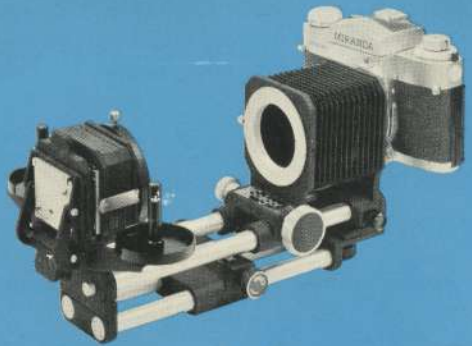
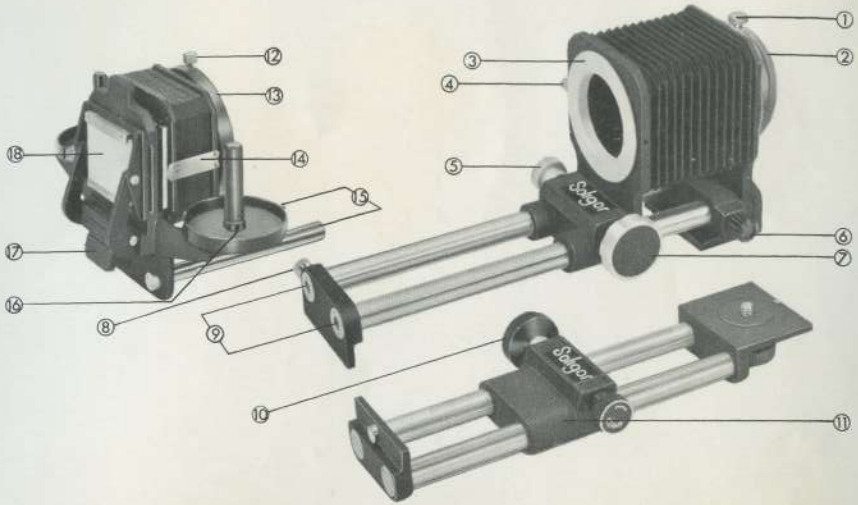
Soligor



T-2 FLEXOMATIC INTERCHANGEABLE BELLOWS EXTENSION UNIT

INSTRUCTIONS

Soligor Flexomatic Extension Bellows
Slide-copying Attachment
Micro-Focusing Track



Description of Parts

1 Mount rotation locking screw
2 Rear mount (T-2)
3 Front mount (Interchangeable)
4 Lens locking lever
5 Extension control knob
6 Carriage release lever
7 Clamping knob
8 Locking screw
9 Sockets
10 Focusing knob
11 Tripod base plate
12 Lens locking screw
13 Slide-copying attachment mount
14 Bellow clamps
15 Guide rails
16 Diffuser
17 Slide gate clamp
18 Roll film holder

SOLIGOR FLEXOMATIC BELLOWS

The Soligor Flexomatic Bellows Unit is a heavy duty unit especially designed to give the user troublefree service, in close-up photography and macro-applications. This professional type bellows facilitates continuous variation in the magnification for a wide range of applications, from close-ups to copying and is particularly useful in biological, documentary, scientific, medical and industrial photography.

Features include.

* Double-track ultra smooth sliding movement.
* Oversized control knobs for critical focusing.
* Clearly engraved magnification and exposure ratio scales.
* Mount rotation adjustment, allows rotation of camera body for either horizontal or vertical position.
* Available for Canon, Minolta (SRT-101), Nikon, Miranda aand Pentax mounts.
* Optional accessories: Slide-copying attachment and microfocusing track.

OPERATION

1) Remove the lens from the camera
   Attach the T-2 Rearmount to the rear of the bellows, and attach the Flexomatic Bellows unit to the camera in the same manner as attaching the lens. Position the Bellows unit in either horizontal or vertical position and lock into position by the mount rotation locking screw (1).
2) Attach the front mount to the front of the Bellows unit (3) and lock into position. Attach the lens to the front mount and for easy readings it is suggested to rotate the lens and front mount together, till the focusing scale will be visible at the top. This action can be performed by releasing the mount locking screw till the preferred position is obtained and then to lock the assembly.
3) Detaching the lens and/or Bellows can be performed in reverse actions.
4) Focusing can be performed by the use of the extension control knobs located on the frame of the bellows. If the magnifying ratio is large, focusing is more convenient by releasing the camera holding bridge and bringing the camera body closer to the subject.

5) Determining Exposure

As the distance between the lens and film increases, the amount of light that reaches the film decreases. This loss of light must be compensated for in order to obtain perfect exposure. This compensation is called exposure multiple or exposure factor and indicates the amount of compensation that is necessary. The formula for obtaining the exposure factor is as follows:

$$\text{Exposure factor} = \frac{(\text{Focal length} + \text{extension})^2}{(\text{Focal length})^2}$$

Please refer to the attached tables for the exposure factors.

Note: If your camera has a TTL metering system, you do not have to adjust the exposure multiple because this is already automatically adjusted by the camera's exposure meter.

Selecting the Most Convenient Focal Length Lens

The choice of the correct focal length has an important effect on the subject. The shorter focal length lens will require that the photographer moves in closer to the subject, resulting in the danger of casting one's shadow on the subject; however, a greater depth-of-field will be obtained. With a longer focal length, the depth-of-field becomes less which will require greater care in focusing but will facilitate to separate the subject from the background.

SOLIGOR MICRO-FOCUSING TRACK

The Soligor Micro-focusing track is a dual rail adjustable track giving rapid positioning of the bellows unit. This device is extremely useful when the bellows have been adjusted to a specific scale of reproduction, or when the bellows attachment requires fore or aft positioning when the tripod cannot be moved.
The Micro-focusing track has a moveable tripod base plate which may be racked forward or backward, upto a maximum of 120mm, independent of the bellows. When used in conjunction with the Soligor Flexomatic Bellows a minimum extension of less than 30mm to a maximum extension of more than 175mm is obtainable.

Further Uses

The Micro-focusing track can also be used on copy stands or tripods for copying documents etc. giving full micro-adjustment for the camera height.

SOLIGOR SLIDE-COPYING ATTACHMENT

The Soligor Slide-Copying Attachment is an ideal accessory which adds unlimited versatility to the Flexomatic Bellows. By using this slide-copying attachment, excellent duplicates of 35mm colour transparencies as well as black and white duplicates from colour transparencies or negatives can be obtained. Cropping and improvements over original transparencies with or without use of filters can also be obtained. The correction filters should be attached to the front of the lens before attaching the slide-copying attachment.

Features of the Soligor Slide-Copying Attachment include:

* Slide pressure plate with instant release control
* Variable magnification ratio by self-contained bellows extension.
* Scratchproof film strip holder.
* Removable slide holder

How to use:

* Attach the slide-copying attachment to the Flexomatic Bellows by inserting the two guide rails into the sockets provided on the front bridge of the bellows.
* Tighten the locking screw.
* Depress the slide gate lever and insert the slide or film strip into the slide holder with the emulsion surface (matt) facing the opposite direction to the camera.

Note: When viewing the slide through the view finder of the camera, equipped with pentaprism finder, the image should be viewed as the original slide and not as a reversed image. Extend the bellows of the copying attachment and insert the mount into the front ring of the taking lens, after having set the lens to ∞ infinity. Fasten the copying bellows and lens together by turning the set screw clockwise.

Scale of Reproduction

The relationship between the size of the image and the negative is called the scale of reproduction and is usually shown as 1:1 for a life size ratio or a 1:4 when the image is 4 x as large as the subject.

The scale of reproduction is found by the following formula:

$$\text{Scale of Reproduction} = \frac{\text{Length of Extension}}{\text{Focal Length}}$$

Example: With a 50mm lens and 40mm extension

$$\frac{40}{50} = 0.8 \qquad \text{or} \qquad \frac{80}{50} = 1.6$$

It can be seen that the scale of reproduction will increase with the extension of the bellows.

If, on the other hand, the scale of reproduction is already known, the length of extension can be obtained in the following manner.

Extension = Focal length x Scale of reproduction (magnification)

Exposure

In using the slide-copying attachment, the exposure increase multiple is determined as follows:

$$\text{Exposure multiple} = \frac{\text{total distance from film plane to slide}}{\text{focal length of lens}}$$

Note: If measuring in inches, be sure to convert the focal length of the lens also to inches.

1 inch = 25.4 mm
1 mm = 0.03937 inch

Light Source

In use, the slide-copying attachment is pointed toward the light. Make sure the slide-copying attachment is lined up squarely with the light source. The built-in diffuser helps assure even illumination. Almost any light source-sunshine at the window, reflector lamp, flash-gun, electronic flash, etc. may be used successfully to make black and white negatives from color slides. To make color duplicates, however, you must make sure that the color quality of the light is correct for the kind of film you are going to use. Since individual conditions vary considerably-type of slide, personal taste, processing, shutter efficiency, etc.—it is advisable that you make several tests until you find your own exposure factor. Based on your experience, excellent work can be done with this attachment.

CLOSE-UP TABLES

Note: These tables are compiled only as guide and should be considered as such. A secure way is to record your exposure data, such as film speed, exposure, light source and light distance in case of copying. This will enable you to find your own optimum formula.

CLOSE-UP DATA FOR 50mm LENSES

Length Of Extension In mm	Distance From Subject To Lens In mm	Distance From Len To Film In mm	Total Distance To Subject From Film In mm	Scale Of Subject Image To Life Size	Picture Size Of The Subject In mm	Required Exposure Increase
40	113	90	203	0.8	30x45	3.2
45	106	95	201	0.9	27x40	3.6
50	100	100	200	1.0	24x36	4.0
60	92	110	202	1.2	20x30	4.8
70	86	120	206	1.4	17x26	5.8
80	81	130	211	1.6	15x23	6.8
90	78	140	218	1.8	13x20	7.8
100	75	150	225	2.0	12x18	9.0
110	73	160	233	2.2	11x16	10.2
120	71	170	241	2.4	10x15	11.6
130	69	180	249	2.6	9x14	13.0
140	68	190	258	2.8	9x13	14.4
150	67	200	267	3.0	8x12	16.0

CLOSE-UP DATA FOR 105mm LENSES

Length Of Extension In mm	Distance From Subject To Lens In mm	Distance From Lens To Film In mm	Total Distance From Film To Subject In mm	Scale Of Subject Image To Life Size	Picture Size Of The Subject In mm	Required Exposure Increase
40	381	145	526	0.38	63x95	1.9
45	350	150	500	0.43	56x84	2.1
50	326	155	481	0.48	50x75	2.2
60	289	165	454	0.57	42x63	2.5
70	263	175	438	0.67	36x54	2.8
80	243	185	428	0.76	32x48	3.1
90	228	195	423	0.86	28x42	3.5
100	215	205	420	0.95	25x38	3.8
110	205	215	420	1.05	23x35	4.2
120	197	225	422	1.14	21x32	4.6
130	190	235	425	1.24	19x29	5.0
140	184	245	429	1.33	18x27	5.4
150	178	255	433	1.43	17x26	5.9

CLOSE-UP DATA FOR 135mm LENSES (SHORT BARREL)

Length Of Extension In mm	Distance From Subject To Lens In mm	Distance From Lens To Film In mm	Total Distance From Film To Subject In mm	Scale Of Subject Image To Life Size	Picture Size Of The Subject In mm	Required Exposure Increase
0	Infinity	135	Infinity	Variable	Variable	1.0
5	3780	140	3920	0.04	600x900	1 1
10	1958	145	2103	0.07	343x514	1.2
15	1350	150	1500	0.11	218x327	1.2
20	1046	155	1201	0.15	160x240	1.3
25	864	160	1024	0.19	126x189	1.4
30	743	165	908	0.22	109x164	1.5
35	656	170	826	0.26	92x138	1.6
40	591	175	766	0.30	80x120	1.7
45	540	180	720	0.33	73x109	1.8
50	500	185	685	0.37	65x97	1.9
60	439	195	634	0.44	55x82	2.1
70	395	205	600	0.52	46x69	2.3
80	363	215	578	0.59	41x61	2.5
90	338	225	563	0.67	36x54	2.8
100	317	235	552	0.74	32x49	3.0
110	301	245	546	0.82	29x44	3.3
120	287	255	542	0.89	27x40	3.6
130	275	265	540	0.96	25x38	3.9
140	265	275	540	1.03	23x35	4.2
150	256	285	541	1.12	21x32	4.5

OTHER FAMOUS SOLIGOR PRODUCTS INCLUDE:

T-2 Interchangeable Preset Lenses
T-4 Interchangeable Universal Automatic Lenses
ITV and Enlarging Lenses, Teleconverters
Fish-eye converters, Flash equipment,
Exposure meters, Tripods,
35mm Slide projectors

Ask your dealer for further indormation.

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