Operating Instructions

Contents

1.0.0. General note

The M 601 is a compact high-performance amateur enlarger of professional quality. It takes negatives from 8 x 11 mm up to $2^1/_4 \times 2^1/_4$ inches (6 x 6 cm). The basic enlarger is usable as it stands for black-and-withe work and requires no further accessories. Suitable accessories however adapt the M 601 to colour enlarging and to copying. Section 9.0.0. gives a brief practical summary of enlarging hints for the beginner.

2.0.0. Assembly

2.1.0. Checking out the outfit

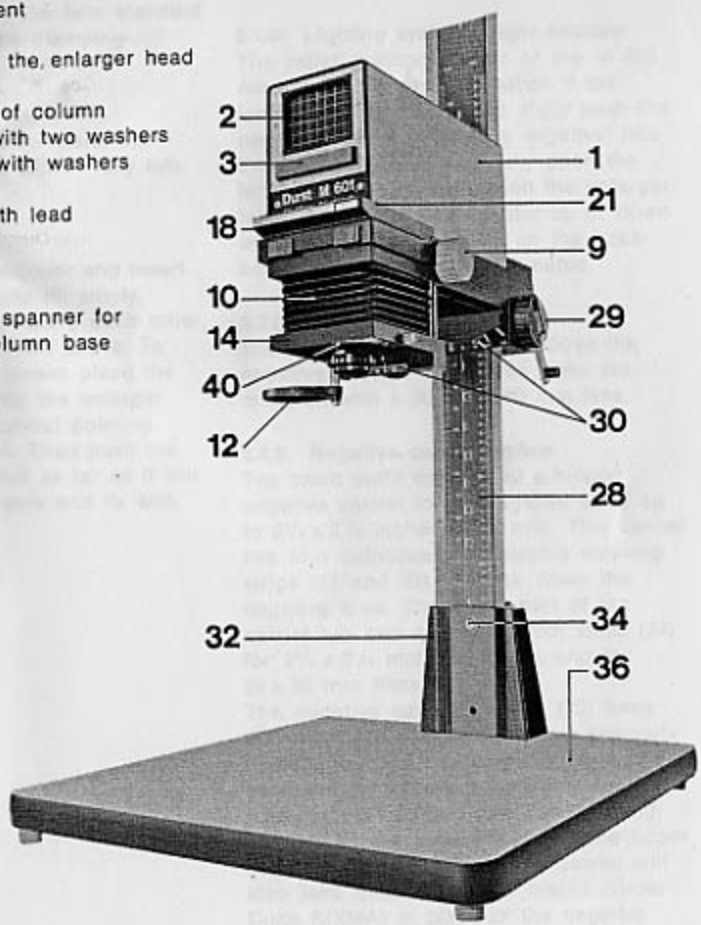
The Durst M 601 is shipped in a special protective container. Before assembly, carefully clean all components with a soft cloth.

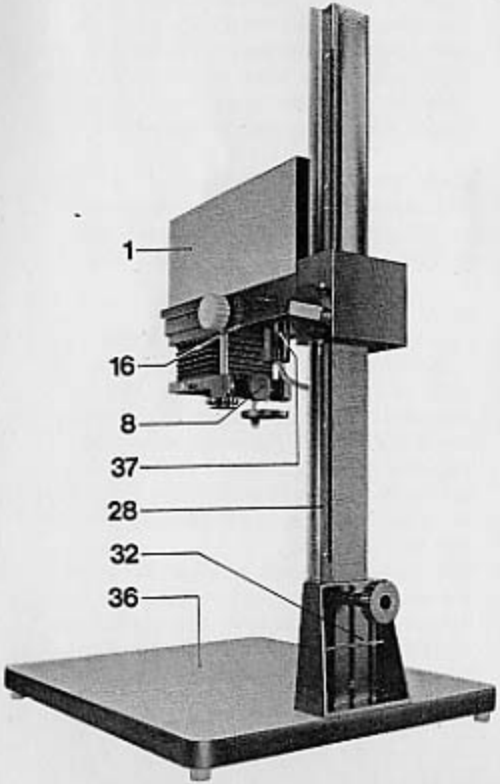
Note: Remove the enlarger head carefully from its packing; do not allow the filter drawer to drop out.

First check that all components are there. To make the assembly instructions clearer, all items and all significant operational controls are numbered. The separate parts supplied from which the complete enlarger is assembled, are in addition marked ●.

2.2.0. Components and controls

- 1. Enlarger head
- 2. Viewing screen for copying
- 3. Filter drawer
- 4. Lamphouse cover with deflecting mirror
- 5. Locking knob for enlarger head
- 6. Condenser lenses
- 7. Retaining bracket for the condenser lenses, with securing screw
- 8. Locking knob for lens standard
- 9. Focusing knob
- 10. Bellows
- 11. Milled screw to secure the lens
- 12. Red filter
- 13. Milled clamping screw holding the red filter
- 14. Lens standard
- 15. Latch of lamphouse cover
- 16. Cross-head screw for adjusting the focusing mechanism
- 17. Hole for red filter shaft
- 18. Negative carrier
- 19. Top section of negative carrier
- 20. Bottom section of negative carrier
- 21. Opening bar for raising the top section of negative carrier
- 22. Front controls for negative carrier masking strips
- 23. Side controls for negative carrier masking strips
- 24. Adjustable film stops
- 25. Upper and lower glass plates
- 26. Retaining strips
- 27. Push-button key to close the top section of the negative carrier
- 28. Column with carriage
- 29. Knob with fold-out crank for vertical adjustment
- 30. Tilt scales
- 31. Bearing bolt for the enlarger head
- 32. Column base
- 33. Clamping knob of column
- 34. Threaded bolt with two washers
- 35. Securing bolts with washers
- 36. Baseboard
- 37. Lamp holder with lead
- 38. Switch in lead
- 39. Mains plug
- 40. Lens panel
- 41. Hexagonal bolt spanner for securing the column base

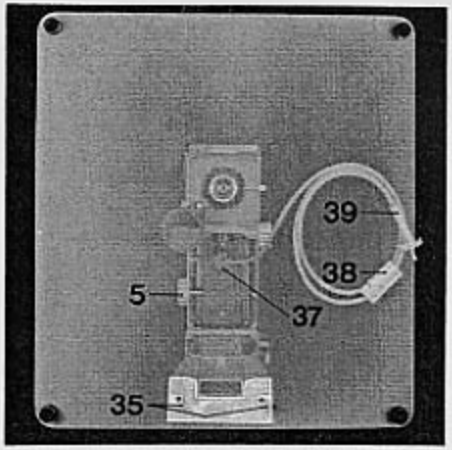




2.3.0. Assembly

2.3.1. Baseboard and column

Place the baseboard (36) with the rubber feet downwards on the table. Then locate the column (28) over the holes with the bracing ribs of the base to the rear. Place the washers over the bolts (35) and push the latter through the holes of the baseboard and the column base and screw tight with the aid of the hexagonal bolt spanner supplied.

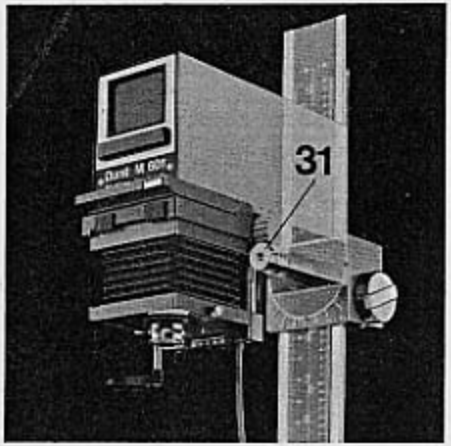


2.3.2. Enlarger head

Place the enlarger head (1) over the bearing bolt (31) and secure with the locking knob (5) at the left hand side of the enlarger head. The engagement stop of the enlarger head should slide into the groove on the supporting arm; the locking knob can then be pulled tight.

2.3.3. Lens

Screw the lens fully into the panel (40). Insert the panel together with the lens into the lens standard (14), locating it so that the aperture scale is visible from the front. Secure with the milled screw (11).

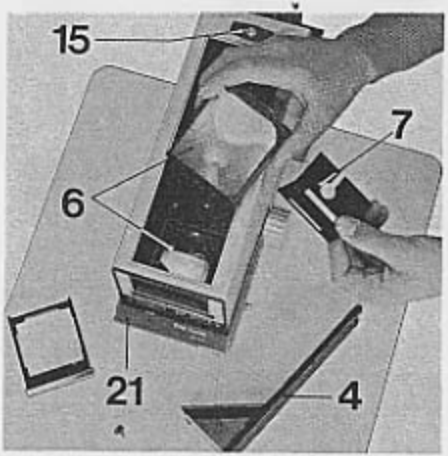


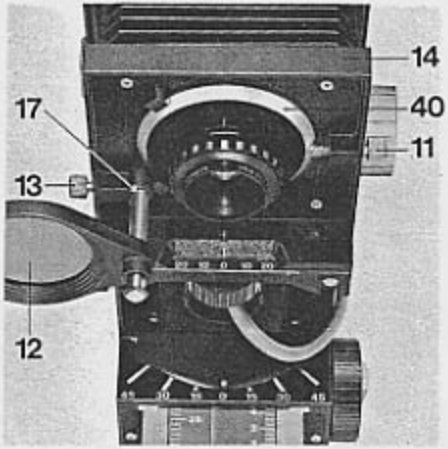
2.3.4. Lamphouse

Remove the lamphouse cover (4) and screw an opal lamp (up to 150 watts) into the lamp fitting.

2.3.5. Red filter

To fit the red filter (12), push the shaft





of the holder for the red filter into the appropriate hole (17) in the lens standard (14) and secure with the clamping screw (13).

2.3.6. Negative carrier
Push the negative carrier — with the opening bar (21) at the top — fully into the enlarger head.

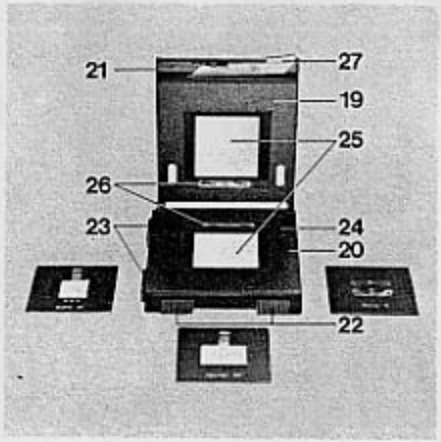
2.3.7. Condenser
Remove the lamphouse cover and insert the two condenser lenses (6) singly, with their curved sides facing each other, into the enlarger head from above. To secure the condenser lenses place the retaining bracket (7) into the enlarger head with the round cut-out pointing horizontally to the back. Then push the retaining bracket forward as far as it will go against the condensers and fix with the securing screw.

3.0.0. Features

3.1.0. Lighting system - light sources
The reflex lighting system of the M 601 ensures fully even illumination if the lamp is carefully adjusted. Fully push the negative carrier (without a negative) into the enlarger head. Now fully open the lens aperture and switch on the enlarger lamp. Adjust the lamp holder up or down until the projected image on the base-board appears evenly illuminated.

3.2.0. Condenser system
The condenser is mounted above the negative carrier. It ensures even illumination with a 50 or 75-80 mm lens.

3.3.0. Negative carrier system
The basic outfit consists of a hinged negative carrier for all negative sizes up to $2^1/_4 \times 2^1/_4$ inches (6 x 6 cm). This carrier has four individually adjustable masking strips (22 and 23) to mask down the negative area. The lower part of the carrier has two adjustable film stops (24) for $2^1/_4 \times 2^1/_4$ inch (6 x 6 cm) and for 24 x 36 mm films.
The negative carrier glasses (25) keep the negatives completely flat. A specially coated negative carrier glass (available separately) to prevent Newton's rings (Order Code SIXGLA AN) can be fitted in place of the regular glass of the upper negative carrier section. The carrier will also take glassless metal masks (Order Code SIXMA) in place of the negative



carrier glasses. These metal masks are available for all negative sizes from 8 x 11 mm to 2¼ x 2¼ inches (6 x 6 cm). For glassless enlarging of 24 x 36 mm and 2¼ x 2¼ inch (6 x 6 cm) negatives use the SIVOMA 35 or SIVOMA 66 mask inserts respectively in place of the upper negative carrier glass.
For inserting single negatives the negative carrier is removed from the enlarger head. On pushing the carrier into the head the upper and lower halves are pressed together to prevent movement of the negative.
To insert film strips, slightly raise the opening bar (21) of the negative carrier. This locks the top of the carrier open. The film strip can now be pushed in from the front. It is accurately located when it abuts the guide pins. These guides are adjustable: the front position is for 24 x 36 mm negatives, and the rear position is for 2¼ x 2¼ inch or 6 x 6 cm films.
To close the negative carrier press the key on the opening bar.
Always insert the negatives into the negative carrier with the emulsion side (the mat side) downwards.

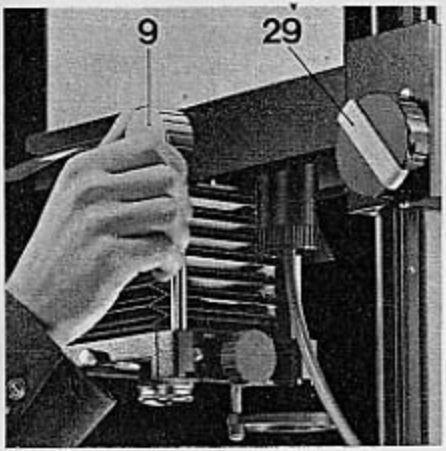
3.4.0. Magnification
Adjust the magnification by raising or lowering the enlarger head. The higher the head, the larger the image. To move the enlarger head, turn the knob (29) or the crank which swings out of the knob for rapid adjustment.
If the column protrudes into the projected image when making part enlargements at high magnifications, the distance from the optical axis to the column can be increased by pulling out the enlarger head up to the red mark. The head can be pulled forward on releasing the locking knob (5).

Magnification factors

with 80 mm lens	9.9 x lin.
with 50 mm lens	15.5 x lin.

3.5.0. Focusing
Focus by turning the knob at the right of the enlarger head. This operation is essential before making an enlargement. Place the masking frame on the baseboard and insert a sheet of white paper (not enlarging paper) of the same size and thickness as the enlarging paper to be used. Fully open the lens aperture. Switch on the lamp. Adjust the required image size, then focus. After focusing it may be necessary to readjust the image size (and to refocus once more afterwards).

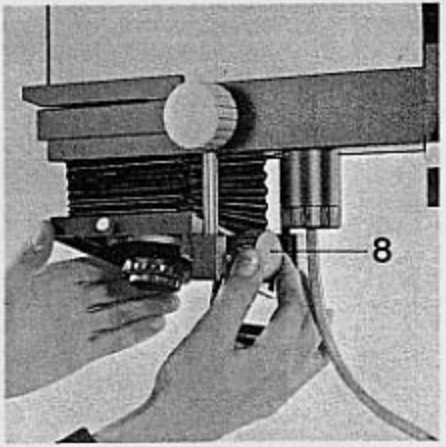
3.6.0. Correcting converging verticals
To correct unwanted converging verticals the enlarger head of the M 601 and the lens standard (14) can be tilted in the appropriate directions. To do this, slack off the locking knob (5) of the

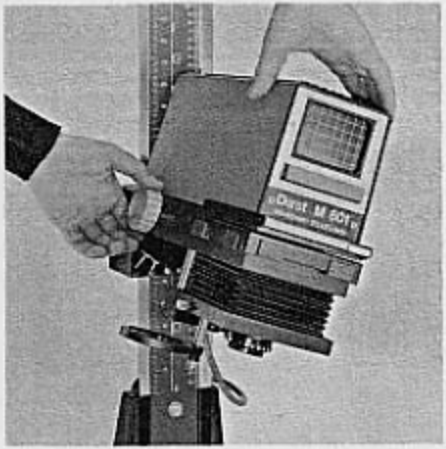


enlarger head and the locking knob (8) on the lens standard. Now incline the enlarger head and lens standard to get the vertical lines of a projected image parallel. Tighten the locking knobs in this position for making the enlargements. The scales on the carriage and on the lens standard show the exact degree of inclination for repeat settings.

3.7.0. Filter drawer — heat filter
The filter drawer (3) takes 3 x 3 inch (75 x 75 mm) colour filters. When using the glassless SIXMA negative mask inserts, place a SIXCALO heat filter in the filter drawer.

3.8.0. Red filter
The red filter (12) allows observation of the image with the light switched on and black-and-white enlarging paper in position in the masking frame.





4.0.0. Operation and applications

4.1.0. Clean negatives

Dust and fingerprints on the negatives show up disturbingly in enlargements. So always clean dirty or soiled negatives before enlarging. Remove adhering dust with a camel hair or antistatic brush. Fingerprints can be removed by gently wiping with a fluffless cloth. Clean off obstinate dirt with a suitable film cleaning solution. The negatives must be completely dry before they are inserted in the negative carrier. Clean negatives very carefully to avoid scratching the emulsion surface.

4.2.0. Enlarging exposure

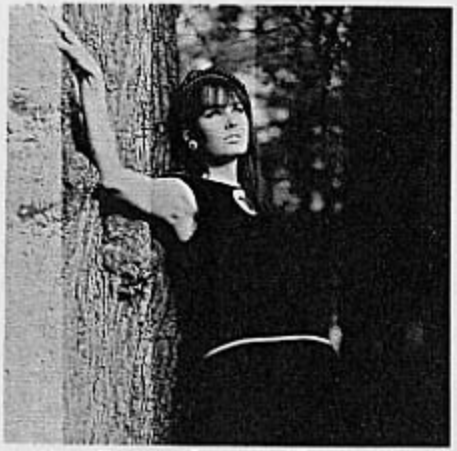
After some practice it becomes easy to estimate the correct exposure time required with reasonable accuracy. An average value is about 10 seconds. But with bigger enlargements an exposure test is advisable: Focus the image, and stop down the lens by two stops. Cover the enlarging paper in the masking frame with a sheet of card. Switch off the enlarger lamp and swing the red filter out of the light path. Withdraw the card to expose a 1 inch wide strip for 2 seconds. Withdraw the card further, an inch at a time, to make another four to five test exposures. Each of these successive exposures increases the exposure of the previous strip by the next exposure time. This yields a test print of progressively exposed strips, with the first strip having received the longest time. From this it is easy to establish the optimum exposure for the full enlargement. Such a test print thus ensures correctly exposed enlargements.

4.3.0. Cropping

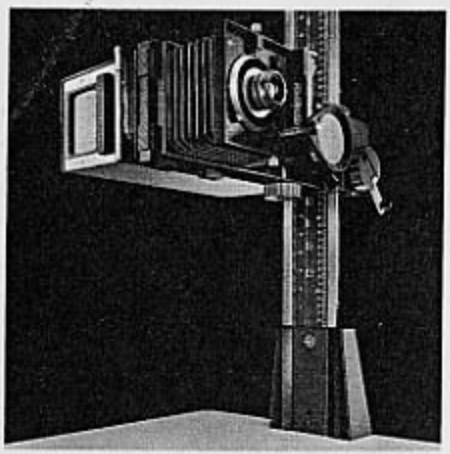
Even an expert photographer does not always manage to frame the image exactly during the camera exposure. Only enlarging permits really exact framing. In this way you can often obtain several different interesting enlargements from one negative. Mask down the required image area with the masking strips of the negative carrier and the sliding masks of the paper holder.

4.4.0. Giant enlargements

For big enlargements and for part enlargements on the baseboard set the column in such a way that its lower hole lines up with the hole in the column base. That way you obtain the maximum magnification on the baseboard.
For giant enlargements project on the floor or on a wall. For floor projection remove the locking knob of the column to allow the column and enlarger head to be turned through 180°, then refix



6 8 10 12 14 sec.

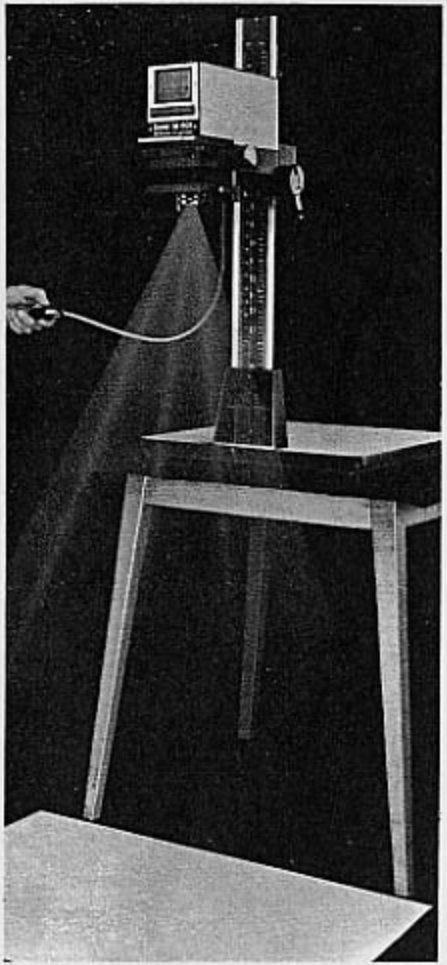


with the locking knob. Stabilise the baseboard with suitable weights to prevent the enlarger from tipping over. For projection on the wall slack off the locking knob and swing the enlarger head through 90°. The enlarger head engages in the horizontal position. Then tighten the locking knob again.

When estimating exposure times for giant enlargements, remember that the light intensity on the projection surface decreases in proportion to the square of the distance. (For example, with a normal exposure time of 10 seconds, doubling the distance increases the exposure to 40 seconds or four times what it was before.) The exposure time can be reduced by opening the lens aperture; however the lens does not necessarily produce the sharpest image at full aperture.

4.5.0. Distortion control

Converging verticals are caused by tilting the camera when taking the picture. If for instance you shoot a high building from street level by pointing the camera up against the sky, the verticals will converge in the negative. If unwanted, this effect can be corrected by tilting the enlarger head and the lens standard. To keep the image sharp overall with the enlarger head tilted, stop down the



lens by two stops or more for increased depth of focus. This method of distortion correction is limited by the depth of focus of the lens and the varying degree of exposure across the image being corrected. With the enlarger head tilted, the projected image is brighter at one side of the paper than at the other. To compensate this effect, shade this part of the image during the exposure.

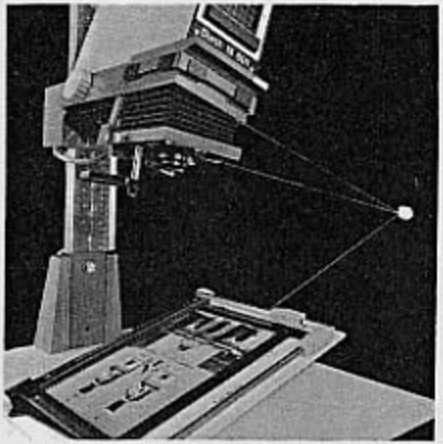
4.6.0. Copying

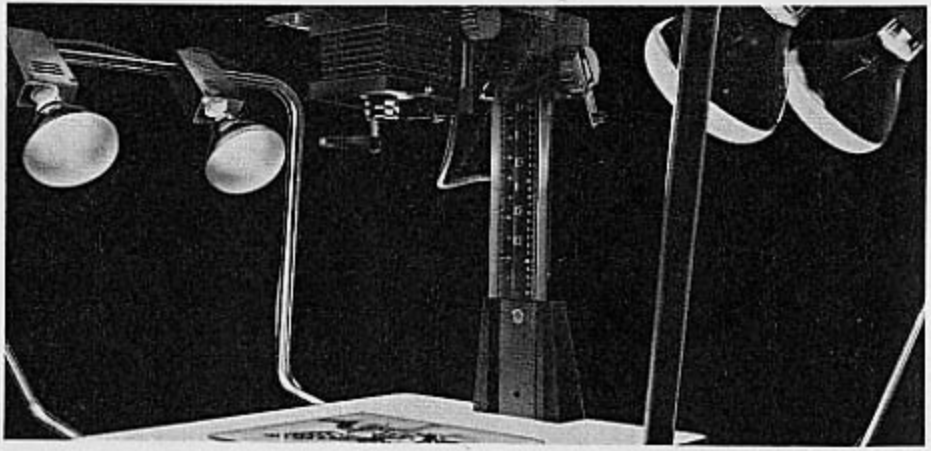
For copying flat or solid originals you need the URNOV copying adapter and the CAMFLUD 2 or CAMFLUD 4 lighthing unit. The lighting system of the M 601 can be converted to a reflex viewing system for viewing the original on the baseboard. To do this, remove the lamphouse cover, withdraw the mirror mounted in the guides in the cover, turn the mirror through 90° and reinsert. Pull the viewing window out of the enlarger head and replace the lamphouse cover. The deflecting mirror now permits sharp focusing of the original to be copied. It also shows the limits of the field of view and permits a check on the evenness of illumination.

The URNOV copying adapter goes into the enlarger head in place of the negative carrier. The URNOV adapter consists of a rigid frame with a ground glass screen carrying format frame lines and a convenient guide rod. Load a plate holder with a sheet film or a plate, push it, with the darkslide downwards, underneath the ground glass screen, and lock in position. The guide rod carries a clip which engages the darkslide to allow this to be pulled out for the exposure or pushed back again afterwards. The exposure itself is made by switching the copying lamps on and off.

For copying photographs and other objects with a range of tones or grey values use a medium speed film of medium contrast. For copying line drawings, printed texts etc. a high-contrast process film is recommended.

To adjust the field of view taken in,





move the enlarger head up or down on the column to bring the required object area within the frame lines on the ground glass screen of the copying adapter.
Focus the image at the maximus lens aperture, but stop down the lens by at least two stops for the exposure.
The original must be evenly illuminated. Check the evenness of illumination with an exposure meter. For optimum illumination use the CAMFLUD 2 or CAMFLUD 4 lighting unit. This consists of two (CAMFLUD 2) of four (in the case of the CAMFLUD 4) lamp holders mounted on two chrome-plated supporting arms fixed directly on the baseboard or the table underneath. The lamp holders take floodlamps up to 150 watts and can be adjusted laterally as well as tilted vertically.

4.7.0. Colour enlarging

4.7.1. The Durst CLS 66 Colour Mixing Head

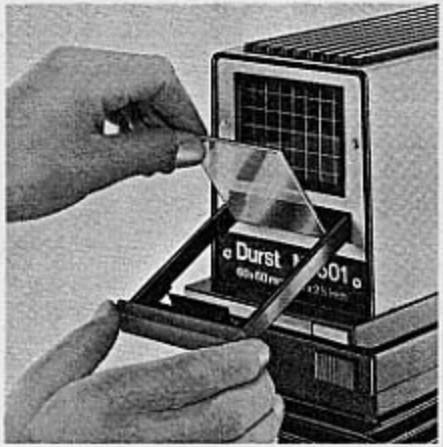
For perfect colour enlargements we recommend the use of the Durst CLS 66 colour mixing head which was specially designed for the Durst M 601. Equipped with a CLS 66, the Durst M 601 becomes a colour enlarger to meet fully professional standards.
To fit the CLS 66, remove the lamphouse cover, the opal lamp and the condenser. Now mount the CLS 66 colour mixing head on the enlarger head in place of the lamphouse cover and secure with the locking strips so that it forms a complete unit with the M 601.

4.7.2. Separate filters

The filter drawer of the M 601 takes 3 x 3 inch (75 x 75 mm) colour filters for colour enlargements without the colour mixing head.

4.7.3. Colour Analyser

Time wasting trial enlargements are reduced to a minimum by using the Durst COLORNEG ® Analyser.
This electronic colour analyser measures the colour balance of the negative and the exposure time. The photocell unit of the COLORNEG Analyser is precisely mounted on the M 601 in a hole provided for the purpose.



5.0.0. Accessories

5.1.0. Negative carrier masks

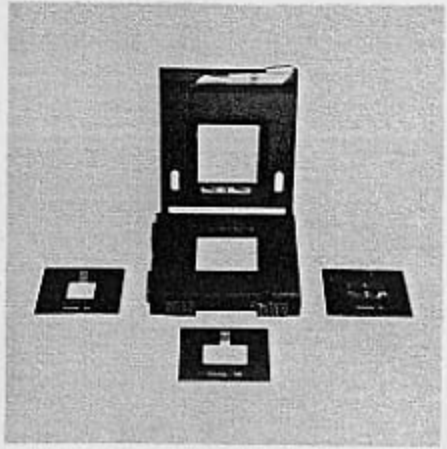
The glassless SIXMA mask inserts go in the negative carrier in place of the lower negative carrier glass. They are available in all standard image formats from 8 mm to $2^1/_4 \times 2^1/_4$ inches (6 x 6 cm).

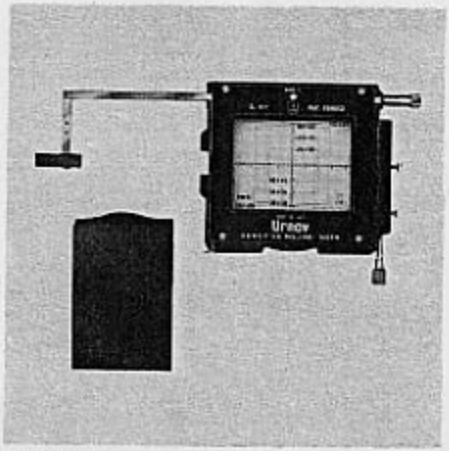
5.2.0. Copying adapter

The URNOV copying adapter consists of a closed frame with ground glass screen. Plate holders and sheet film inserts for $2^1/_2 \times 3^1/_2$ inch (6.5 x 9 cm) negatives and reducing adapters for $1^3/_4 \times 2^1/_4$ inch (4.5 x 6 cm) plates and sheet films are available separately.

5.3.0. Darkroom lamp

The PENCO darkroom lamp is suitable for mounting on the wall or standing on the bench. Five interchangeable filters — white, orange, ruby, olive and deep green — are mounted in a rotating turret to permit simple selection of the required darkroom illumination for all black-and-white and colour materials. A heat filter prevents fading of the safelight filters.





Durst URNOV

Durst Pentacolor

5.4.0. Lens panels

For the various lens focal lengths and lens threads are available the corresponding lens panels.

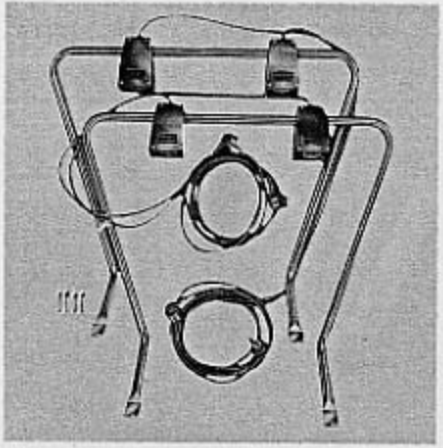
Lens panels	Lenses
SETOPLA 2825	f=50 mm lenses with M 25 thread
SETOPLA 2839	f=50 mm lenses with M 39 thread
LAPLA 25	f=60-80 mm lenses with M 25 thread
LAPLA 32	f=60-80 m lenses with M 32,5 thread
LAPLA 39	f=60-80 mm lenses with M 39 thread

5.5.0. Copying lighting unit

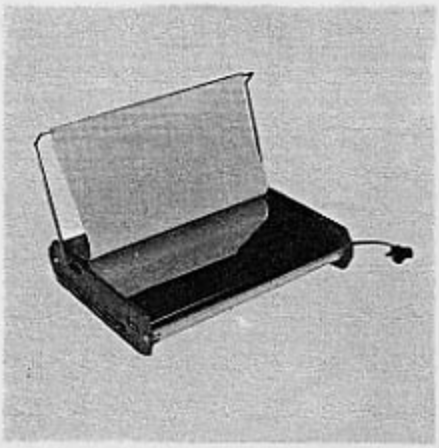
The CAMFLUD 2 and CAMFLUD 4 copying lighting units are ideal for even and glare-free illumination. Two chrome-plated supporting arms each with one or two lamp holders (CAMFLUD 2 or CAMFLUD 4 respectively) are mounted directly on the baseboard or on the table underneath. The lamp holders take flood lamps up to 150 watts and can move sideways or tilt up and down.

5.6.0. The Durst DUTRO universal print drier

This double sided drier has an adjustable thermostat for precise temperature control while drying colour prints.



Durst Camflud



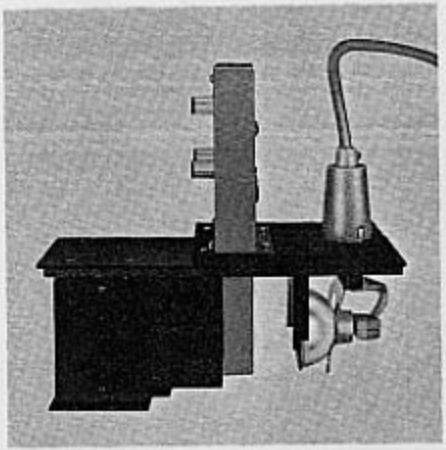
Durst Dutro

6.0.0. The Durst colour system

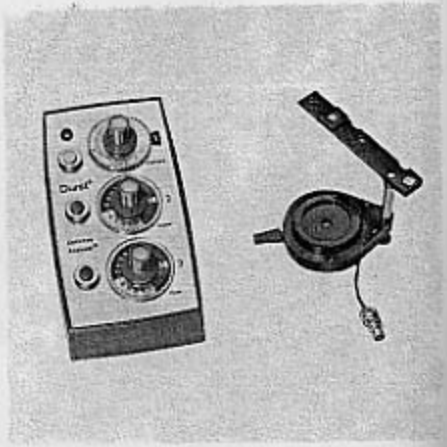
6.1.0. The CLS 66 colour mixing head
With fade-proof dichroic filters. Permits infinitely variable subtractive filter control A 100 watt 12 volt tungsten-halogen lamp is used as a diffused-light source.

6.2.0. Transformer
This transformer is required for working with the Durst CLS 66. It reduces the mains voltage to the optimum operating voltage of the CLS 66. This ensures maximum burning life of the lamp; also it provides light of an optimum colour temperature for the colour enlarging paper and avoids overheating.

6.3.0. Colour Analyser
The Durst COLORNEG Analyser permits rapid and precise filter selection when enlarging colour negatives.
After calibrating with a standard negative this analyser measures both the density of the colour negative (to determine the exposure time) and the colour balance to establish the required filtration. Colour balance measurements are carried out by turning two knobs. The required filtering value is read off when a signal lamp lights up, and set directly on the colour mixing head.



Durst CLS 66



Durst Colorneg Analyser

6.4.0. Processing timer

The programming COLTIM timer can be used for all film and colour processing work. The total running time of 30 minutes can be subdivided into any desired programmed time intervals.

6.5.0. COMASK multiple exposure paper holder

With this paper holder for paper sizes up to 7 x 9 1/2 inches (18 x 24 cm) you can expose the following combinations:

1 enlargement
7 x 9 1/2 inches (18 x 24 cm), or

2 enlargements
4 3/4 x 7 inches (12 x 18 cm), or

4 enlargements
3 1/2 x 4 3/4 inches (9 x 12 cm), or

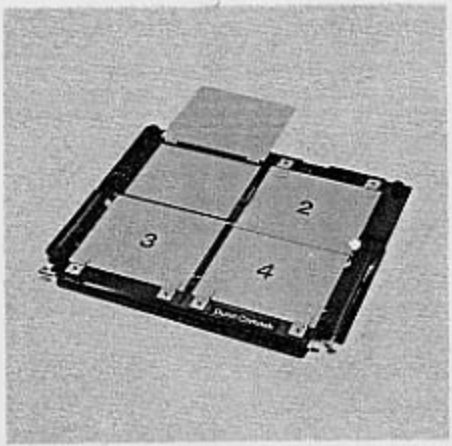
1 enlargement
4 3/4 x 7 1/2 inches (12 x 18 cm), plus

2 enlargements
3 1/2 x 3 3/4 inches (9 x 12 cm).

6.6.0. The Durst CODRUM daylight processing drum

This drum can be used for daylight processing of all colour papers up to 8 x 10 inches or 18 x 24 cm. The processing solutions are also changed by daylight.

Durst Coltim

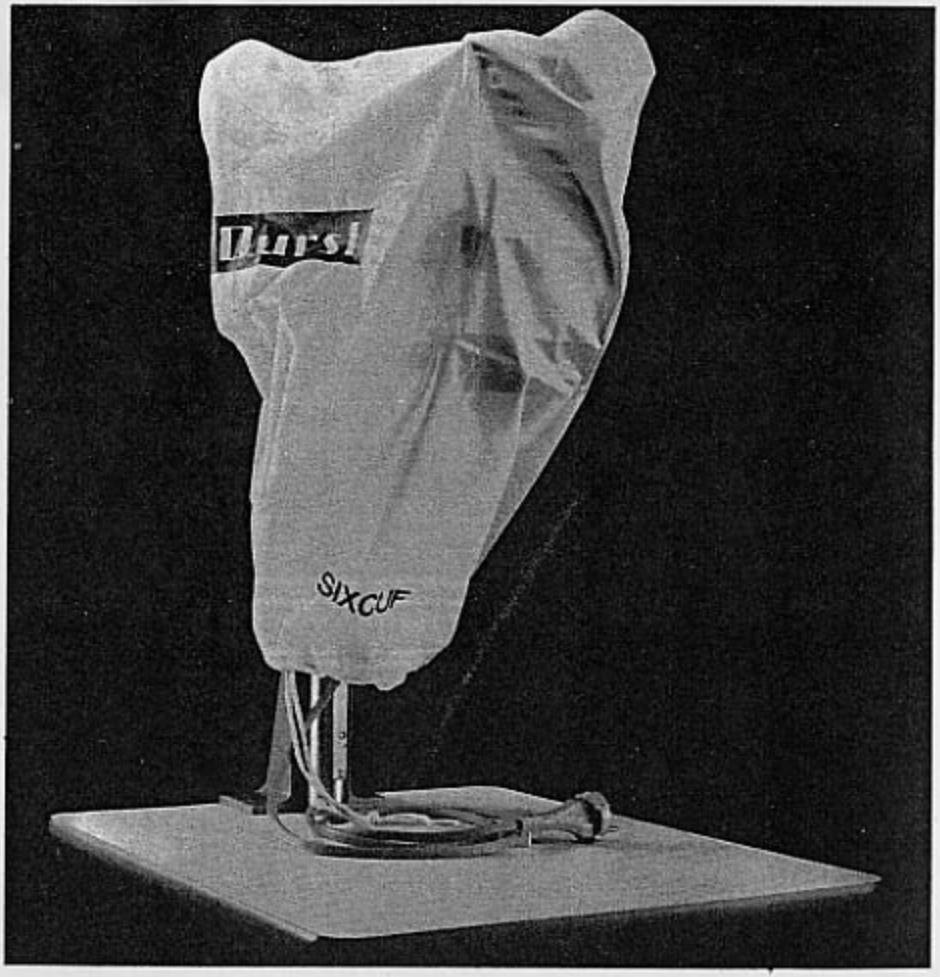


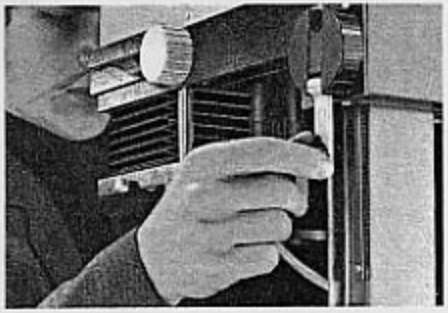
Durst Comask

Durst Codrum

7.0.0. Maintenance
As already noted, dust is a nuisance in enlarging. When the enlarger is not in use, either store it in a closed cupboard or cover it with the SIXCUF dust cover. However, for flawless enlargements it is still advisable to clean the condensers and lens with a fluffless cloth before every enlarging session. From time to time lubricate the enlarger column with vaseline or mineral oil.

8.0.0. Storage
The M 601 is very compact and therefore easy to store. After use, the enlarger can be dismantled into the parts in which it was supplied. So keep the foam plastic box for storage.





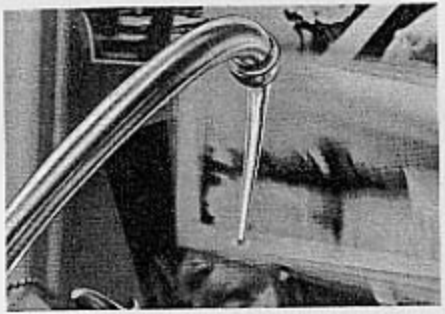
9.0.0. Simple enlarging step by step

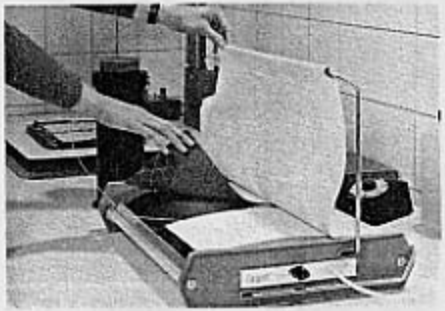
1. Place the negative with the emulsion side downwards in the negative carrier. (Inserting it with the emulsion side up yields laterally reversed pictures.) Switch on the darkroom lamp (orange safe light).

2. Fully open the lens aperture and raise or lower the enlarger head on the column to bring the projected negative or the part of it you want to the required size on the masking frame.

3. Accurately focus the projected image for maximum sharpness. Stop down the lens to obtain an exposure time of about 10 seconds for a properly exposed print. Switch off the enlarger lamp and put a sheet of enlarging paper (emulsion side up) in the masking frame. The masking strips produce a white margin on the print, hold the paper flat and can be adjusted to crop the picture in any way you want.

4. Expose by switching the enlarger lamp on and off. Find the correct exposure by a stepped exposure series on a test sheet. Develop this test print for the time recommended by the paper manufacturer. The test should then include a correctly exposed strip to indicate the required exposure time.





5. Develop the exposed enlargements as indicated by the paper manufacturer. Usually a development time of 1½-2 minutes is recommended. Gently move the print in the developer to bring constantly fresh solution into conctact with the print surface.

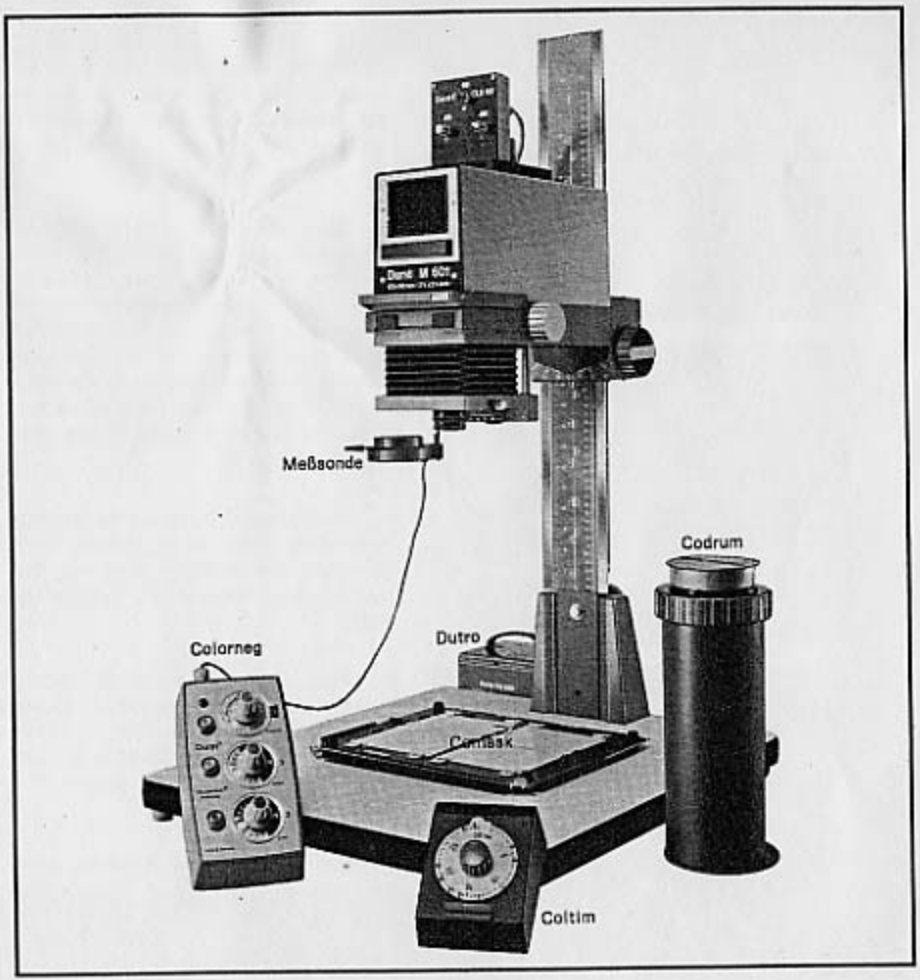
6. Use forceps to lift the print out of the developing dish, dip it for a few seconds in a water rinse (centre dish), then place in the fixer with the emulsion side down. Keep it there for about 10 minutes, moving the print from time to time to dissolve away all unexposed silver salts. White light can be switched on once the print has been in the fixer for half a minute.

7. Wash the print for about an hour in running water or in at least 8 changes of water. The washing time can be appreciably reduced by a hypo elliminator bath.

8. Wipe off excess water and place the enlargement on a clean towel, leaving it to dry overnight. For glossy prints dry the paper in a glazer, which is also suitable for rapid drying (about 10 minutes).

9. Now you have the finished print. You can be quite proud of your masterpiece. Do not miss the opportunity to control the pictorial impact of your own prints during enlarging.

Durst-Colorsystem



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