

A CLINICAL CAMERA FOR DENTAL PHOTOGRAPHY

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Introduction

The most difficult part of clinical dental photography is purchasing the necessary equipment. Due to the specialized nature of dental photography it is unrealistic to expect the local camera store to be able to give a great deal of advice on choosing the correct items necessary to make up a practical dental photographic unit. There are of course many camera manufacturers making the various pieces of equipment suitable for close-up dental photography. One fact has emerged from experience. No one manufacturer supplies an ideal outfit. Each combination appears to have its advantages and its disadvantages.

Equipment

The most flexible and therefore most practical outfit comprises a 35 mm single lens reflex (S.L.R.) camera body, a bellows and a 100 mm lens. If you already own a S.L.R. camera with interchangeable lenses, you will almost certainly be able to purchase a bellows and lens from the same manufacturer.

The bellows and lens combination can be replaced by a 100 mm macro lens and extension tube. This alternative is a little less convenient as the extension tube has to be removed and replaced depending on the size of the object to be photographed. As well, the bellows allows for easier attachment of the flash units. The Konica equipment described in this article fulfils all the requirements necessary to obtain high quality intra-oral photographs (Fig. 1). All items are obtainable from Rudolf Gunz & Co. Pty. Ltd., through your local dental supply house. Figures 1-8 illustrate the various components to be purchased, and the way in which they are assembled.

Film exposures

Having assembled the dental photography unit, all that remains is to load the camera with the required film and to determine the correct exposures for the various intra-oral and extra-oral photographs required in the clinical situation. For a transparency slide for projection (from which colour prints can be made direct by Kodak) it is suggested that you use Kodachrome 25. Table I lists the bellows extension and the 'f' stops for a comprehensive test exposure series. To determine bellows extension, the back panel with the camera body attached, is moved to the back end of the rail and securely locked by the small locking screw on the right hand side. The back panel should never be moved from this position. (Only the front lens panel is moved to vary field size). The bellows extension is then read against the back edge of the front panel marked with a red dot.

When the film has been processed, it is a simple exercise to determine the correct exposure from the test group of three for each position. You will probably find that for any extension (180 to 75 mm) the correct exposure will remain constant. This will simplify your photography immensely. If your requirement is for colour prints then

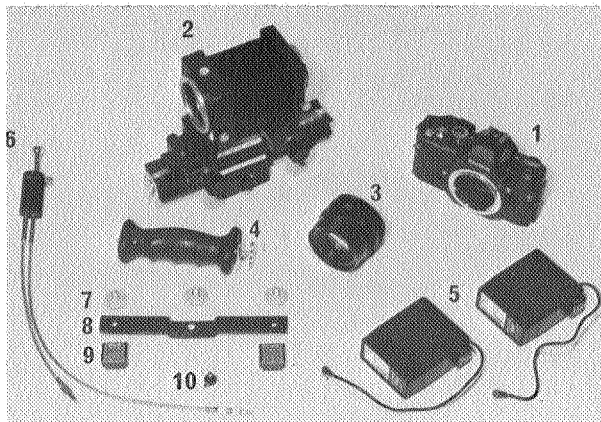


Fig. 1. The various components to be purchased. 1. Konica Autoreflex TC 35 mm camera body. 2. Konica Auto Bellows. 105 mm f/4 Konica Hexanon Automatic Macro Lens. 4. Kalinar Universal Pistol Grip K5151. 5. 2 only Soltron 133 Electronic Flash Units. 6. Konica Twin Cable Release. 7. 3 only Camera Screws. 8. 1 only Flash Bracket. 9. 2 only Accessory I/Os. 10. 1 only Multiple Flash Nipple.

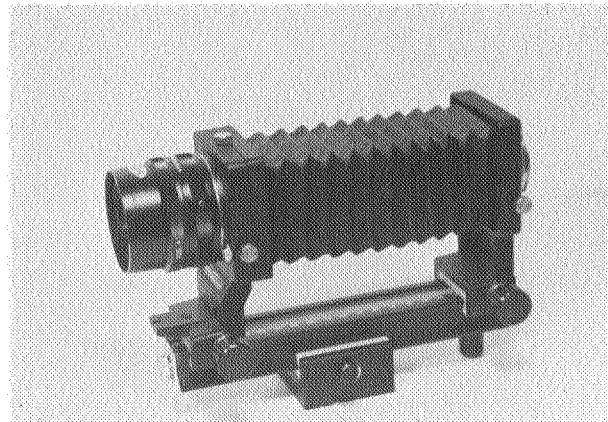


Fig. 4. The 105 mm lens attached to the front panel of the Bellows-bayonet fitting.

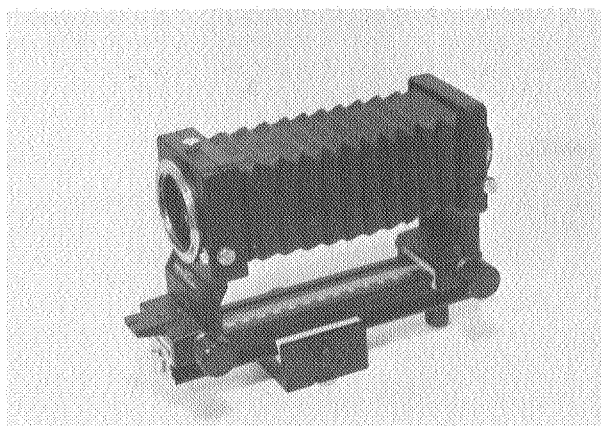


Fig. 2. The Konica Auto Bellows shown here with full extension.



Fig. 5. The Konica Autoreflex TC 35 mm camera body. This camera body comes complete with a Hexanon AR 50 mm f/1.7 lens which is suitable for every day family snap shots.



Fig. 3. The 105 mm f/4 Konica Hexanon Automatic Macro Lens. .B. Do not purchase the Konica Auto Helicoid focusing accessory with this lens, as this is replaced by the bellows.

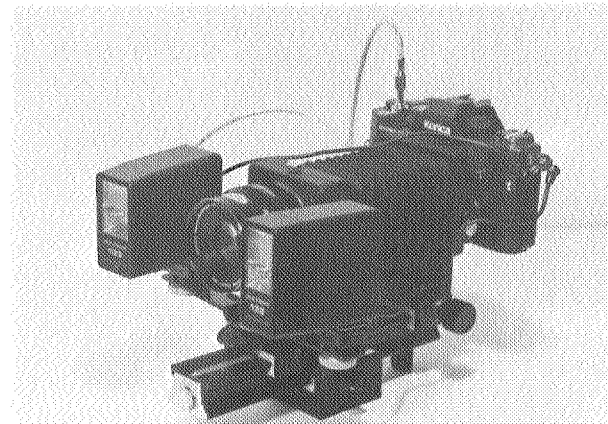


Fig. 6. The camera body attached to the back panel of the bellows-bayonet fitting, and the twin cable fitted. The shorter cable screws into the shutter release on the top right of the camera and the longer cable screws into the right hand side of the front panel of the bellows.

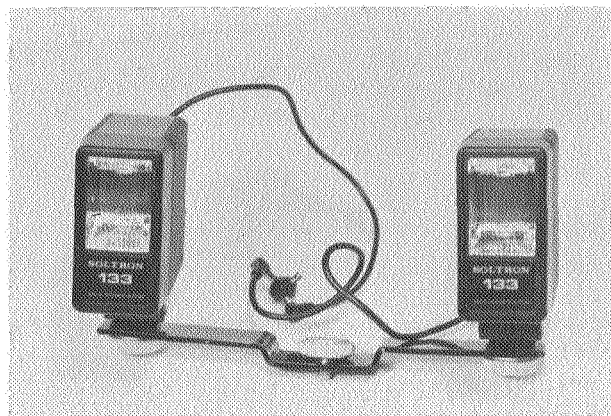


Fig. 7. The two Soltron 133 flash units attached to the flash bracket by accessory shoes and camera screws. Also note that the two flash synchro leads are connected to the multiple nipple.

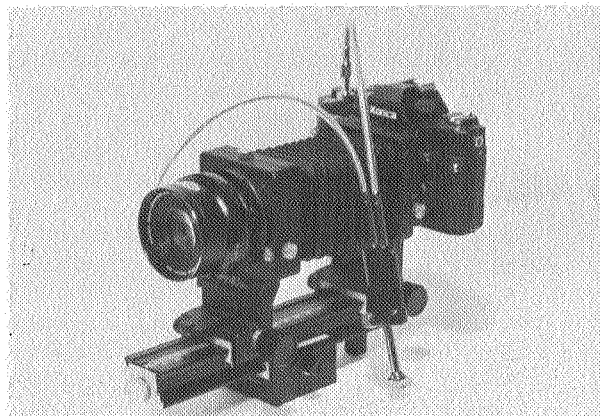


Fig. 8. The unit complete with the flashes and bracket attached to the front panel of the bellows, and the synchro leads multiple nipple plugged into the flash synchro terminal or camera body. The only item not shown here is the Kalimar p grip which screws into the block on the underside of the bell rail.

Table 1. Details of film exposure tests

FRAME NO.	SUBJECT	BELLOWS EXT	'f' STOP
1	Centrals only	180	22
2	"	"	22-16
3	"	"	16
4	Full width anterior view	100	22
5	"	"	22-16
6	"	"	16
7	½ Face-Smile	75	22
8	"	"	22-16
9	"	"	16
10	Anterior face	45	16-11
11	"	"	11
12	"	"	11-8
13	Lateral face*	45	11
14	"	"	11-8
15	"	"	8
16	Study models	90	22
17	"	"	22-16
18	"	"	16

*For lateral face exposures, use only one flash; the flash which is to the front of the patient e.g. right lateral use right hand flash. For both anterior and lateral face, the camera is rotated through 90° by releasing the locking nut on the left hand side of the back panel of the bellows.

you should use a colour negative film. Kodacolor II, which has an A.S.A. rating of 100, is recommended. If you use a neutral density filter (NDO.6) on the lens you can use the same exposures as for Kodachrome 25. A previous article (Lund, 1975) explained the various general procedures and equipment required to give good intra-oral and extra-oral photographs. With the Konica equipment shown in this article, using Kodak film, photographs of the highest quality will be produced.

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Reference

Lund D N (1975): Dental Photography *Aust orthodont J* 4 : 45-52.