

the whole image field cannot be perfectly focused when the lens diaphragm is fully opened, focus the approximate centre of the image and then stop down the lens sufficiently (to obtain a sharp enough image field). Be sure to insert correctly the film band into the carrier, otherwise an entirely contrary result would be obtained.

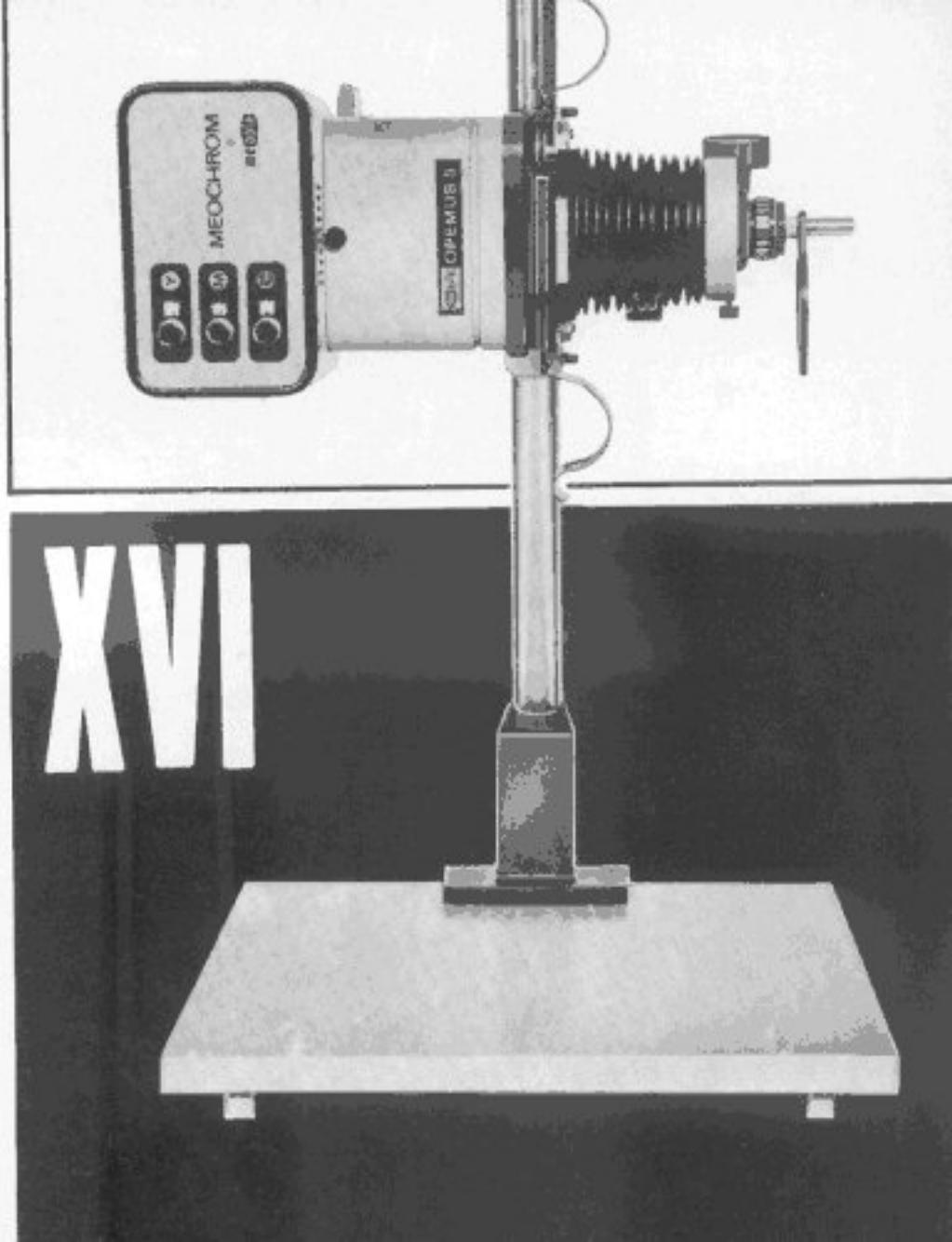
#### 15. Enlarging on Colour Material

If colour negatives have to be enlarged on positive colour material with the aid of an enlarging instrument provided with a lamphouse in which an opal bulb is used, a set of colour corrective subtractive filters has to be employed for this purpose. (The complete set comprises 33 filters).

The filters of 7.5x7.5 cm in size have to be placed into the drawer. (Fig. XVIII-8); a reduction insert (Fig. XVIII-6) has to be used for the filters of 7x7 cm in size. Up to four filters can be accommodated in the aforesaid drawer. The filters are protected against excessive heat by a heat filter (Fig. XVI-1) located above the drawer. When inserting sensitive colour material, the red filter must not be applied and the work has to be done only in the specified light of the dark chamber. The drawer can also be utilized for accommodation of additive filters (a complete set of them contains three filters) if they are available for our work. This method is somewhat more difficult and approximately the same results can be obtained by its application.

The enlarging instrument can also be used with the set-on colour head.

Unscrew the two screws (Fig. VIII-1) and slide the lamphouse with the opal lamp out of the instrument upper part. Before setting on the colour head do not fail to withdraw the heat

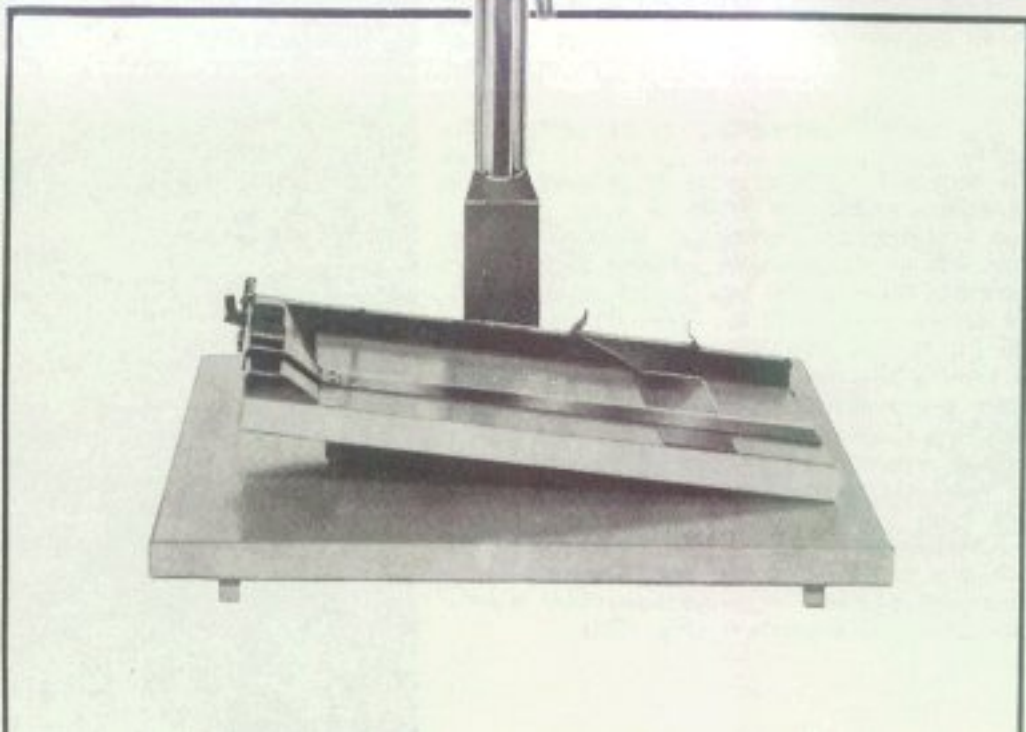
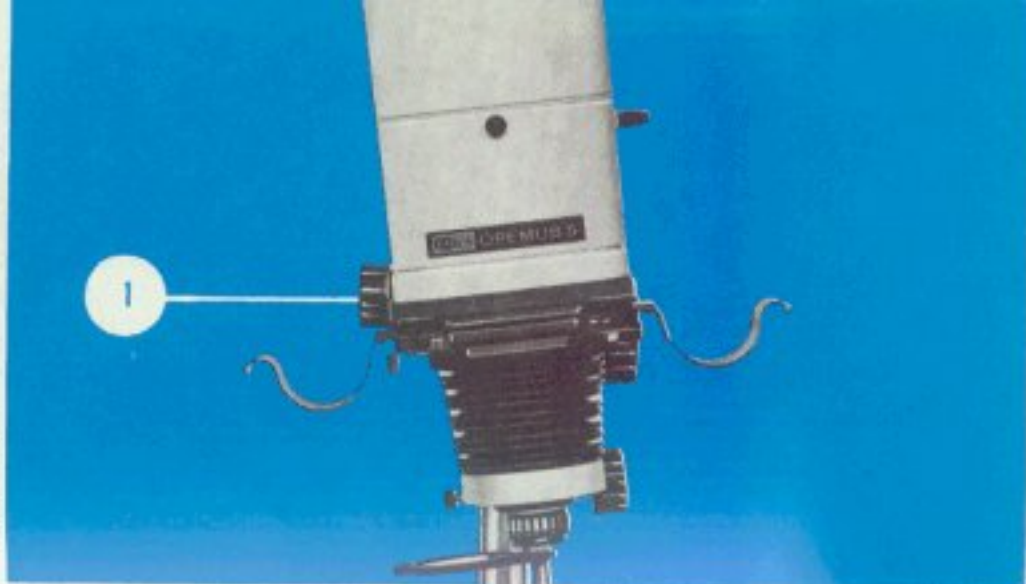


# XVIII

filter from the instrument (Fig. XVIII-1). Loosen the screw (Fig. XVIII-2), shift aside the sliding clamp of the filter and take the latter out of the apparatus. Next, set on the colour head and lock it in position with two screws.

The application of the colour head substantially facilitates the work when enlarging on colour material. It can replace a set of 33 subtractive filters (7.5x7.5 cm or 7x7 cm in size) and is equipped with a halogen light source.

The filters employed in the colour head are of the interference type and are made by the vacuum technique. Their great advantage in comparison with the previously used gelatine filters is their colour fastness, heat resistance and practically unlimited useful life. The colour head allows precise, continuously adjustable and repeatable filtration; it constitutes a source of mixed colour light for enlarging on colour material by adopting the subtractive method. The light source of the colour head is a halogen lamp of 100 W for low voltage of 12 V. Therefore, the instrument must be powered across a transformer of a corresponding power. A transformer (type No. 786 040) is supplied by the manufacturing



# XVIII

works as a special accessory item. The colour head is provided with a connecting cord terminating in a plug, for connection to low voltage.

## a) Working with Meochrom Colour Head

Switch on the lamp whereby also the window for filtration reading becomes illuminated. The filtration grade is adjustable by operating the turnknobs located on the instrument front side. In the window cut-out, the values can be read in steps of 5. — The turnknobs are marked with the following letters: Y — yellow, M — magenta (purple), C — cyan (blue-green).

The required filtration can be adjusted with turnknobs, within the limits of 0 up to 150. If a negative necessitates a filtration higher than 150, an approximate additive filter of the corresponding colour has to be placed into the drawer (Fig. XVIII-8). Then, filtration from 100 up to 250 can be continuously selected by turning the appropriate turnknob. Additive filters are supplied as special accessories. A switching clock, connected between the mains voltage supply and the transformer, has to be used exclusively for measuring the exposure time.

The Meochrom colour head can operate also with the enlarging instrument slewed to the horizontal position — projection upon a vertical plane of projection (Fig. XVI).







**XIX**

## 16. Maintenance of Apparatus and Replacement of Parts

Being a precision instrument, the enlarger requires careful handling. It should be deposited in a dry room and protected against the ingress of dust with a suitable cover. Only thus can it be always ready for instantaneous use without any lengthy preparations and undue delay caused by its cleaning. During the enlarging procedure, avoid touching the instrument with wet or soiled hands, especially when handling solutions and chemicals.

### a) Maintenance and Replacement of Colour Head Parts

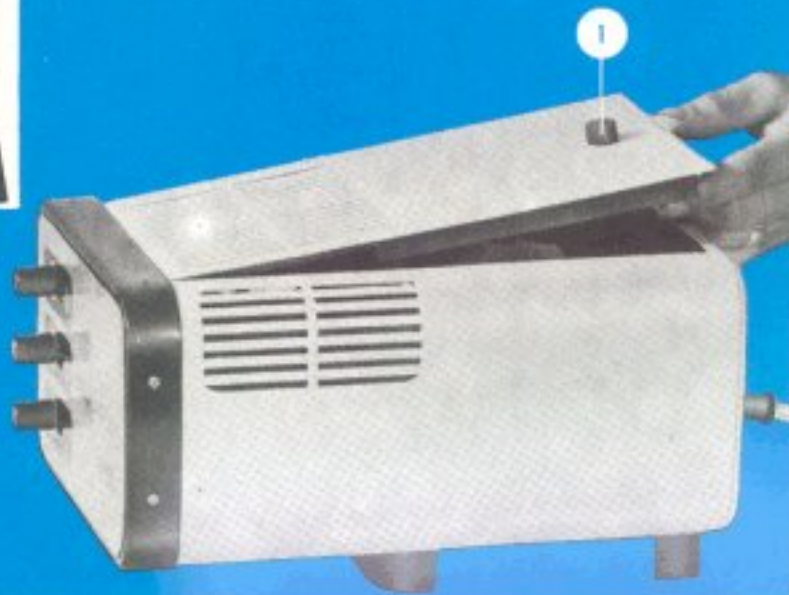
With the colour head it is only the replacement of its lamp that comes in to consideration. Filters and any other parts have to be replaced only in a specialized workshop. For replacement of the lamp proceed as follows:

Remove the upper cover by loosening first the plug screw fitted on the rear side of the cover; next, lift the latter and shift it backwards (Fig. XX-1). Loosen the milled screw (Fig. XXI-1) and carefully withdraw the whole mirror holder from the instrument (Fig. XXII-1). Now, the lamp is easily accessible; slide it out its cap and replace it by a new one. When exchanging the halogen lamp, it is recommended to follow the instructions given by the producer.

(Remember, that the halogen lamp bulb must not be touched with a bare hand.)

Slide back the mirror holder (together with the mirror), set it to its initial position and lock it there with a screw. It goes without saying that during the replacement procedure, the instrument must be disconnected from the el. mains.

# XX



The colour head does not necessitate any other special maintenance. Clean only its surface and, if necessary, wipe its ground glass with a piece of dry cloth.

#### **b) Cleaning of Condensers**

Unscrew the two screw (Fig. VIII-1) and remove the lamphouse together with the opal lamp (Fig. V-1). Next, screw off two screws (Fig. XVIII-3 and 5) and withdraw the condenser box (Fig. XVIII-4). Slew the condenser mount (Fig. XII-1) and take it out from the grooved closure by lifting it upwards. Clean the outer surfaces of the condenser lenses from dust with a soft dust brush or with a fine, clean piece of cloth. If also the inner lens surfaces have to be cleaned, slew the condenser lid and remove it (Fig. XIX-1) and then withdraw the upper lens. The bottom lens is fixed fast in the condenser mount.

#### **c) Cleaning of Lens (Objective)**

Hold the lens (objective) with the fingers of your right hand and, with your left hand, loosen the screw (Fig. I-4). Withdraw the carrier with the lens by pulling it downwards. Clean the dust from the outer faces of the lenses with a clean and fine hairbrush or with a soft cotton-batiste cloth.

#### **d) Cleaning and Replacement of Negative Carrier Glasses**

Set the guiding stops (Fig. VI-3) for directing the film to the extreme position in the direction towards the slit-line focusing system. Shift the glasses out of the carrier (in lateral direction) and clean them thoroughly. (Fig. VI-1).

#### **e) Maintenance of Friction Mechanisms**

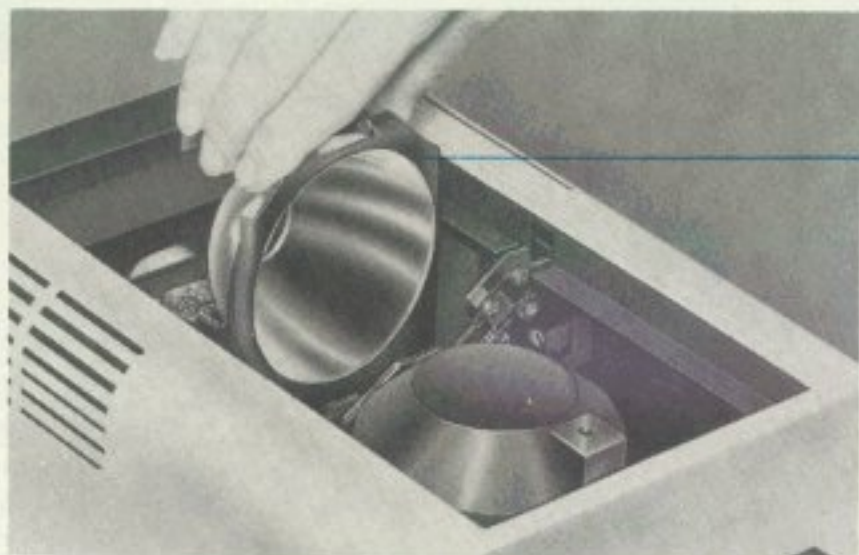
The oblique rod of the stand (Fig. XIV-3) must not be lubricated and has to be cleaned with a piece of dry cloth only. The focusing system rod (Fig. XIV-2) must be kept clean

# XXI





# XXIII



and, if necessary, wiped off from time to time with a piece of cloth imbued with a small quantity of machine oil, vaseline or tallow. If after a longer time of service, the turnknobs move too freely, adjust their correct run by tightening the screws which hold the springs (Fig. XIV-1). The run of the friction mechanism must be smooth and continuous.

The complete **OPERMUS 5** enlarger provided with lamphouse for a 150 W lamp consists of:

- a) Enlarging apparatus proper with stand and baseboard
- b) Lamphouse for an opal lamp
- c) Lens 4.5/80 with a cap
- d) Condenser of 105 mm in diameter
- e) Negatives carrier
- f) Ground glass (focusing screen)
- g) Heat filter
- h) Reduction insert (adapter) for filters 7×7 cm
- ch) Instructions for Use (one copy) and Guarantee Certificate
- i) Storing case

The complete **OPERMUS 5** enlarger provided with the **MEOCHROM** colour head consists of:

- a) Enlarging apparatus proper with stand and baseboard
- b) Meochrom colour head
- c) Lens (objective) 4.5/80 with a cap
- d) Condenser of 105 mm in diameter
- e) Negatives carrier
- f) Ground glass (focusing screen)
- g) Reduction insert (adapter) for filters 7×7 cm
- h) Instructions for Use (one copy) and Guarantee Certificate
- ch) Storing case