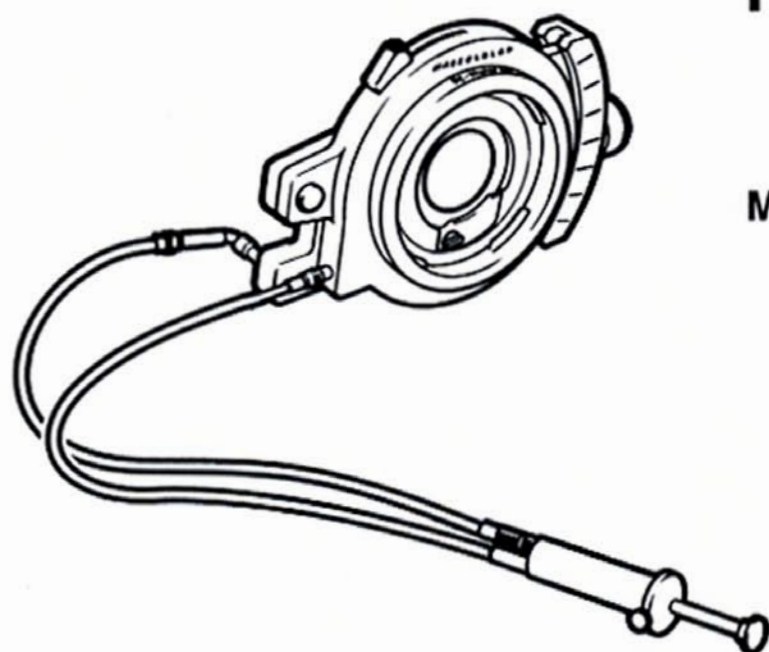


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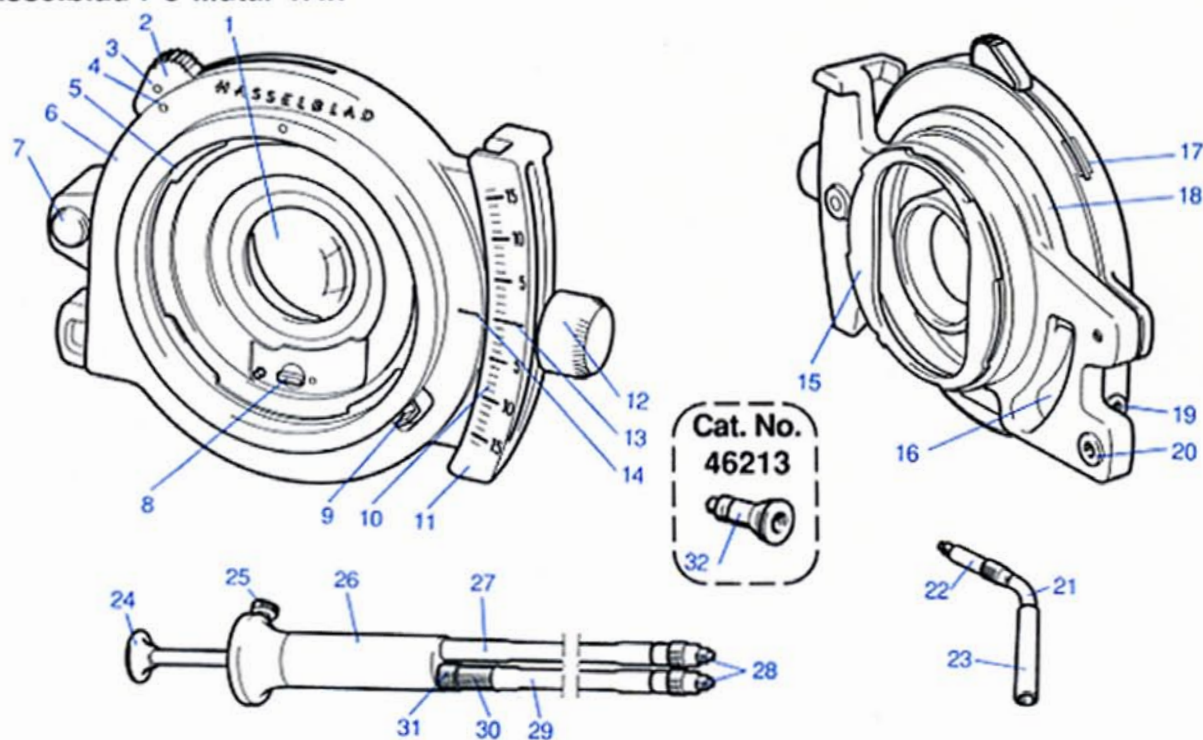
PC-Mutar 1.4x

Instruction Manual
Gebrauchsanweisung
Mode d'emploi
Manual de instrucciones
Bruksanvisning

20311



Hasselblad PC-Mutar 1.4x



Parts and Components

- | | | | |
|-------------------------------|-----------------------------------|----------------------------------|----------------------------------|
| 1. Mutar converter optics. | 9. Lens catch lever. | 17. Warning mark (orange) | 25. Cable release locking screw. |
| 2. Lens cocking lever. | 10. Displacement scale. | 18. Camera attachment plate. | 26. Double cable release body. |
| 3. Cocking lever index (red). | 11. Displacement control segment. | 19. Lens release cable thread. | 27. Fixed release cable. |
| 4. Plate cocking index (red). | 12. Displacement locking knob. | 20. Camera release cable thread. | 28. Cable nipples. |
| 5. Lens attachment bayonet. | 13. Neutral position index. | 21. Open-L connector. | 29. Adjustable release cable. |
| 6. Lens attachment plate. | 14. Displacement index. | 22. Connector nipple. | 30. Cable adjustment nut. |
| 7. Displacement pivot. | 15. Camera-side bayonet plate. | 23. L connector member. | 31. Adjustment locking nut. |
| 8. Lens drive shaft. | 16. Camera release lever. | 24. Cable release button. | 32. EL-type release adapter. |

Hasselblad PC-Mutar 1.4x Shift Converter

The Hasselblad Zeiss PC-Mutar 1.4x* is a unique design, that widens your field of operation dramatically. With the PC-Mutar 1.4x installed between camera and lens you can move the lens vertically 16 mm up or down to let you photograph tall objects without distorted lines even in confined areas. It fits on the Hasselblad 500- and the 2000-series as well as on the 205TCC and is recommended for all types of Hasselblad lenses with focal lengths between 40 and 80 mm (100 mm with the displacement reduced to 8 mm up and down). In neutral position it works as a top quality 1.4x teleconverter, therefore increasing your number of available focal lengths. The 16 mm displacement moves the field of image corresponding to a camera tilt angle between 8 and 15 degrees depending on the focal length of the lens, but all vertical lines are kept parallel. The effect is easily controlled in the viewfinder. When you displace the lens down, however, you may observe a certain vignetting on the focussing screen. This vignetting is caused by the limited size of the viewfinder mirror only and **does not** appear on the film.

For reliability reasons there are no complicated mechanical transmissions between lens and camera; you simply control the function through a double cable release.

* PC for Perspective Control

2

Fitting and adjusting the PC-Mutar 1.4x Shift Converter

For the protection of the converter optics you should keep the protective covers on while handling the converter! You will also find that for your convenience the displacement function should preferably be locked during the assembly and attachment procedure. The neutral position in the center of the displacement scale has a click-stop to make it easier to locate, but locking is possible in any position by turning the locking knob clockwise until it tightens. To ensure a reliable function you should adjust the release cables before you start to use the converter, following the procedure below. You should also repeat applicable parts of the procedure when you change the lens or move the converter or lens/converter assembly to another camera body.

It is vitally important that the different steps in the release sequence appear in the order described below, and that they are distinctively discernible from each other.

Fitting the PC-Mutar 1.4x, suggested procedures

Numbers in brackets refer to the Parts & Components List

A. CF-lens and 500-series (except EL-type) camera body:

- (Fig. 1) Fit the open-L connector (21) in the lens release cable thread (19) of the converter. The nipple (22) with the knurled grip has a swivel joint to the angular part (23) and an external thread that fits in the lens release cable thread (19). Tighten it carefully. Remove the rear protective cover and attach the converter to the camera body in the same way as a lens. Ensure that it is locked in place by the lens catch in the camera body. Attach the double cable release. Ensure that both cables (27, 29) are fully screwed in into the double release body (26). Fit the adjustable release cable (29) in the L connector member (23) and the fixed release cable (27) in the camera release cable thread (20). Tighten all threaded joints carefully as the conical cable threads have a tendency to loosen up when the unit is being used.

Light metering

When using a PME-type Meter Prism Viewfinder always do the metering with the converter in neutral position.

If an external meter is used, the EV-value must be reduced by one full stop before it is transferred to the lens; e.g. EV 14 is changed to EV 13 etc. For meters reading out in exposure settings the exposure should be increased one stop; e.g. a shutter speed of 1/125 is changed to 1/60 or an aperture of 11 is changed to 8 etc.

Focusing

The use of the PC-Mutar 1.4x does not affect the focusing range of the lens used with it, but the depth-of-field is shallower than the markings on the lens. Always use the focusing screen to check the depth-of-field. Also use it for focusing at infinity and do not rely on the stop in the focusing ring, since the infinity setting in some cases may be reached prior to the stop.

Extension tubes

The use of extension tubes together with the PC-Mutar 1.4x is not recommended. However, if used, they should be placed between the camera and the shift converter, which must be set at neutral position.

EL-type cameras only:

Depending on the actual application the open-L connector (21) can be fitted to the EL release adapter (32, not supplied) or to the lens release cable thread (19). The paragraph below is a recommendation rather than a requirement. The adjustable cable, however, should always be attached to the lens release cable thread (19).

(Fig. 1) Fit the open-L connector (21) to the EL release adapter (32) and insert them in the lower front connector of the EL-type camera. Fit the adjustable release cable (29) in the lens release cable thread (19) and the fixed release cable (27) in the L connector member (23).

- (Fig. 2) Cock the converter lens mechanism by moving the lens cocking lever (2) counter-clockwise to the end of the slot until it locks with an audible click. Remove the front protective cover and check that the lens drive shaft (8) is in cocked position. Attach a lens with a focal length within the range 40 – 100 mm. Pre-set the largest aperture and a slow shutter speed, e.g. 1/4s. Rewind the camera body if it is released.
- (Fig. 3) Depress the cable release button (24) slowly (B, fig. 3) until the lens cocking lever unlocks and moves to a middle position in the slot, closing the lens' shutter (i. e. darkening the focusing screen). Remove the rear protective cover from the camera body and check that the auxiliary shutters are still closed.
- (Fig. 4) While watching the auxiliary shutters, slowly depress the button (24) further (C, fig. 4). With the lens cocking lever (2) retained in its middle position the camera body should perform a pre-release, i. e. the mirror should lift and the auxiliary shutters open, but the shutter in the lens should remain closed.
- (Fig. 5) When the release button is depressed further (D, fig. 5), the lens' shutter should make an exposure with the pre-set

shutter speed. Observe the shutter from behind through the camera body to verify that the auxiliary shutters have opened properly and remain open throughout the exposure.

Adjustment (if required):

If the pre-release (A.4 above) and the exposure occurs simultaneously, or the pre-release occurs after the exposure, the cable (29) releasing the lens has to be adjusted. Unscrew the nuts (30, 31) at the cable release body (26) about one turn and lock it there by tightening the lock-nut (31). Cock the lens, rewind the camera and repeat the procedure, adjusting the cable out or in, until there is a distinct gap between the pre-release and the exposure.

- (Fig. 6) Release the button (24) fully (A, fig. 6) to complete the exposure by closing the auxiliary shutters. Cock the lens and rewind the camera.
- Observe the camera from behind. Depress the release button (24) fully to make an exposure. Verify that the steps occur in the sequence described above. Cock the lens, rewind the camera and repeat the exposure release.

B. CF-lens and 2000-series camera body:

The illustrations 1 through 6 are applicable except for showing the 500-series camera body.

- Paragraph A.1 above is applicable in all parts.
- (Fig. 2) Cock the converter lens mechanism by moving the lens cocking lever (2) counter-clockwise to the end of the slot until it locks with an audible click. Remove the front protective cover and check that the lens drive shaft (8) is in cocked position. Attach a lens with a focal length within the range 40 – 100 mm. Pre-set the max. aperture and a slow shutter speed, e.g. 1/4s. Set the camera shutter at C and rewind the camera body if it is released.
- (Fig. 3) Check that both cables (27, 29) are fully screwed into the

obscured in any way. Cock the lens, rewind the camera and repeat the exposure release.

C. F-lens and 2000-series camera body:

The illustrations 1 through 6 are applicable except when showing the 500-series camera body and/or a CF-lens.

- Paragraph A.1 above is applicable in all parts.
- (Fig. 2) Cock the converter lens mechanism by moving the lens cocking lever (2) counter-clockwise to the end of the slot until it locks with an audible click. Remove the front protective cover and check that the lens drive shaft (8) is in cocked position. Attach a lens with a focal length within the range 40 – 100 mm. Pre-set a small aperture. Rewind the camera body if necessary and set the shutter at a slow shutter speed, e.g. 1s.
- (Fig. 3) Check that both cables (27, 29) are fully screwed into the double cable release body (26). Depress the cable release button (24) slowly (B, fig. 3) until the lens cocking lever unlocks and moves to a middle position in the slot, closing the diaphragm (i. e. dimming the focusing screen). Remove the rear protective cover from the camera body and check that the shutter is still closed.
- Slowly depress the release button (24) further to release the shutter for an exposure with the pre-set shutter speed and to complete the mirror function.
- Release the button (24) to open up the diaphragm to max. aperture.
- Cock the lens and rewind the camera. Make repeated exposures, fully depressing the release button each time and observing the camera from behind to verify that the diaphragm is properly stopped down before the shutter is released.

Cautions (continued):

- DO** remember to meter the light with the PME-type viewfinders in neutral converter position only!

double cable release body (26). Depress the cable release button (24) slowly (B, fig. 3) until the lens cocking lever unlocks and moves to a middle position in the slot, closing the lens shutter (i. e. darkening the focusing screen). Remove the rear protective cover from the camera body and check that the focal plane shutter is still closed.

- (Fig. 4) Slowly depress the button (24) further (C, fig. 4) while watching the focal plane shutter. With the lens cocking lever (2) retained in its middle position the camera mirror should lift and the focal plane shutter open, but the lens shutter should remain closed.
- (Fig. 5) When the release button (24) is depressed further (D, fig. 5), the lens shutter should make an exposure with the pre-set shutter speed. Observe the shutter from behind through the camera body to verify that the focal plane shutter has opened properly and remains open throughout the exposure.

Adjustment (if required):

If the focal plane and lens shutters open simultaneously, or the focal plane shutter opens after the lens shutter exposure, the cable (29) releasing the lens has to be adjusted. Unscrew the nuts (30, 31) about one turn at the cable release body (26) and lock it there by tightening the lock-nut (31). Cock the lens with the lever (2), rewind the camera and repeat the procedure, adjusting the cable out or in, until there is a distinct gap between the opening of the focal plane shutter and the lens shutter exposure.

- (Fig. 6) Release the button (24) fully (A, fig. 6) to complete the exposure by closing the focal plane shutter. Cock the lens and rewind the camera.
- While observing the camera from behind, depress the release button (24) fully to make an exposure. Verify that the steps occur in the sequence described above and that the exposure is not

D. 205TCC camera body with CF-, F- or F/TCC-lenses

For the attachment procedures with the F- and F/TCC-lenses the camera should preferably be set to Manual mode. The procedures as such are then identical with those described above for the 2000-series cameras. Since there are no electrical connections between the lens and the camera body through the shift converter, the F/TCC-lenses will work as F-lenses. You should keep that in mind for the continued use of the shift converter after the attaching and adjusting procedures.

When using the 205TCC in any of the automatic modes the metering should always be performed with the PC-Mutar 1.4x Shift Converter in neutral position.

Detaching lens and converter

- To detach the lens, depress the lens catch lever (9) on the converter and turn the lens counter-clockwise when it is pointed towards you.
- To detach the converter (with or without lens), depress the lens catch button on the camera front and turn the converter in the same direction as the lens above.

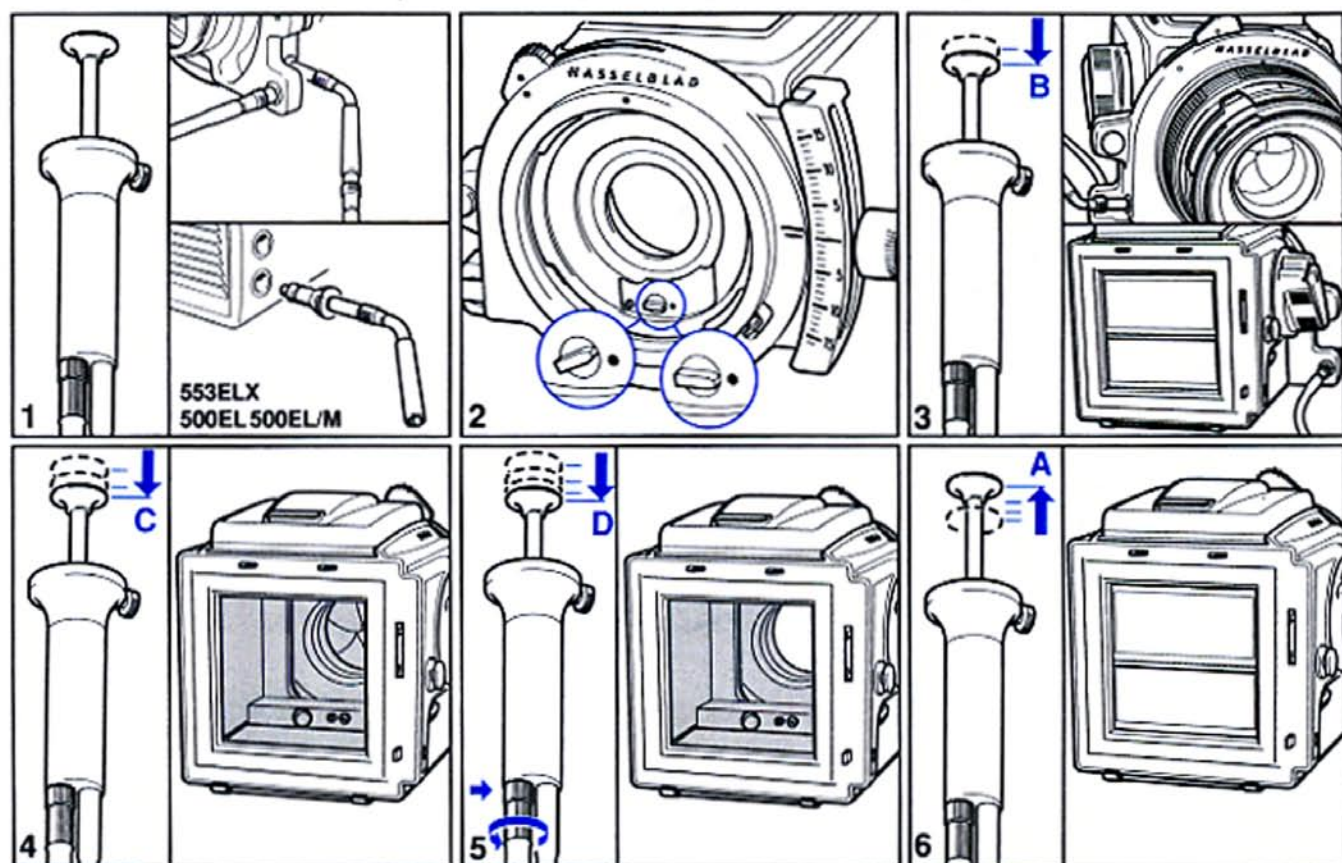
NOTE: The lens and converter need not to be detached in a certain order. The lens will not release when it is detached from the converter.

Cautions:

- DO** keep in mind that with the 100 mm lens the displacement without vignetting is reduced to 8 mm up and down.
- DO** remember both to cock the lens and to rewind the camera for the next frame!
- DO NOT** use the pre-release function on the 500-series cameras generally or on the 2000-series/205TCC cameras used in C setting with CF-lenses. The shutter in the lens does not close!

(continued)

- DO NOT** be alarmed by the vignetting in the viewfinder when displacing the lens down. This vignetting appears in the viewfinder only, not on the film.



PC-Mutar 1.4x + Hasselblad $\left\{ \begin{array}{l} CF \\ F \\ F/TCC \end{array} \right\} = f_{total} \text{ mm}$		
CF	F ; F/TCC	f_{total} mm
Distagon f/4 40 mm (FLE)		59.5
Distagon f/4 50 mm		74.6
	Distagon f/4 50 mm	75.2
Distagon f/4 50 mm (FLE)		75.6
Distagon f/3.5 60 mm		87.6
Planar f/2.8 80 mm	Planar f/2.8 80 mm	117.1
Planar f/3.5 100 mm		145.9

GB Hasselblad PC-Mutar 1.4x Shift Converter, Complementary and revised instructions

Additional and modified parts and components

For non-listed legend numbers please refer to the original Instruction Manual

21. Fixed open-L connector
35. Red identification spot

31. Hexagonal adjustment locking nut
36. Fixed locking nut spanner

33. Resilient open-L connector

34. Red identification marking

Instruction Manual, page 3

A. CF lenses on 500-series camera bodies (except EL-types):

- (Fig. 1, left and upper right) Fit the fixed open-L connector (21) on the adjustable release cable thread (29). Check that the cable is screwed fully into the double cable release body (26). Fit the resilient open-L connector (33) to the fixed length cable (?7) and tighten it securely. The nipples (22) with the knurled grip have swivel joints to the angular parts (23) and external threads that fit in the release cable thread sockets (19, 20). Remove the rear protective cover and attach the converter to the camera body in the same way as a lens. Ensure that it is locked in place by the lens catch in the camera body. Attach the fixed connector (21) to the lens release socket (19) and the resilient connector (33) to the camera release socket (20). Ensure that all threaded joints are securely tightened as the conical cable threads have a tendency to loosen up when the unit is being used.

EL-type cameras only:

(Fig. 1, lower right) Fit the resilient open-L connector (33) to the EL release adapter (32) and insert them in the lower front connector of the EL-type camera.

Fit the adjustable release cable (29) in the lens release cable thread (19) through the fixed connector (21), and fit the fixed release cable (27) in the resilient connector (33).

Page 4

**A. CF-lenses on 500-series camera bodies and
B. CF-lenses on 200- and 2000-series camera bodies**

- Adjustment (if required)**
....Unscrew the nuts (30, 31) at the cable release body (26) 1-2 turns and lock it there by tightening the hex lock-nut (31), using the fixed spanner (36). Cock the lens....
-Cock the lens, rewind the camera and make several exposure releases to verify the function. Check that all threaded connections are tightened and finally tighten the hex lock-nut (31) once more.

Page 5

C. FE and F lenses on 200- and 2000-series cameras

- (Fig. 6) Continue to depress the button (24) until the lens cocking lever (2) has reached its end position and the diaphragm has opened to its largest aperture. Then release the button (24).
-shutter is released. Check that all threaded connections are tightened and finally tighten the hex lock-nut (31) once more.

