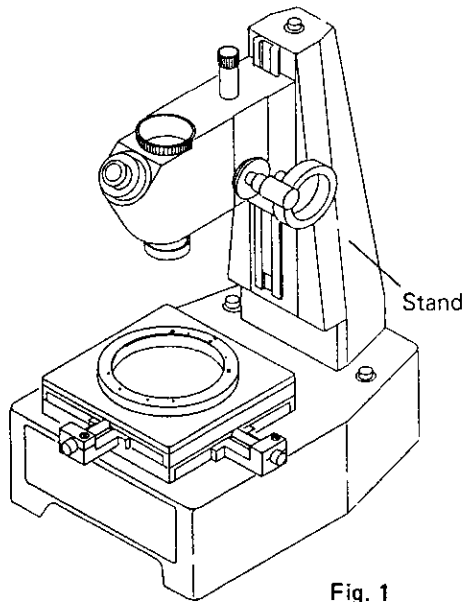


Fig. 1

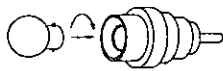


Fig. 2

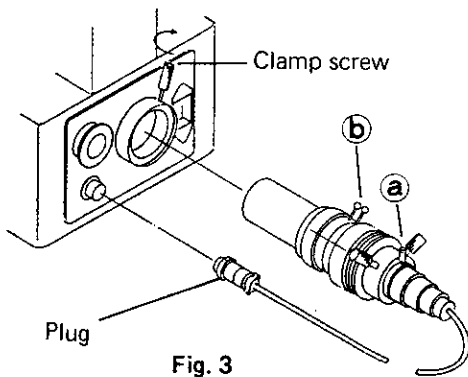


Fig. 3

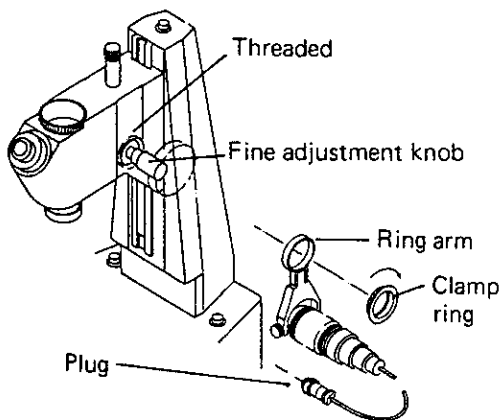


Fig. 4

1-1

The microscope stand and the accessories are packed in separate styro-foam containers. Remove the microscope stand from the container and place it on a solid bench.

Do not throw away any boxes or packing materials until the contents have been checked against the packing list.

1-2

Mount the bulb in the bulbholder by pushing and twisting 1/4 turn clockwise. (Fig. 2)

1-3

Mount the Transmitted illuminator on the microscope base by inserting into the mounting ring at the rear of the base with the screw **a** and the filter holders **b** upper most as seen in the Fig. 3. Clamp in place with clamp screw.

1-4

Mount the **Oblique illuminator** in the following way: (Fig. 4)

- Insert bulb, as in Fig. 2
- Remove the Clamp Ring from the microscope body by turning it counterclockwise.
- Put the Ring arm of the Oblique illuminator over the fine focusing knob and clamp in place using clamp ring.
- Plug in and adjust the position of the illuminator to light up the specimen correctly.

(The oblique illuminator can be mounted on either side of the microscope.)

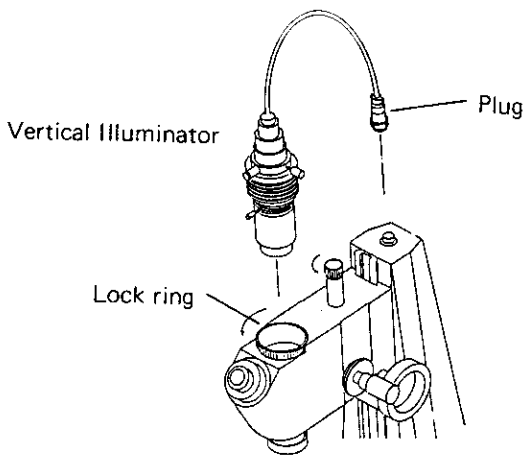


Fig. 5

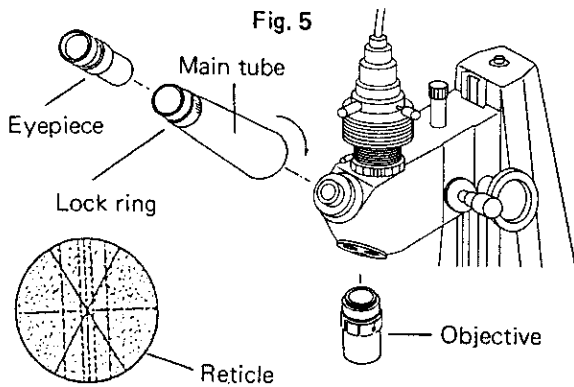


Fig. 6

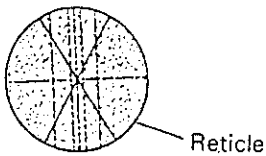


Fig. 7

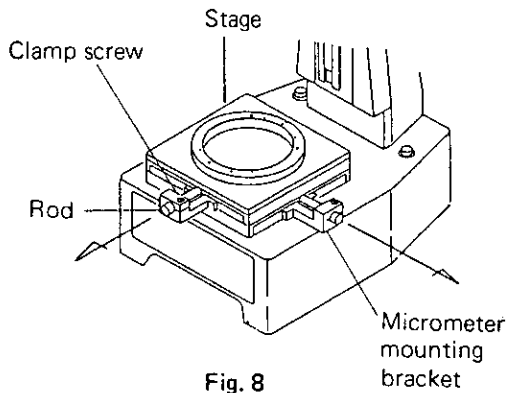


Fig. 8

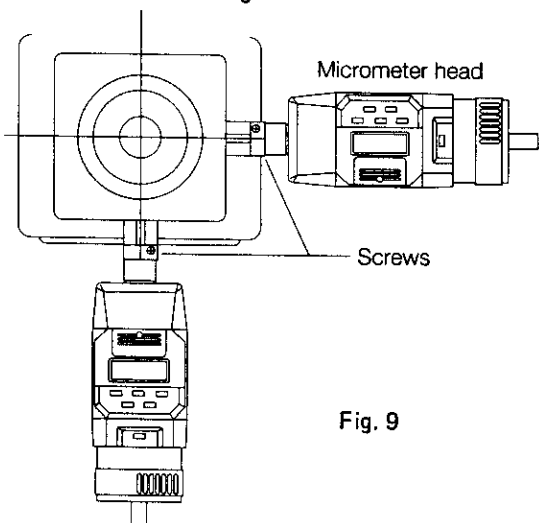


Fig. 9

1-5

Mount the Vertical illuminator in the following way:

- Insert bulb, as in Fig. 2
- Remove the dust cap from the top of the microscope body and loosen the knurled Lock ring by turning it counterclockwise.
- Plug in and insert the vertical illuminator into the microscope body, and clamp with the knurled Lock ring (Fig. 5)

1-6

Mount the **Main tube** on the microscope by screwing it into the body. (Fig. 6)

1-7

Insert the **Eyepiece** into the Main tube and adjust the direction of the reticle so that the dotted crosslines are correctly horizontal and vertical and lock it with the Lock ring. (Fig. 7)

Focus the reticle sharply, by turning the upper part of the eyepiece.

1-8

Mount the **objective/objectives** on the objective nosepiece. (Fig. 6)

On Model MTM253, mount the objectives starting with the lowest magnification, and increasing magnification as the nosepiece is turned counterclockwise.

1-9

Remove the metal transit rods, which prevent movement of the stage in transit, by loosening the clamp screws. Do this carefully as the stage is spring-loaded. (Fig. 8)

1-10

Install the **Digital micrometer head** inserting the stem into the mounting bracket and clamp in place. (Fig. 9)

Note: Do not over tighten the clamp screw as this will affect the operation of the micrometer head.

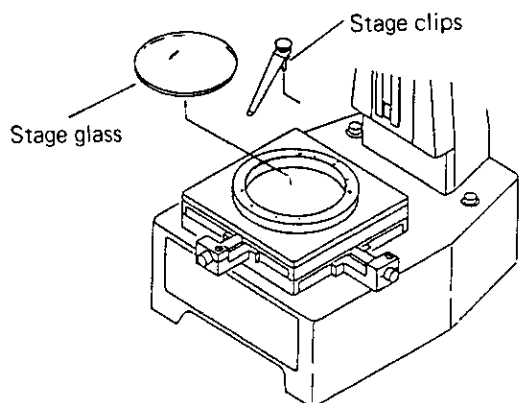


Fig. 10

1-11

Place the **Stage glass** in a recess of the stage. (Fig. 10)

1-12

Mount the **Stage clips** on the stage by inserting pins into the holes on the rotatable stage. (Fig. 10)

(Two different sizes of the stage clips are supplied.)

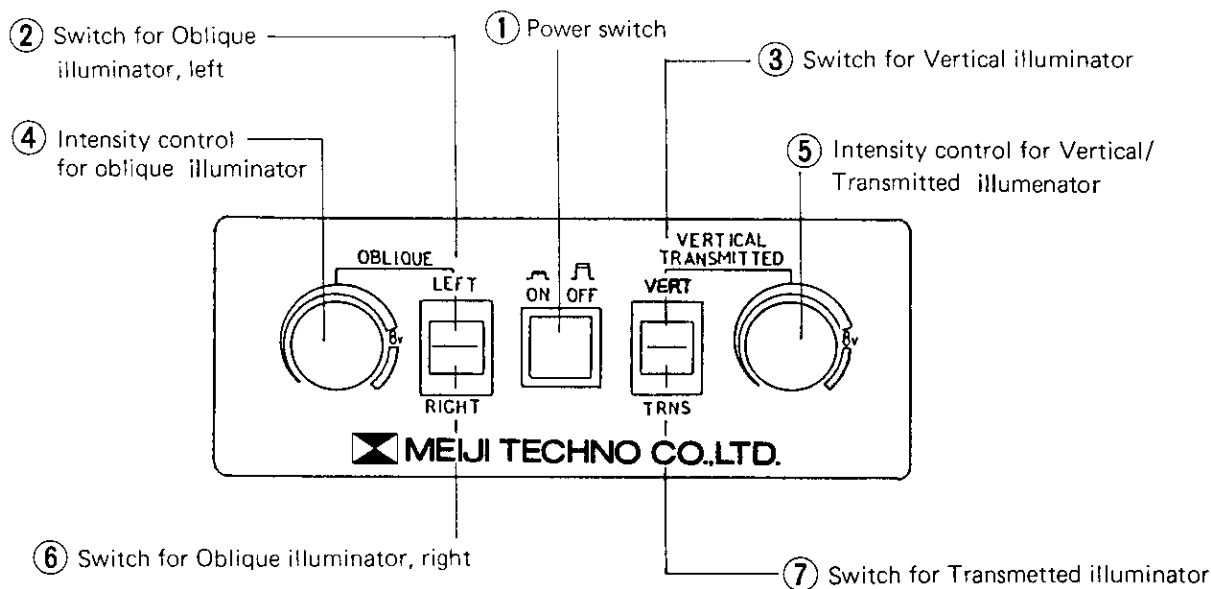
1-13

Caution: Ensure that the voltage selector on the rear of the microscope stand is set to your supply voltage before plugging the mains cord into the outlet.

2. OPERATING INSTRUCTIONS

2-1 ILLUMINATION

Light controls are concentrated on the front panel of base as follows:



a. Bulb

MA357 8V, 12W frosted bulb is used for Transmitted illuminator.

MA358 8V, 12W clear bulb is used for Vertical and Oblique illuminators.

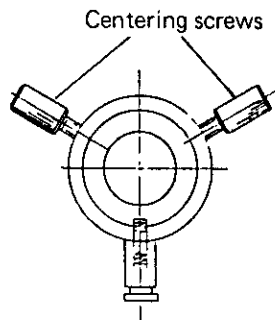


Fig. 11

- a. All switches are 3-step, with a neutral point at the middle position. It is suggested to control light intensity within 8V.
- b. Centering adjustment of the lamp filament can be done with two centering screws. (Fig. 11)
- c. When observing a specimen of high reflectivity, set the Vertical illuminator by turning the beam-splitter knob to align the **Ph** mark with the white dot on the body. (Fig. 12B)
- d. Use the transmitted illuminator to examine a specimen of low light reflection or to measure inclined surfaces.
- e. Use the transmitted illuminator to measure the diameter or pitch of holds, rod diameters, or when observing transparent specimens.

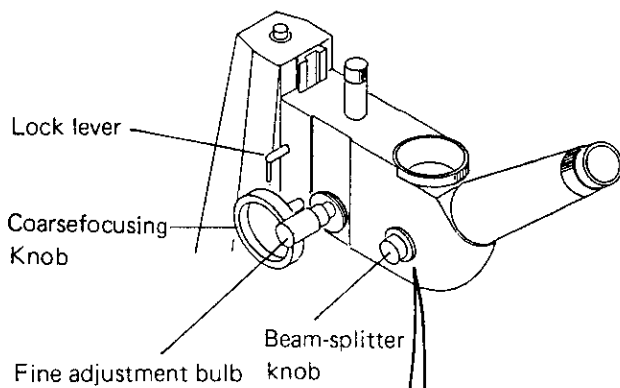


Fig. 12A

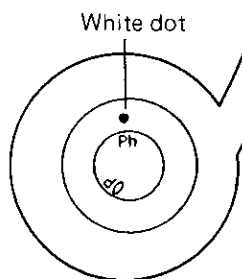


Fig. 12B

2-2 FOCUSING

- a. Place a specimen on the stage under stage clips. If the stage clips are not required, remove them by pulling upward.
 - b. Focus the objective on the specimen by rotating the large coarse focusing knob until the image of specimen is bright and clear. Then turn the Locking-lever to lock the body. (Fig. 12A)
 - c. Then, bring the specimen into sharper focus by using the fine adjustment knob.
- (The working distance for 10X objective is 6.6mm)

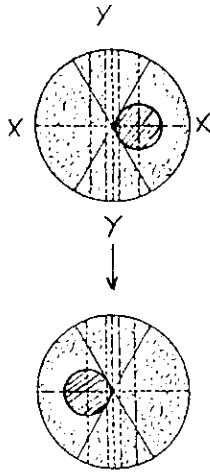


Fig. 13

2-3 MEASURING, X and Y axis

- Rotate the stage so that the movement of specimen coincides with the horizontal line of the eyepiece reticle.
- Using the micrometer head, move the stage to bring the starting point of the measurement under the center of the crossline reticle. Now, read the graduation on the Micrometer. (Fig. 13)
- Move the stage to bring the end point of the measurement under the center of the crossline reticle. Read the graduation. The difference between the readings in **b.** and **c.** above, is the dimension of the object being measured.
- As to operation of Digimatic Head (Digital micrometer head), please refer to the manual supplied with the instruction. (Fig. 14)

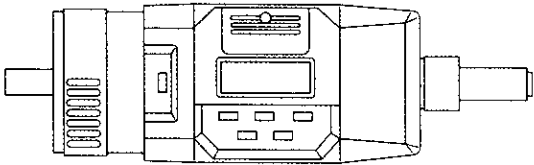


Fig. 14

When using the Digital Micrometer Heads, please refer to the instruction Manual for the DIGITAL MICROMETER HEAD as supplied by the manufacturer.

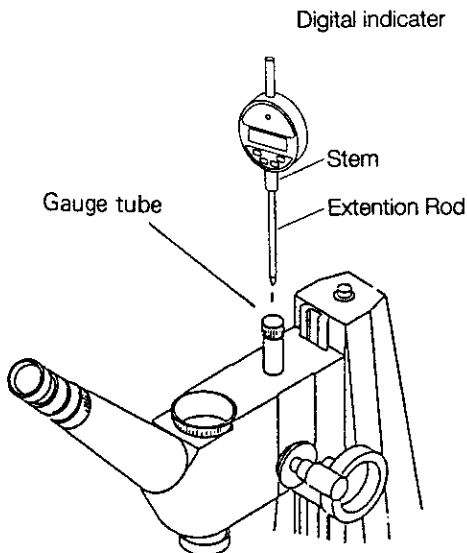


Fig. 16

2-4 MEASURING, HEIGHT/DEPTH

Digital indicator is used for measuring height/depth.

- Attach the extension rod to the Stem before inserting it into the microscope. (Fig. 16)
- Insert the Digital indicator into the gauge tube on the top of the microscope body and clamp with the knurled lock ring. (Fig. 16)

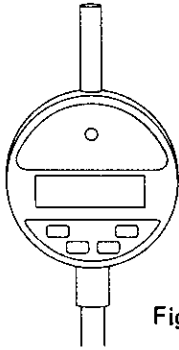


Fig. 17

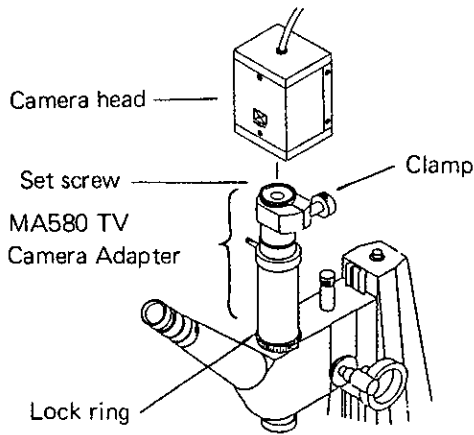


Fig. 18

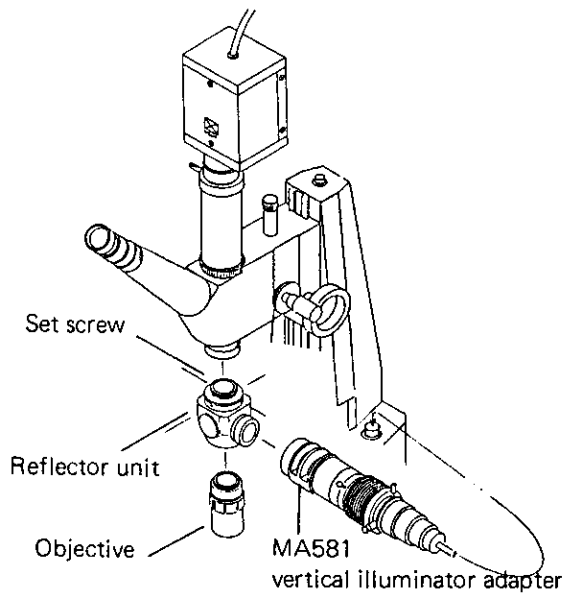


Fig. 19

- c. Focus the objective sharply on the highest point of the specimen to be measured and follow to the instruction manual of Digital indicator for measurement of height.

2-5 TELEVISION

For television the **MA580 TV Camera Adapter** must be used. (Fig. 18)

- a. Remove the Vertical illuminator and insert the MA580 TV Camera Adapter in its place
- b. Remove the **C-mount** from the top of the MA580 Adapter and thread into the **CK3800 TV Camera**
- c. When using a TV Camera, vertical illumination is required. The **MA581 vertical illuminator adapter** must be used. The MA581 is mounted as follows: (Fig. 19)

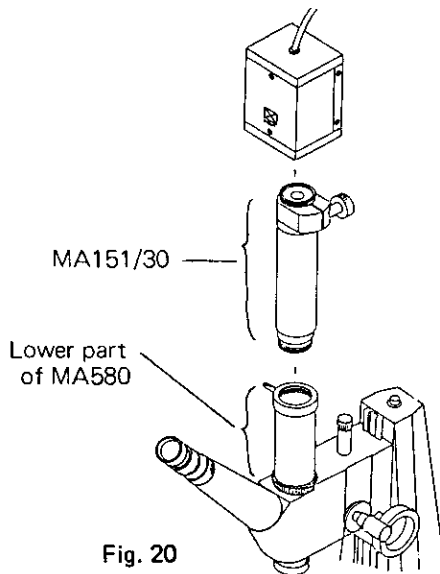
- c-1 Remove the objective and thread **reflector unit** into the nose-piece.

- c-2 Adjust the direction of the **reflector unit** to the correct position by loosening the four set screws as seen in the Fig. 19.

- c-3 Attach the **illuminator housing** to the reflector unit with the filter holders facing upward, (see Fig. 19), and tighten the screws.

- d. To direct all light to the TV camera, turn the beam-splitter knob so that the **Op** mark coincides with the white dot on the microscope body. (Fig. 12-B)

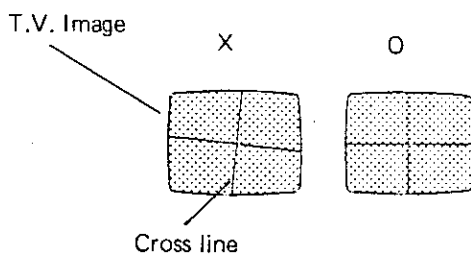
Please refer to the Instruction Manual for CK3800 CCD Color TV Camera when using this camera.



2-6 CROSSLINE ON THE TV SCREEN

To produce a crossline on the TV screen, the **MA151/30 1X Crossline Mount** is used and it is mounted in the following way: (Fig. 20)

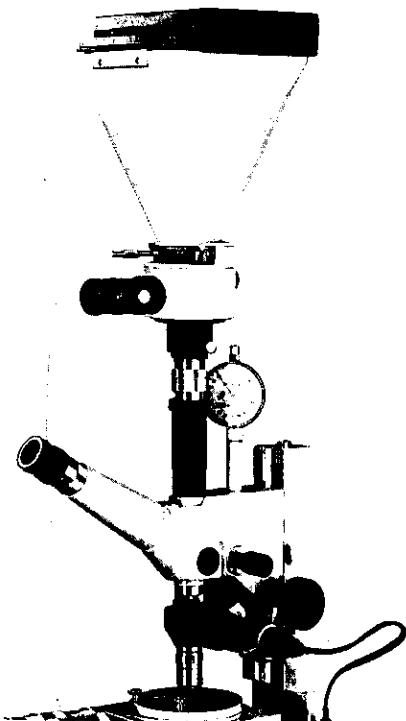
- a. Remove the upper half of the MA580 TV Camera Adapter and mount the **MA151/30 Crossline mount** in its place. (Fig. 20)
- b. If the crossline is not horizontal on the TV screen (Fig. 21), it can be adjusted by rotating the tube of the MA151/30 mount.

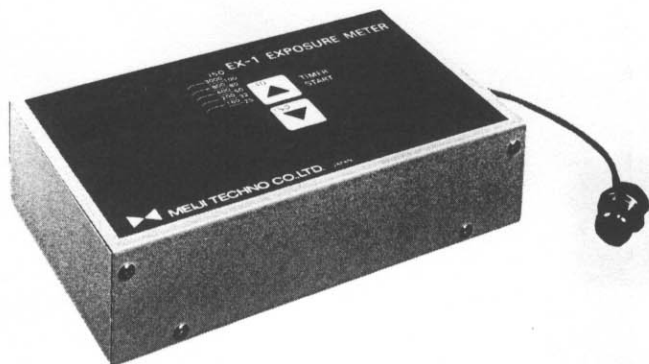


2-7 PHOTOGRAPHY WITH PMX100 LARGE FORMAT CAMERA.

- a. Remove the Vertical illuminator from the top of the microscope body.
- b. Mount the **MA582 Camera Adapter** on the microscope body by inserting it in place of the vertical illuminator.
- c. Mount the Camera on the **MA582 Camera adapter** and tighten the Clamp screw.

Please refer to the Instruction Manual for **PMX100 Large Format Photomicrographic Camera** when using this camera.



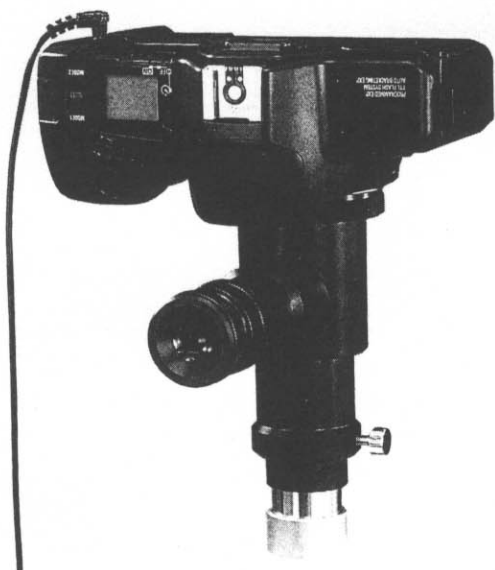


2-8 EXPOSURE METER

The **EX-1 Exposure meter** is available to use with the PMX100.

- a. Connect the **EX-1 Exposure meter** to the PMX100 by inserting the light sensor of EX-1 into the opening of the PMX100 and turn the switch of the EX-1 on.
- b. Set the film speed number.
- c. Read the speed on the Display of the EX-1 and set the camera shutter at the same speed and release the cable release to complete exposure.

Please refer to the separate Instruction Manual when using the EX-1 Exposure meter.



2-9 PHOTOGRAPHY WITH 35mm SLR CAMERA BODY

For photomicrography with 35mm SLR Camera body, the **MA150/60 Camera attachment, Photo eyepiece** and **T2 Adapter** should be used.

- a. Insert photo eyepiece, either **MA512 2.5x** or **MA508 5x**, into the MA582 Camera Adapter.
- b. Mount the **MA150/60 Camera attachment** on the MA582 Camera adapter and tighten the clamp screw.
- c. Mount the T2 adapter that matches your 35mm SLR Camera body on the MA150/60 attachment and attach the 35mm SLR Camera body to it.
- d. Focus the objective on the specimen looking through the Finder eyepiece of the MA150/60 Attachment.

Please refer to the separate Instruction Manual for MA150/60 Camera attachment.

3. CARE

Always cover the instrument with plastic dust cover provided when the microscope is not in use. Keep the eyepiece in the microscope body at all times in order to prevent dust from falling on the internal optics.

Store the microscope in a safe, clean and dry place when not in use for an extended period of time.

4. CLEANING

Clean exposed lens surfaces carefully with a pressurized air source, soft brush or clean soft cloth. Too much finger pressure may damage lens coatings.

To remove oil, fingerprints and grease smudges, moisten the cleaning cloth with a very small amount of alcohol.

Painted or plastic surfaces should be cleaned only with a cloth moistened with water and a small amount of detergent.

DO NOT ATTEMPT TO MAKE ADJUSTMENTS TO THE INTERNAL OPTICS OR MECHANISMS

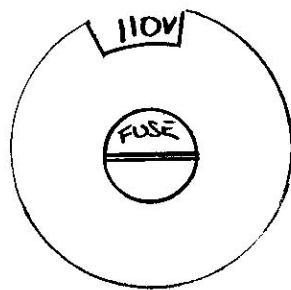
If the microscope does not seem to be functioning properly or you have questions about its operation, call your supplier (or an authorized repair service) for advice.

How to Change Operating Voltage MT5500 Series

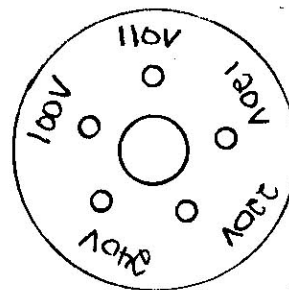
1. Unscrew Fuse holder and remove fuse.



2. Remove larger diameter ring labeled voltage selector by pulling away from microscope. You will see the following.

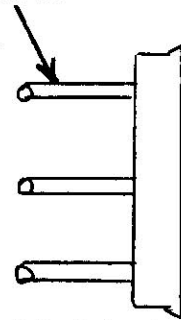


Before removal



After removal

Contact Pins



3. The ring has a notch cut out for voltage selection. Reinsert the ring so you can view the desired voltage.

4. Install a cord with the correct pin pattern

