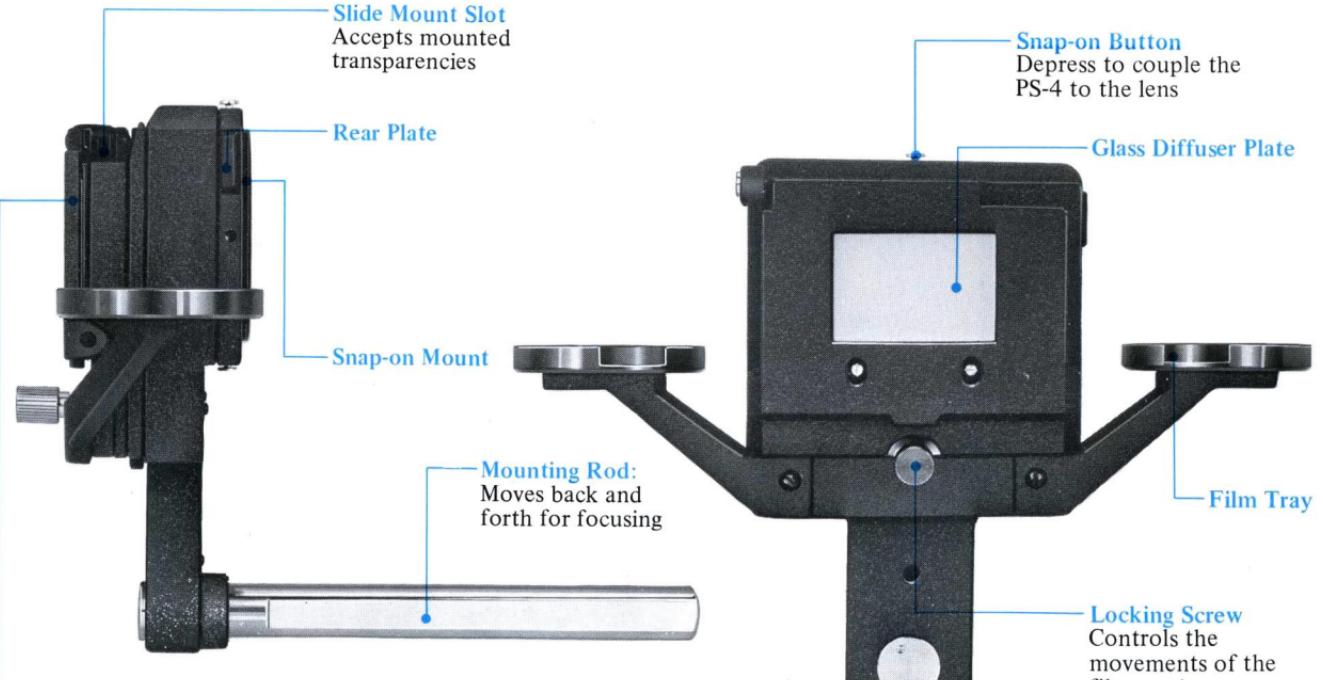


Slide Copying Adapter

PSA

Nikon INSTRUCTION MANUAL



Film Carrier:
Hinged back for easy loading



Foreword

The PS-4 Slide Copying Adapter allows you to copy 35mm transparencies in black and white or color, either full size or cropped and magnified. Used with bellows focusing attachment PB-4 or PB-5, it accepts both mounted transparencies and unmounted film in strips. The original can be moved up and down or sideways for cropping. The unit has trays for rolls of unmounted film and a magnet to hold the light-tight bellows shut when not in use.

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Attachment to the Bellows Unit



Unscrew the locking knob at the front of the bellows focusing attachment and slide the PS-4's mounting rod into the hole provided. Retighten the locking knob to hold the unit in place temporarily.

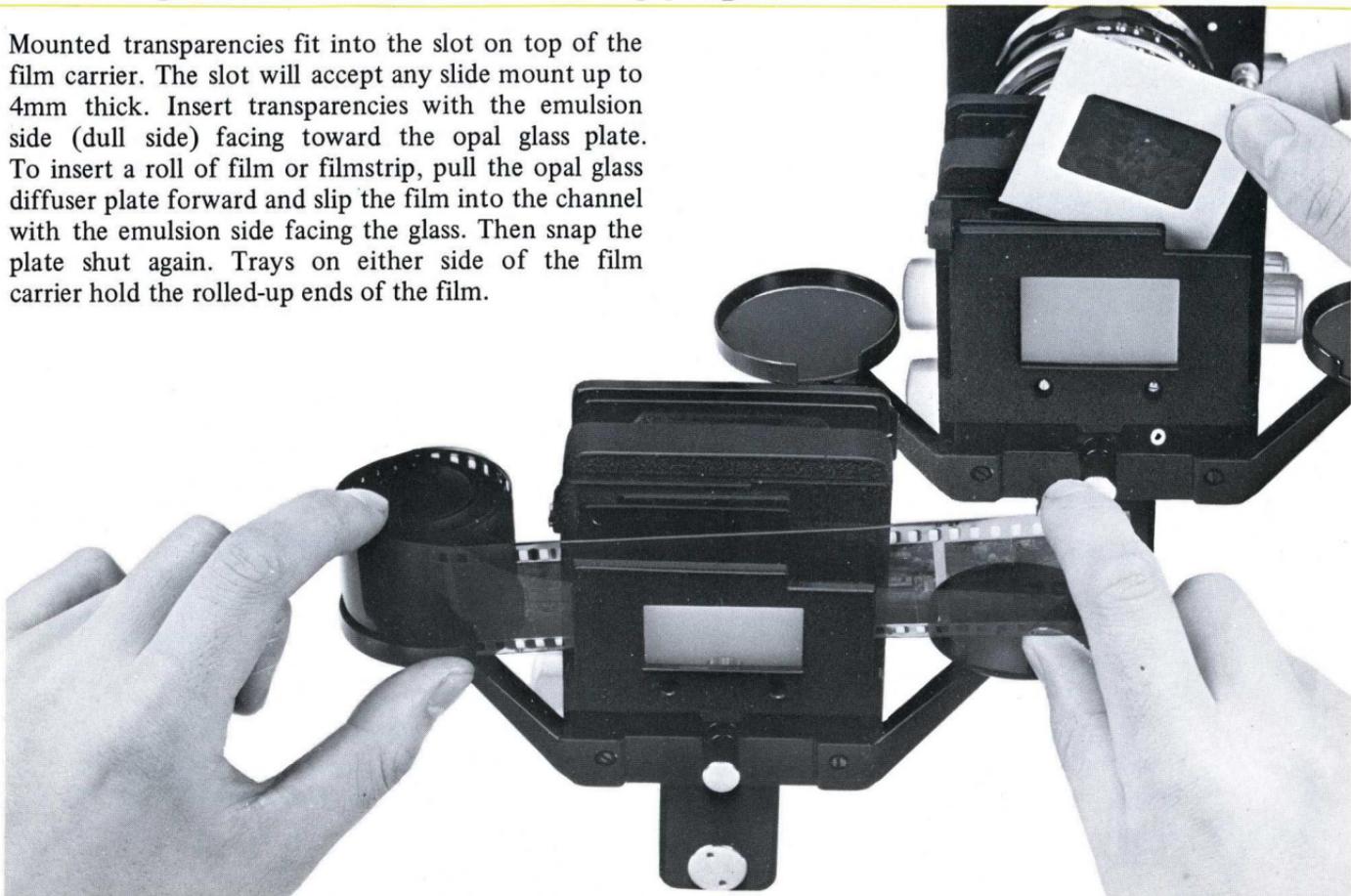
Bring the lens panel of the bellows unit all the way to the front and tighten the locking knob. Then connect the rear of the bellows on the PS-4 to the front rim of the lens by pressing the buttons on either side of the clip ring.

When the lens is mounted in reverse position for enlargements, use the BR-3 adapter ring to connect the PS-4 to the rear of the lens. The BR-3 ring bayonets to the rear of the lens and has a screw mount to accept the PS-4.



Inserting the Film or Slide for Copying

Mounted transparencies fit into the slot on top of the film carrier. The slot will accept any slide mount up to 4mm thick. Insert transparencies with the emulsion side (dull side) facing toward the opal glass plate. To insert a roll of film or filmstrip, pull the opal glass diffuser plate forward and slip the film into the channel with the emulsion side facing the glass. Then snap the plate shut again. Trays on either side of the film carrier hold the rolled-up ends of the film.



Choosing a Lens

Any lens from 24mm to 85mm will give satisfactory results with the PS-4, although the 50mm f/2 is most commonly used. The GN Auto Nikkor 45mm f/2.8 is also an excellent choice. The Micro-Nikkor-P Auto 55mm f/3.5 works best for precise copying. Where reproduction ratios greater than 1:1 are required, the

lens is best used in reverse position.

Since reproduction ratios vary with the focal lengths of lenses, the desired reproduction ratio may influence choice of a lens to be used. The table below shows the range of magnification reproduction ratios for each lens.

Lens	Position	Magnification/Reproduction Range									
		10X	9X	8X	7X	6X	5X	4X	3X	2X	1X 1/2X
24mm f/2.8	Reverse										
28mm f/3.5	Reverse										
28mm f/2	Reverse										
35mm f/2.8	Reverse										
35mm f/2	Reverse										
35mm f/1.4	Reverse										
35mm f/2.8 PC	Reverse										
45mm f/2.8 GN	Normal										
	Reverse										
50mm f/2	Normal										
	Reverse										
50mm f/1.4	Reverse										
	Reverse										
55mm f/1.2	Reverse										
55mm f/3.5 Micro	Normal										
	Reverse										
85mm f/1.8	Normal										
	Reverse										

Note: Magnification for reverse position is for lens with BR-3 ring attached (with the exception of the 24mm lens).

Choosing a Film

Besides duplicating originals, the PS-4 can be used to make a black-and-white negative or intermediate negative from a color transparency or to make a copy negative. Choosing the right type of film to use is important for best results. The table below shows which types of film are suitable for different purposes.

Original		Purpose	Type of film recommended
Black-and-white negative	Ordinary gradation	Black-and-white slide projection	Microfilm, Diapositive film
	High contrast	Black-and-white slide projection	Negative film for general use
Black-and-white slide		Black-and-white slide projection Intermediate negative for making print	Black-and-white reversal film Negative film for general use
Color negative		Black-and-white slide projection	Panchromatic negative film for general use
Color slide		Color slide projection Color negative for color print Black-and-white slide projection Intermediate negative for black-and-white film	Color reversal film Color negative film Black-and-white reversal film Panchromatic film for general use

Determining Reproduction Ratio

The bellows can be set for a desired reproduction ratio by using the scale engraved on the rail. For details, see the instruction booklet for the PB-4 or PB-5 Bellows Focusing Attachment.

Focusing

To focus, loosen the locking knob, look through the camera viewfinder and slide the PS-4 back and forth until the subject is in sharp focus. Fine adjustments can be made with the focusing controls on the bellows attachment, or by turning the lens focusing ring. However in this case the usefulness of the bellows extension scale is altered.

Retighten the locking knob to prevent accidentally jarring the setup and disturbing the focus.

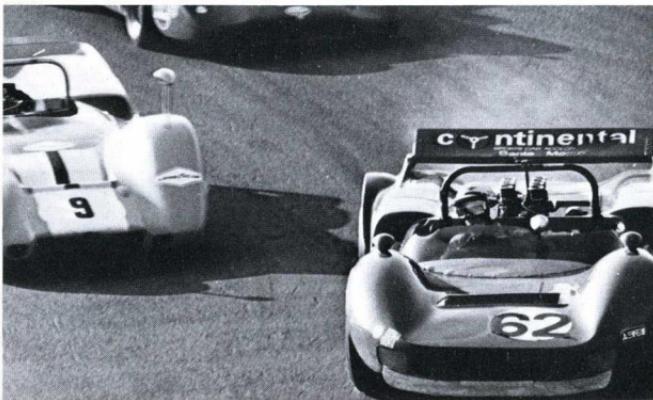
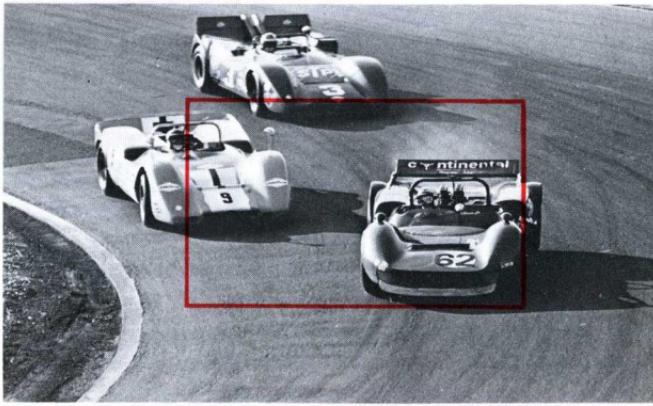
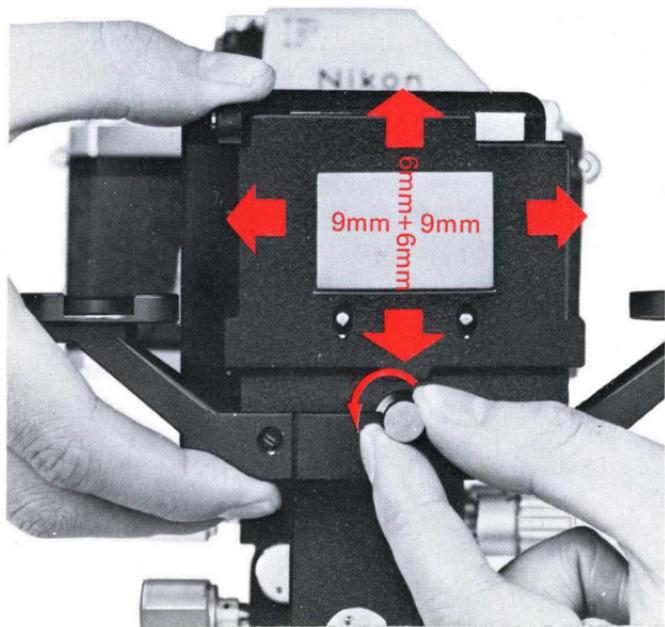


Cropping

Unscrew the locking screw on the film carrier and it moves up and down up to 6mm or sideways up to 9mm in either direction to permit magnification of any part of the original.

Retighten the locking screw to clamp the film carrier at the desired position.

To make an exact duplicate of a 35mm original, center the film carrier. It should click into place.



Light Sources

Natural daylight coming through a north window is often used as a light source. However, artificial sources such as photofloods or electronic flash may be preferable since they deliver light of constant intensity and characteristics.

Whenever color film is used, the color temperature of the light source must match that of the film or else a color temperature correction filter is necessary. The table below shows appropriate combinations of light source, film and filter.

When using a heat-producing light source such as photofloods, be sure to place the lamps far enough from the original film so no damage results.

Film used	Light source	Filter
Daylight-type color film	Photo-floodlight Iodine lamp Blue floodlight lamp Speedlight	B 12 B 12 Not needed Not needed
Tungsten-light-type color film	Photo-floodlight Iodine lamp	Not needed Not needed
Black-and-white film	Photo-floodlight Speedlight Natural light Fluorescent light Iodine lamp	Not needed Not needed Not needed Not needed Not needed

Exposure Measurement

With the built-in through-the-lens metering systems of the Nikkormat and Photomic-series finders, no exposure compensation is necessary for originals with continuous tonal gradations. Exposure measurement is made by the stopdown method (see your Nikkormat or Photomic-series Finder's instruction manual).

Accurate exposure determination for electronic flash is not possible except by trial and error, since published guide numbers do not apply in close-up work. Make a series of test exposures with a standardized setup to find your own guide numbers.

Exposure determination with a meter not coupled to the camera is made by measuring the incident light in front of the opal glass diffuser or by measuring reflected light using a standard reflector plate. The basic exposure reading must be multiplied by an exposure factor depending on reproduction ratio (consult the Bellows instruction manual).

Features/Specifications

Film: Either mounted slides or strips of 35mm film can be copied.

Lens: Nikkor Auto 24mm f/2.8 to 85mm f/1.8

Shifting Range for Cropping: 6mm up or down, 9mm to either side

Reproduction/Magnification Range: 1/1.2 to 2.4X using Nikkor Auto 50mm f/2 in normal position; 1.6X to 4.4X with the 50mm f/2 in reverse position

Bellows Extension: From 10mm to 70mm

Dimensions: 162mm long x 188mm wide x 132mm high

Weight: 500g



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