

Retouching Color Negatives

— *The Latest Information about Retouching* —



Skillful retouching improves the appearance of many photographs. With retouching, you can correct flaws, change colors, and adjust densities. Portraits are retouched more frequently than any other kind of photographs, but nearly all photographs can benefit from retouching. You can retouch prints or negatives. However, you will save time by retouching a negative if you plan to make many prints from it.

The techniques described in this pamphlet apply to color negatives made on Kodak films. They are similar to the techniques used for retouching black-and-white negatives. The tools you need are also similar, except that you won't use an etching knife. Because color negatives have separate dye layers, you can't use an etching knife, reducers, or bleaches to reduce density as you can with black-and-white negatives.

You build up the density of color negatives by applying dyes or black lead, and you change the color by using colored dyes or colored pencils or a combination of dyes and pencils.

Note: If you use dyes **and** pencils (or black lead), you must apply the dyes *first*.

Improper film drying can adversely affect the retouching characteristics of negatives. Avoid over- or underdrying the film, drying it too quickly or too slowly, or winding the film with excessive tension if it is hot.

A proof print will help you determine the amount of retouching a negative requires. As you gain experience, you will find it easier to predict the effects of retouching.

When you view a color negative, remember that—

- Color negatives have an overall orange or red tint because they have built-in masks to optimize color reproduction.
- The colors in the negatives are approximately complementary to the colors in the original scene.
- The darkest areas in the negative represent the highlights in the original scene; the lightest areas represent the shadows.
- Some newer, "higher color" films may inherently require more retouching than some older products, i.e., a red blemish will appear "more red," an eye bag will appear "deeper," etc; additional retouching may seem necessary.
- Some films have increased (darker) base density, and may require more light for adequate viewing. Contact the manufacturer of your retouching machine for information about lamp modification.

Equipment and Supplies

To retouch color negatives, you'll need these materials:

For Retouching with Liquid Dyes

- KODAK Liquid Retouching colors:
 - Red (CAT No. 190 2246)
 - Yellow (CAT No. 190 2287)
 - Cyan (CAT No. 190 2345)
- KODAK WRATTEN Gelatin Filters:
 - No. 25 red (CAT No. 149 5605)
 - No. 58 green (CAT No. 149 5860)
- Small glass dishes or a palette with wells
- KODAK PHOTO-FLO 200 Solution (CAT No. 146 4502)
- KODAK Opaque, Black (CAT No. 146 4312)
- Brushes, such as Winsor-Newton series 7 brushes, No. 0 and No. 2
- Retouching stand or machine equipped with a 5000 K lamp
- Absorbent cotton, facial tissues, or paper towels
- Cotton swabs
- 5-percent clear ammonia-water solution (non-detergent ammonia)
- Stylus or abrading needle

For Retouching with Pencils

- Red and blue colored pencils, such as Mongol made by Faber Castell Company or Berol Prismacolor made by Empire Berol USA
- Black leads (graphite), No. 3H, 2H, HB
- KODAK Retouching Fluid (CAT No. 195 6309)
- Pencil sharpener or sharp knife
- Razor blade
- Sandpaper (Grade 60)

DYE RETOUCHING

KODAK PROFESSIONAL Color Negative Films in sizes 120, 220, sheet, and 70 and 46 mm on 4-mil ESTAR BASE have a gelatin layer on the *base side* that will accept dye retouching. Other sizes, such as 35 mm and 46 mm on acetate base, will accept liquid dye only on the emulsion side. When you apply liquid dye to the emulsion side of a negative, the emulsion will become opalescent or cloudy. The opalescence disappears when the dye dries. *Don't use retouching fluid when you retouch with dyes.*

Dye / Filter "Layering" Technique

To retouch small areas, use *diluted* KODAK Liquid Retouching Colors. For most retouching, you will need only two dyes: red-yellow and cyan. Prepare the diluted dyes according to the following formulas:

Diluted Dye	Formula	Dilution No. 1	Dilution No. 2	Dilution No. 3
Red-yellow	5 drops red dye plus 1 drop yellow dye plus distilled water	18 drops distilled water (1:3)	30 drops distilled water (1:5)	60 drops distilled water (1:10)
Cyan	3 drops cyan dye plus distilled water	15 drops distilled water (1:5)	30 drops distilled water (1:10)	60 drops distilled water (1:20)

Note: Start with Dilution No. 2. If dyes do not apply readily, try Dilution No. 1. If dyes absorb too quickly, try Dilution No. 3. Some retouchers prefer to work with all three dilution mixtures in their palette.

To apply liquid retouching colors to a negative, follow this procedure:

1. Hold a WRATTEN Gelatin Filter No. 58 (green) near your eye, and view the negative through the filter. Evaluate the areas to be retouched; if they appear lighter than the surrounding areas, apply red-yellow dye by using the technique described in step 2. *Don't use too much red-yellow dye.* Stop applying it when the area you are retouching is still slightly lighter than the surrounding area.
2. Dip the brush into the dye, and stroke the tip on water-dampened cotton, tissue, or paper towel until the tip is almost dry. Smoothly apply a small amount of dye to the **base side** of the negative.* When you retouch along sharp edges in an image or make very fine corrections, apply dye to the **emulsion side**. This allows

for more precise alignment of the retouching with the image and avoids parallax problems from inaccurate application.

Note: If the surface of the negative is slick or hard (glazed) because the film wasn't dried properly, liquid dyes may not penetrate the gelatin. If this happens, you can add several drops of a 7-percent solution of acetic acid to the dyes to improve penetration. (Make a 7-percent solution of acetic acid by mixing 1 part glacial acetic acid to 13 parts water or 7 parts 28 percent acetic acid to 21 parts water.)

After the dye is dry, check the retouched area through the filter; if necessary, add more dye until the color matches that of the surrounding area. Repeat this step for the other areas that require retouching.

3. Hold a WRATTEN Gelatin Filter No. 25 (red) near your eye, and view the negative through the filter. Evaluate the areas to be retouched; if they appear lighter than the surrounding area, apply cyan dye by using the technique described in step 2.
4. View the negative without using a filter. If a retouched area appears slightly red or slightly cyan, add a very small amount of the opposite-colored dye until the area appears neutral.

Alternate Dye / Mix Technique

For some high-volume retouching applications, you may obtain satisfactory results by applying pre-mixed colors. Try the following formulas.

Correction	Dye / Mix Formula
Blemishes	8 drops red, 2 drops yellow, 1 drop cyan
Lines / Shadows	6 drops red, 4 drops cyan, 1 drop yellow

Note: Dilute above dye mixtures before application with Dilution No. 1, 2, or 3.

Removing Liquid-Dye Retouching

If you apply too much dye, you can remove some of it by gently swabbing the retouched area with a cotton swab dampened with a 5-percent clear ammonia-water solution (non-detergent household ammonia[†]). Remove the ammonia by sponging the area with water-dampened cotton. You can remove the dye completely by washing the negative for 15 minutes in water at 68°F (20°C), and then bathing it for one minute in diluted KODAK PHOTO-FLO 200 Solution to prevent water spots. (Dilute the PHOTO-FLO Solution according to the instructions on the bottle.) Allow the film to dry thoroughly before you resume retouching.

* The base side of a roll-film negative faces you when the edgeprinting reads correctly. The base side of a sheet-film negative faces you when the code notch is at the top left edge of the sheet.

† You can make a 5-percent clear ammonia-water solution by mixing 5 parts of 28-percent liquid ammonium hydroxide with 23 parts water.

Retouching Large Areas with Liquid Dyes

To retouch large areas, use KODAK Liquid Retouching Colors. You can lighten or enhance colors or add color to neutral areas with these dyes. To lighten a color such as sunburn, blue beard, etc, in your proof print, add the *same color* to the negative; to add or enhance a color in the print, apply the *complementary color* to the negative.

To apply liquid retouching colors to a large area of a negative, follow this procedure:

1. Pre-moisten the area on the base side with a cotton swab dampened with distilled water.
2. Apply dye with a “watercolor-like” dye-wash technique. Begin with very dilute dye and build up the dye to achieve desired density.
3. Confine dye to corrected areas. Clean up excess dyes from surrounding areas using 5 percent clear ammonia-water solution, then swab with distilled water.
4. When applying dye to large areas, be conservative (“too little” may be better than “too much”).

PENCIL RETOUCHING

To retouch color negatives, you can use the same black graphite leads that you use for black-and-white retouching. (When retouching roll-film negatives, use a slightly softer black lead than you would use for sheet-film negatives.) You will also need a red, a blue, and a canary-yellow pencil.

To sharpen colored pencils, first use a pencil sharpener. Then use a sharp knife or razor blade to cut the wood back about one inch (2.5cm) from the tip, and shave the exposed lead to a long, tapered point. Finally, smooth the lead with Grade 60 sandpaper. (Or, if you prefer, strip all the wood from the lead and use the bare lead in a lead holder.)

Preparation for Pencil Retouching

Before you retouch a negative with pencil, you must apply KODAK Retouching Fluid to the **emulsion side**.^{*} The fluid gives the negative “tooth” for accepting pencil retouching. In areas that need a lot of correction, apply the retouching fluid to both sides of the negative.

Put a small drop of fluid in the center of the area to be retouched. Using a clean, dry tuft of cotton, buff the fluid from the center to the edges with a circular motion. Then feather the edges to blend them with the surrounding area. The retouching fluid should spread easily; if the fluid becomes tacky, you may have to replace it with new fluid.

Note: When you retouch negatives with dyes *and* pencils, apply the dyes first; then apply the retouching fluid and the pencil.

Techniques for Pencil Retouching

You can retouch a color negative by applying colored pencils and black lead to the emulsion side, or by applying colored pencils to the base side and black lead to the emulsion side. If you retouch only the emulsion side, do not use an extremely hard black lead when you apply it over colored pencil, because you will remove some of the colored lead.

To apply the pencil, press down lightly and use small circular motions. For best results, place the negative in a retouching stand or machine. If you use a retouching machine, start with “low” vibration and increase as necessary.

Note: Do not moisten the tips of leads. Some leads are made of water-soluble dyes that would penetrate the emulsion; excess color is difficult to remove.

Removing Pencil Retouching

If necessary, you can usually remove pencil retouching by wiping the retouched area with retouching fluid. Let the negative dry thoroughly before you reapply the retouching fluid and resume retouching.

^{*} The emulsion side of a roll-film negative faces you when the edgeprinting is reversed (like a mirror image). The emulsion side of a sheet-film negative faces you when the code notch is at the top right edge of the sheet.

CORRECTING COMMON PROBLEMS

Note: Many of today's films feature higher colors, and may require higher concentrations of retouching dyes. If you experience difficulties with dye acceptance, we recommend that you use KODAK Retouching Colors with Dilution No. 1 or No. 2.

Skin Blemishes. Red blemishes in a portrait appear as small cyan-green spots in the negative. You'll need red-yellow dye or red pencil to neutralize the cyan-green spots in the negative.

For dye retouching: Determine the amount of red-yellow dye needed to neutralize the cyan-green spots by viewing the negative through a WRATTEN Gelatin Filter No. 58 (green). After applying the red-yellow dye, view the negative through a WRATTEN Gelatin Filter No. 25 (red) to determine if you need cyan dye to add density.

For pencil retouching: Neutralize the cyan-green spots with red pencil, and then build up density with black lead.

Dark Circles Under Eyes. To soften or eliminate the dark cyan or blue circles under a subject's eyes, view the negative through a WRATTEN Gelatin Filter No. 25 (red) and use cyan dye or black pencil. Then view the negative through a WRATTEN Gelatin Filter No. 58 (green) to determine if you need to apply red-yellow dye.

Lines and Wrinkles. You can eliminate *very fine* lines by applying black lead. For severe lines and wrinkles, first neutralize the red or green areas with colored dyes or pencils.

For dye retouching: View the negative through a WRATTEN Gelatin Filter No. 25 (red) to determine if you need cyan dye. Apply cyan dye, if required. Then view the negative through a WRATTEN Gelatin Filter No. 58 (green) to determine if you need red-yellow dye to neutralize the color.

For pencil retouching: Neutralize the red or green areas with blue or red pencil; then build up density with black lead.

Veins and Beards. To subdue or remove the blue color of veins and beards, use cyan dye or blue pencil to neutralize the yellowish-orange area in the negative.

For dye retouching: View the negative through a WRATTEN Gelatin Filter No. 25 (red) and apply cyan dye. You may sometimes need red-yellow dye to neutralize the area completely; check the negative through a WRATTEN Gelatin Filter No. 58 (green) and, if necessary, apply red-yellow dye.

For pencil retouching: Neutralize the yellowish-orange area with blue pencil, and then build up density with black lead.

Ruddy Complexion. To subdue a ruddy complexion, view the negative through a WRATTEN Gelatin Filter No. 58 (green) and use red-yellow dye to neutralize the cyan area in the negative; use the technique described under "Retouching Large Areas with Liquid Dyes." Do not use red pencil; you cannot apply pencil to large areas evenly.

Catchlights. When the subject's eyes are in shadow, catchlights will be small or nonexistent. You can enlarge or create catchlights in the negative with soft black lead or black opaque.

Highlights. You can blend adjacent highlights by neutralizing the area between highlights and then building up density by applying dyes or pencils.

For dye retouching: View the negative through a WRATTEN Gelatin Filter No. 58 (green) to determine if you need red-yellow dye to neutralize the color. Apply the dye, if required. Then view the negative through a WRATTEN Gelatin Filter No. 25 (red) to determine if you need cyan dye.

For pencil retouching: Neutralize the areas between highlights by applying red or blue pencil, or both; then build up density with black lead.

Note: You can remove catchlights and highlights only on the print; you cannot eliminate them from the negative.

Yellow Teeth. Correct excess yellow in a subject's teeth by applying a small amount of **very** dilute yellow liquid dye to the negative.

Pinholes. Black spots on a print are usually caused by minute pinholes in the negative. You can eliminate pinholes by applying black opaque with a spotting brush. A print made from the retouched negative will have white spots instead of black spots. You can easily eliminate the white spots by spotting the print with liquid dyes or pencils. For information on retouching color prints, see KODAK Publication No. E-70, *Retouching Prints on KODAK EKTACOLOR and EKTACHROME Papers*.

You can also eliminate pinholes by using a needlelike stylus on the *base side* of the negative. Place the tip of the stylus slightly off the center of the pinhole. With very light pressure, push the stylus toward the center of the pinhole. This technique makes the base rougher, so less light passes through the pinhole. If a light spot then shows on the print, you can easily eliminate it by spotting with liquid dye or pencil.

If you use the stylus with a retouching machine, set the machine speed at a higher rate than the rate you use for pencil retouching. Touch the center of the pinhole with the point of the stylus, and the pinhole will fill in.

CORRECTING COMMON PROBLEMS		
Problem	Dye Retouching	Pencil Retouching
Skin blemishes	1. Check with a No. 58 filter; use red-yellow dye 2. Check with a No. 25 filter; use cyan dye, if necessary	1. Use red pencil 2. Use black lead
Dark circles under eyes	1. Check with a No. 25 filter; use cyan dye 2. Check with a No. 58 filter; use red-yellow dye, if necessary	Use black lead
Lines and wrinkles	1. Check with a No. 25 filter; use cyan dye, if necessary 2. Check with a No. 58 filter; use red-yellow dye, if necessary	1. Use blue or red pencil 2. Use black lead
Veins and beards	1. Check with a No. 25 filter; use cyan dye 2. Check with a No. 58 filter; use red-yellow dye, if necessary	1. Use blue pencil 2. Use black lead
Ruddy complexion	Check with a No. 58 filter; use red-yellow dye	—
Catchlights	Use black opaque	Use soft black lead
Highlights	1. Check with a No. 58 filter; use red-yellow dye, if necessary 2. Check with a No. 25 filter; use cyan dye, if necessary	1. Use red and/or blue pencil 2. Use black lead
Yellow teeth	Use very dilute yellow dye sparingly	—
Pinholes	Use black opaque or stylus on the negative, and retouch the print	

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MORE INFORMATION

Kodak has many publications to assist you with information on Kodak products, equipment, and materials.

Additional information is available on the Kodak website and through the U.S.A./Canada faxback system.

The following publications are available from Kodak Customer Service, from dealers who sell Kodak products, or you can contact Kodak in your country for more information.

- E-70 *Retouching Prints on KODAK EKTACOLOR and EKTACHROME Papers*
- O-10 *Retouching Black-and-White Negatives and Prints*



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