

**RE-PHOTOGRAPHY WITH THE
ZOOM SLIDE DUPLICATOR (ZSD)**



The ZSD is a variable magnification duplicator for most 35mm SLR cameras, with its own complete self-contained optics in a calibrated helical mount which provides a range from 1:1 to a magnification of 2.5:1

The ZSD is not only a most convenient device for making copies of your slides, or color and black & white negatives from slides, or black & white slides from negatives, but is also a creative tool which enables the photographer to continue the photographic process beyond the original camera exposure.

The ZSD thus opens up a whole new world of "re-photography" by selectively enlarging (cropping) the original slide, by introducing color changes through the use of filters, by the multiple exposing and combining of several images and by means of many other techniques which the imaginative photographer will devise.

MOUNTING THE ZSD TO YOUR CAMERA

The ZSD uses the popular "T" system of camera fittings. This permits the ZSD to be used with virtually all 35mm SLR cameras with focal plane shutters, as well as with Leica and Canon rangefinder cameras. Screw the appropriate "T" adapter onto the ZSD and mount the unit to the camera in the usual manner. By loosening the three small setscrews in the "T" adapter, the ZSD may be oriented so that the scale markings are upright and centered.

SETTING THE MAGNIFICATION AND EXTENSION SCALES

Set the focusing mount to the "1x" mark and collapse the rear extension to the "1" mark. The unit is now set for 1:1 duplication. Select any magnification desired and extend the rear tube to the corresponding mark. The calibrations on the focusing mount and the extension mount must always coincide.

Lock the extension with the setscrew.

Focus may be set visually, although with the small aperture optic of the ZSD, this may be difficult.

THE SLIDE AND FILTER STAGE

The front end of the ZSD is a double channel stage. The inner channel accommodates 35mm slide mounts. A white positioning dot quickly centers the slide over the shooting aperture. The outer channel accepts 49mm filters or gelatins cut to fit. The front diffuser plate is hinged and swings open to facilitate positioning of the slide. The entire stage slides up and down and may also be rotated by loosening the setscrew located immediately behind the stage. This permits the centering at any part of the original slide being photographed.

LIGHTING

In actual use, the ZSD is pointed towards the light. The diffusion screen should be in the closed position over the slide. Generally, the unit is lined up squarely with the light source, although it may be advisable at times, such as when the light is too strong, or if a hot spot results, to direct the light at a diffused white surface placed at 45 degrees to the ZSD

CHOICE OF LIGHT SOURCE

Almost any light source may be used successfully to make black and white negatives from color slides. To make color dupes, the color quality of the light must be correct for the kind of film being used, as illustrated in this table.

All Daylight Films use Daylight, or Electronic
Flash [+81A filter - optional]

For Type A Films use Photofloods and no filter*
or 3200K Lamps + 82A Filter

For Type B Films use 3200K Lamps and no filter*
or Photoflood Lamps + 81A Filter.

*Use 3200K lamps in preference to photofloods.

They have longer life, more even light output and more constant color quality than photofloods.

Daylight color film with an electronic flash as the light source is recommended as the easiest-to-use combination, since electronic flash does not increase contrast or introduce color shift, nor does it buckle or heat-damage the slides.

Its rapid flash also eliminates the danger of blur due to camera vibration.

CHOICE OF FILM

Duplicating film such as Ansco Type 547 which is used with #211 enlarging lamps without a filter, is preferred by many advanced photographers and yields the most pleasing degree of contrast. Most regular color films can also be used provided their limitations are properly understood.

However, since color films are constantly being improved and emulsions vary, evaluation of tests by the photographer with films available at the time of actual use represents the only practical way of determining the film best suited to his particular needs in his pursuit of re-photography.

EXPOSURE FOR THE 1 : 1 SETTING

The following tables offer EXPOSURE SUGGESTIONS for a number of films and light sources.

Since individual conditions vary considerably-type of slide, personal taste, processing, shutter efficiency etc.-these tables should be used as a starting point only.

If your results are consistently too light, decrease your exposure; if too dark, increase your exposure. In making tests, give several exposures, some more, some less, some at estimated correct exposure. Using a 500 watt lamp placed 15cm from the front of the duplicator, use the following guide for your initial exposure tests:

ASA Film Speed

8
25
40
125

Shutter Speed

1/4 second
1/15 ✦
1/25 ✦
1/60 ✦

Using a 40 watt-second electronic flash unit, with an ASA film speed of 125, try a light-to-duplicator distance of 30cm. With ASA 64 film, try a light-distance of 23cm. Using Ansco Duplicating type 547 (approximate ASA 8), use a #211 enlarging lamp at a distance of 15cm and 1 second exposure time. No balancing filter is required.

35mm Copy Film	Low Contrast	Normal Contrast	High Contrast
Agfachrome	Overall rendition: reddish. Color rendition: deep crimson reds, reddish oranges, washed-out yellows, blue greens, deep purplish blues. Contrast: Excessive. Conclusion: not recommended.	Overall rendition: reddish. Color rendition: deep crimson reds, reddish oranges, washed-out yellows, blue greens, deep purplish blues. Contrast: Excessive. Conclusion: not recommended.	Overall rendition: reddish. Color rendition: deep crimson reds, reddish oranges, washed-out yellows, blue greens, deep purplish blues. Contrast: Excessive. Conclusion: not recommended.
Ansachrome 95	Overall rendition: very good. Color rendition: good reds, pink oranges, washed-out yellows, bluish greens, very good blues. Contrast: normal. Conclusion: recommended.	Overall rendition: very good. Color rendition: good reds, pink oranges, washed-out yellows, bluish greens, very good blues. Contrast: normal. Conclusion: recommended and preferred.	Overall rendition: very good. Color rendition: good reds, pink oranges, washed-out yellows, bluish greens, very good blues. Contrast: normal. Conclusion: recommended.
Ansachrome 100	Overall rendition: slightly magenta. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: light. Conclusion: not recommended.	Overall rendition: magenta. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: very high. Conclusion: not recommended.	Overall rendition: magenta cast. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: very high. Conclusion: not recommended.

35mm Copy Film	Low Contrast	Normal Contrast	High Contrast
Ansachrome 200	Overall rendition: slightly reddish. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: high. Conclusion: not recommended.	Overall rendition: slightly reddish. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: very high. Conclusion: not recommended.	Overall rendition: slightly reddish. Color rendition: crimson reds, pink oranges, washed-out yellows, blue greens, good blues. Contrast: very high. Conclusion: not recommended.
Dynachrome	Overall rendition: good. Color rendition: orangey reds, pinkish oranges, washed-out yellows, excellent blues. Contrast: slightly high. Conclusion: recommended and preferred.	Overall rendition: good. Color rendition: orangey reds, pinkish oranges, washed-out yellows, bluish greens, excellent blues. Contrast: normal. Conclusion: recommended and preferred.	Overall rendition: good. Color rendition: orangey reds, pinkish oranges, washed-out yellows, bluish greens, excellent blues. Contrast: normal. Conclusion: recommended.
Flexchrome X	Overall rendition: very good. Color rendition: Excellent reds, slightly pink oranges, hot yellows, blue greens, excellent blues. Contrast: high. Conclusion: recommended.	Overall rendition: good. Color rendition: Excellent reds, slightly pink oranges, hot yellows, blue greens, excellent blues. Contrast: high. Conclusion: recommended.	Overall rendition: good. Color rendition: Excellent reds, slightly pink oranges, hot yellows, blue greens, excellent blues. Contrast: high. Conclusion: not recommended.

35mm Copy Film	Low Contrast	Normal Contrast	High Contrast
Kodachrome	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, washed out yellows, bluish greens, excellent blues. Contrast: high. Conclusion: not recommended.	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, washed out yellows, bluish greens, excellent blues. Contrast: high. Conclusion: not recommended.	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, washed out yellows, bluish greens, excellent blues. Contrast: high. Conclusion: not recommended.
Kodachrome II	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, good yellows, blue greens, excellent blues. Contrast: slightly high. Conclusion: recommended and preferred.	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, good yellows, blue greens, excellent blues. Contrast: high. Conclusion: not recommended.	Overall rendition: slightly bluish. Color rendition: bluish reds, pink oranges, good yellows, blue greens, excellent blues. Contrast: high. Conclusion: not recommended.
Kodachrome X	Overall rendition: slightly bluish. Color rendition: crimson reds, pink oranges, washed out yellows, bluish greens, good blues. Contrast: high. Conclusion: not recommended.	Overall rendition: bluish. Color rendition: crimson reds, pink oranges, washed out yellows, bluish greens, good blues. Contrast: high. Conclusion: recommended.	Overall rendition: bluish. Color rendition: crimson reds, pink oranges, washed out yellows, bluish greens, good blues. Contrast: high. Conclusion: not recommended.

EXPOSURE FOR THE ENLARGED "RE-PHOTOGRAPHY" SETTINGS

Having established exposure values at the 1:1 settings, the following approximations apply for the 2× and 2.5× settings:

Reduce light source-to-slide distance by 20% and 35% for the 2× and 2.5× settings respectively.

USE OF FILTERS-COLOR

Filters are often required to correct light sources so that they will be in proper color balance for the type of film being used.

These should be placed IN FRONT of the slide to be copied, between the light and the slide.

49mm filters fit directly and are simply placed in the filter channel in front of the ZSD.

Filters may also be used to create artistic effects, to alter color for "correction" of faults, etc.

Thus, a bluish filter (such as an 82A or others of the 82 Series) may be used to cool an overly reddish slide; while a yellowish filter (such as an 81C or others of the 81 Series) may be used to reduce excessive bluishness. In addition Ansco and Kodak offer Color Compensating filters which come in several rather pale densities of Yellow, Cyan, and Magenta and may be bought in gelatine form

(5 × 5cm and larger) for economy.

Most filters require an increase in exposure—consult the filter manufacturer's instructions for detailed instructions. The use of filters for creative work is limited only by your imagination, but must be based on extensive experimentation.

MAKING A COPYING SETUP

While it is entirely possible to make an occasional duplicate slide by hand-holding a camera plus an PANAGOR ZSD and pointing it towards a light source, this method is not conducive to reliable results.

Some sort of permanent or semi-permanent setup in which conditions, such as light-to-slide distance can be kept constant, is necessary for consistently good results.

Mounting the camera on a stand, preferably a copying stand with the light source placed on the baseboard, offers a suitable arrangement for working with the ZSD.

Records should be kept of lamp-to-slide distance used, exposure given, of processing procedure, etc.

