

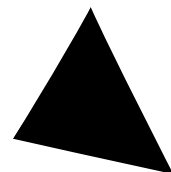


In-field training: Product Workbook

for ProTech Marketing Representatives

Your guide to:

- Using Polaroid products in key applications
- Demonstrating Polaroid products
- Closing sales with superior product knowledge

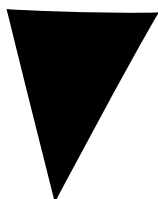


Polaroid Product Workbook



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The First Steps to Success.

Close more sales with better product knowledge.

Do you want to be an effective Marketing Rep? Then you'll want to be able to demonstrate your Polaroid products smoothly, easily and with the authority of a true expert. Because when you have a thorough understanding of your product line, you're naturally more helpful and persuasive.

Whether you're presenting to dealers or end-user accounts, you automatically boost your credibility when you can detail how your products work, which are suitable for a specific purpose and how they may be used to the customer's best advantage. The more you know about a particular product, the easier it is to demonstrate — and sell.

When and why are product demos important? Since customers often want to see products in use— particularly higher-priced systems — before they commit to purchase, you'll find that an effective demonstration both adds impact and helps overcome customer hesitation. And strong demonstrations pay big dividends during in-house or for-pay seminars, where key sell-through activities can result in high-volume sales. Finally, your effective product demo can play a key role in selling at trade shows, dealer open houses and meetings of technical or professional associations.

Now that we've established the effective product demonstration as one of your most powerful selling tools, how do you go about acquiring intimate knowledge of your product line?

Demonstrating Polaroid products: a hands-on guide.

While there's a wealth of information available on every Polaroid product — user's manuals, technical updates, marketing brochures, videos and more—nothing helps you understand a product better than working with it yourself. So while we urge you to familiarize yourself with these other reference materials, look to this workbook for the hands-on exercises that will help you understand and work with

Polaroid products.

The successful completion of these exercises will provide you with three key advantages for selling:

- Detailed knowledge of major Polaroid products
- Expertise in real-world applications and usage
- Actual photos for your own personalized sample book

Watch one, do one.

Don't worry about tackling these exercises alone, because you're going to have some of Polaroid's top pros to help get you started. With the expert guidance of individual Polaroid Applications Managers, you'll do more than observe each of these exercises performed by a pro. You'll start to absorb their knowledge and expertise, which goes far beyond the information contained in this guide.

First you'll work together to set up the equipment and perform the exercise once. Use this time to watch, to ask questions, and to gain real-world insights into our products. Then you have the opportunity to perform the exercise yourself. To conclude each exercise, you have the chance to discuss any issues raised by the exercise.

How to make the most of this Guide.

For the best results, review each exercise a few days before your scheduled hands-on session. Each exercise includes:

- Customer need: why customers perform this application and what kind of results they expect.

- Materials necessary to perform the exercise. Either an Applications Manager or your Local Trainer will provide these materials.
- A step-by-step guide to the exercise. Your Applications Manager will show you how to set up the equipment and get the best results.

At the conclusion of each exercise you'll find a page for the final photo that you produce. Keep this photo both as proof that you have completed the exercise satisfactorily and as a sample for your own book.

Turning Product Knowledge Into Sales

While technical specifications are important, remember this. Customers buy a Polaroid product to perform a function central to their lives and work— whether it's taking photos of real estate, fingerprints, their children or a dented bumper. During your hands-on product training, stay focused on that end result— and you'll be that much closer to effective selling!

Exercise #1

Take a photo outdoors with the Captiva camera

Customer Need

High-quality images that preserve their memories of people, places, and events.

Polaroid Solution

Consumers want excellent, technically sophisticated results, but they demand simple point-and-shoot photographic systems. With Captiva, Polaroid offers an advanced camera that's fun and easy to use — and that produces colorful, self-developing instant prints.

Assignment

Create a high-quality Captiva image of people outdoors.

Equipment Needed

- Captiva camera
- Captiva 95 film

Step-by-Step Guide

1. Load the Captiva 95 film into the Captiva camera.
2. Select the subject or subjects you want to shoot. Choose a lively, colorful scene, and encourage relaxed, smiling expressions from your subjects.
3. Compose the picture in the camera's viewfinder.
4. Press the shutter to shoot the photo. The automatically focused and exposed image will develop in the camera's storage chamber until you remove it.
5. Mount the fully developed image on the page provided at the end of this section.

Tips and Troubleshooting

Even simple point-and-shoot systems require a little forethought before shooting. For the best image, consider what you want to photograph and then compose it carefully in the viewfinder.

Additional Resources

Captiva Owner's Manual

Exercise #2

Take a photo indoors with the Spectra camera

Customer Need

High-quality images that preserve their memories of people, places, and events.

Polaroid Solution

An advanced camera that's fun and easy to use, the Spectra has developed an excellent reputation for its high quality prints.

Assignment

Create a high-quality Spectra image indoors.

Equipment Needed

- Spectra
- Type 990 or Spectra HighDefinition film

Step-by-Step Guide

1. Load the Spectra or Type 990 film into the Spectra camera.
2. Select a lively scene to photograph, such as a birthday party or family gathering.
3. Compose the picture in the camera's viewfinder.
4. Press the shutter to shoot the photo. The automatically focused and exposed image will eject from the camera.
5. Mount the fully developed image on the page provided at the end of this section.

Tips and Troubleshooting

Even simple point-and-shoot systems require a little forethought before shooting. For the best image, consider what you want to photograph and then compose it carefully in the viewfinder.

Additional Resources

Spectra Owner's Manual

Exercise #3

Take an informal portrait with the 600SE camera

Customer Need

High-quality instant photographs for souvenirs. At tourist attractions, street photographers offer customers an instant, on-the-spot memento of a visit. But at \$5 for a single print, they need to offer the highest quality image available. They also need to get excellent results on the first try, since wasted film raises expenses.

Polaroid Solution

The 600SE with either Type 669, 679 and 689 film produces the fast, high-quality images these customers demand.

Assignment

Using existing light outdoors, create an informal portrait similar to ones offered by street photographers.

Necessary Equipment

- 600SE
- Type 669 or Polacolor Pro 100 film
- 127mm
- Model 73 film holder
- Light meter (Sekonic, Gossen, and Minolta are best)

Step-by-Step Guide

1. Assemble the camera by attaching the correct lens and installing and loading the film holder.
2. Using the light meter, determine the correct exposure and set the camera lens and shutter accordingly.
3. Focus and compose the image in the viewfinder.
4. Make the exposure
5. Pull the film through the filmholder rollers. Time, peel, and view the print.
6. Note color, composition, lighting, etc. Make any necessary adjustments to your exposure or processing procedure to improve print quality.
7. Store the finished print on the page provided at the end of this section.

Tips and Troubleshooting

- Even with ample existing light, fill flash can yield more pleasing images. If you use a flash, set its output to match the f-stop indicated by the light meter. For example, if the light meter indicates an exposure of 1/60 second at f/4, set the flash power to f/4. This will not overpower the ambient light but will fill shadows and produce a better-looking picture.
- When using photographic systems with interchangeable lenses, pay particular attention to keeping both surfaces of the lens clean. Canned air is best for removing dust. A dry lens-cleaning tissue or a tissue slightly wetted with lens cleaning solution will dislodge more stubborn particles.
- As with all systems that include peel-apart film, ensure that the rollers of the Model 73 filmholder are clean. You can remove, clean, and replace the miniroller assembly at any time without exposing any film.
- If you get a completely black image, check for two common causes: Have you removed the darkslide before making the exposure? Have you removed the lens cap?

Additional Resources

600SE User's Manual

Exercise #4

Document a site with the ProCam camera

Customer Need

Clear, accurate documentation of houses and other sites. While photography is a proven tool in selling real estate and documenting construction sites, most real estate agents and contractors are not formally trained in photography. Therefore, they need photographic systems that are easy to use and produce great results

Polaroid Solution

Polaroid ProCam camera gives realtors the professional-quality results and push-button simplicity they demand. It's designed for excellent results in all high-use, high-volume applications. Rugged, dependable, and durable, ProCam is the professional choice for instant imaging.

Assignment

Create one photograph of a house suitable for a realtor's new listings board, and one photograph of a construction site.

Necessary Equipment

- ProCam camera
- Spectra/Image film or Type 990 film

Step-by-Step Guide

1. Load ProCam with Spectra/Image film or Type 990 film by pushing the film door release button in the front of the camera. Hold the film pack by its edges and slide it all the way into the camera. Close the film door and the cover protecting the film will eject automatically.
2. Select a site and house that would be appropriate as a realtor's listing.
3. Slide your right hand through the hand strap and hold the camera as you would a pair of binoculars. Rest your index finger on the shutter button.

4. Compose the picture in the camera's viewfinder. Position yourself so that the site fills the frame.
5. Press the shutter button to shoot the photo. The automatically focused and exposed image will eject from the camera.
6. Examine the image, adjusting the controls (e.g. lighten/darken) on the back of the camera as necessary.
7. Mount the fully developed image on the page provided at the end of this section.

Tips and Troubleshooting

- Do not flap or wave the developing image during the first 60 seconds of development.
- Ensure that the rollers are clean. Repeating dots on the final image indicate that the rollers need cleaning. You can open the film loading door and clean the rollers at any time without exposing any film.
- For correct focusing, be sure to center the subject in the picture and to keep objects out of the foreground.

Additional Resources

- "Real Estate Photography," Polaroid Guide to Instant Imaging
- "Construction Documentation," Polaroid Guide to Instant Imaging
- "Landscape Architecture Documentation," Polaroid Guide to Instant Imaging

Exercise #5

Take MLS listing photos with the ProPack camera

Customer Need

Photographs for multiple listing service (MLS) publications. Since MLS sheets are typically photocopied, realtors need black-and-white photos that can be clearly reproduced on office copiers. And since properties can be quite distant from one another, it's helpful if realtors can confirm they have the images they need before they leave the site.

Polaroid Solution

The ProPack camera with Type 667 film and the Polaroid PhotoCopy Kit produces instant halftones perfect for inclusion in MLS publications that can be copied on office copiers.

Assignment

Create two instant halftones of a real estate property, one showing an exterior view and one featuring an interior view.

Equipment Needed

- ProPack camera
- Type 667 film
- Polaroid PhotoCopy Kit

Step-by-Step Guide

1. Select an exterior and interior location to photograph. Try to shoot on a bright but overcast day that provides ample light without strong shadows.
2. Place the halftone screen in the film pack by sliding it under the wide flange at the tab end of the pack. Insert the screen as far as it will go, then place the other end of the screen under the opposite end of the pack.
3. Load the film pack into the camera.
4. Adjust the ProPack exposure settings to compensate for the darkening screen.
(If your ProPack has special electronics for this application, select the proper setting. If not, place the mini-halftone screen adapter that comes with the kit over the ProPack's electric eye.)
5. Remove or recompose to eliminate any distracting or unattractive elements from the scene (e.g., ladders, trash cans, telephone poles, etc.) Compose and shoot the picture.

6. Pull, time, and peel the image. Make any necessary adjustments to improve exposure or composition, and reshoot the photo if necessary.
7. For your indoor photo, select a feature or architectural detail (such as a fireplace, gourmet kitchen, or antique molding) likely to be a selling point.
8. As with your exterior shot, arrange the scene and remove any distracting or unattractive elements. Compose and shoot the picture.
9. Pull, time, and peel the image. Make any necessary adjustments to improve exposure or composition, and reshoot the photo if necessary.
10. Mount the two finished prints on the page provided at the end of this section.

Tips and Troubleshooting

- Whenever possible, photograph outdoor scenes with the sun behind you, lighting your subject directly from the front. This will help ensure that shadows are falling away from your subject, not across it, and that the automatic exposure works correctly.
- For the indoor photograph, make sure you are standing within flash range of your intended subject.
- Watch for objects — such as mirrors and glass tables — that may produce a glare from the electronic flash. Stand at an angle to such objects.

Additional Resources

ProPack User's Manual

Field Application Notes, "Property Documentation," vol. 2, no. 27; "Real Estate Photography," vol. 2, no. 49; "Halftone Images for Photocopied Documents," vol. 2, no. 58
"Real Estate Photography," Polaroid Guide to Instant Imaging

Polaroid Business Imaging Video "How to Experience the Professional Image by Taking Better Pictures"

Exercise #6

Take insurance photos with the 600BE camera

Customer Need

Clear, accurate photographs of automobiles for the insurance industry. When policies are written, agents and appraisers take photographs of cars, homes and other valuables. When claims are filed, claims adjusters photograph damaged automobiles or properties affected by fire, vandalism, or theft. These insurance professionals need fast, reliable photographic systems that provide reliable documentation.

Polaroid Solution

600BE camera is ideal for insurance documentation. It's inexpensive, durable and easy to use. Photographs are ready in minutes, so insurance professionals can mark them and attach them to applications or claims forms immediately. With instant imaging, there's no possibility of misidentifying images when they come back from the photo lab.

Assignment

Create an image that accurately captures the details of automobile damage.

Equipment Needed

- 600BE (or OneStep Flash)
- Type 779 or 600 HighDefinition film

Step-by-Step Guide

1. Select a damaged automobile to document.
2. Load film into the camera.
3. Shoot from an angle that will reveal the maximum amount of detail without creating glare. (See "Tips and Troubleshooting" below.)
4. Position yourself within the correct focal and flash distances of the camera.
5. Press the shutter.
6. Check the exposure and composition of the image. Make any adjustments necessary and shoot again.
7. Mount the finished image on the page provided at the end of this section.

Tips and Troubleshooting

- Documenting jewelry, automobiles, and other valuables often means shooting metallic objects that can create glare when photographed with electronic flash. Photograph shiny objects from an angle so the flash does not bounce directly back at the camera, causing glare and washed-out images.
- Similarly, try to shoot outdoor scenes on bright but overcast days or with the sun behind you. Strong shadows can obscure the details of the property you are trying to document.
- If you are shooting reflective surfaces that are causing glare (such as chrome bumpers), consider repositioning yourself, overriding the flash, or both.
- Be sure not to work closer than the minimum focus distance of the camera. If you try to document objects from closer than four feet, your pictures will not be sharply focused and will be overexposed.

Additional Resources

- "Insurance Documentation," Polaroid Guide to Instant Imaging
- "Real Estate," Polaroid Guide to Instant Imaging
- "Auto Repair Documentation," Polaroid Guide to Instant Imaging
- "Documenting Antiques and Jewelry," Polaroid Guide to Instant Imaging

Exercise #7

Document vehicle identification numbers with the 600BE camera

Customer Need

Accurate documentation of Vehicle Identification Numbers (VINs). Several states now require photographic proof of an automobile's vehicle identification number (VIN) when the car is registered. Every car sold in the U.S. has a tamperproof label bearing the car's VIN permanently installed on the doorframe. Vehicle inspectors need a fast, convenient way to document VINs, since most state insurance programs mandate photos of the door frame label, and overall photos of the car taken from opposite corners.

Polaroid Solution

Polaroid's 600BE camera with its unique VIN adapter makes VIN photography quick and easy. The VIN adapter also fits other solid body cameras, such as the OneStep Flash or 635CL.

Assignment

Photograph a door-mounted VIN label.

Equipment Needed

- 600BE (or OneStep Flash)
- VIN adapter
- Type 779 or 600 HighDefinition film

Step-by-Step Guide

1. Mount the VIN adapter on the camera.
2. Load the film into the camera. The cardboard film protector will automatically eject.
3. Place the adapter hood firmly against the VIN label.
4. The VIN adapter ensures that the image is focused and properly exposed. Simply press the shutter to take the picture.
5. Check the image to make sure the VIN is completely readable. Repeat any steps necessary. Mount the finished photo on the page provided at the end of this section.

Tips and Troubleshooting

- Be sure not to override the flash.
- Attach the VIN adapter firmly to the camera, ensuring that the hood is held snug to the camera.

Exercise #8

Take a close-up photo of Jewelry

Customer Need

Jewelry photographs for insurance and marketing. Jewelers need 1:1 and close-up images for insurance appraisals and sales. By letting customers take pictures home, a jeweler can move prospects closer to making a sale, while a photograph can sell out-of-town buyers on unique pieces. For these reasons and more, jewelers need photographic systems that accurately document their merchandise.

Polaroid Solution

The Jewelry Pro II, a Spectra 2 camera modified for close-up photography, provides a push-button solution to jewelers who want fast, accurate documentation.

Assignment

Create a 1:1 close-up image of a ring.

Equipment Needed

- Jewelry Pro II camera
- Spectra film
- A non-reflective background

Step-by-Step Guide

1. Load the film into the camera.
2. Place the ring on the non-reflective background.
3. Center the Jewelry Pro II over the ring.
4. Press the shutter to expose the image.
5. Mount the completed image on the page provided at the end of this section.

Tips and Troubleshooting

- Try to select a background material that is both non-reflective and that provides a contrast with the object being photographed. Black velvet, for example, provides a deep, black background that sharply defines the edges of coins and jewelry. Light backgrounds are more appropriate with dark objects.
- It's often helpful to indicate the size of small objects by including familiar objects — such as a dime or the edge of a ruler — within the frame.

Additional Resources

“Insurance Documentation,” Polaroid Guide to Instant Imaging

“Documenting Antiques and Jewelry,” Polaroid Guide to Instant Imaging

Exercise #9

Create a photographic souvenir

Customer Need

Photographs to sell as souvenirs. Sales promoters, fundraisers and entrepreneurial photographers need eye-catching souvenirs and promotional photos. Whether they're given away or sold, the cost per souvenir must be low enough to generate substantial profits. Because camera operators are not likely to be experienced photographers, the photographic systems they choose must be durable, easy to use and self-contained.

Polaroid Solution

The Polaroid PhotoMagic System produces unique, colorful, low-cost and fun souvenirs. It contains all components necessary to create finished photo novelties in seconds, including its pre-made and custom-designed border options and button maker.

Assignment

Create one framed photographic souvenir and one photo button.

Equipment Needed

- PhotoMagic System, including button die-cutter
- Type 779 film
- Two sample transparencies
- Button parts
- Polaroid promotional frame

Step-by-Step Guide

1. Insert the acetate logo for the framed picture into the Type 779 film pack.
2. Load the film pack into the PhotoMagic System.
3. Pose your subject against a white or light-colored background so that his/her head is in the center of the viewfinder. (Remember, the edges of the picture will be filled by the border transparency.) Encourage a relaxed and smiling expression.

4. Press the shutter and watch the print develop. If necessary, make adjustments to the picture's exposure and composition, and reshoot.
5. Insert the completed picture into a Polaroid promotional frame, and store the finished souvenir on the page provided at the end of this section.
6. Remove the Type 779 film pack, and replace the transparency with a new one.
7. Repeat steps 2 to 4.
8. Place the fully developed image into the PhotoMagic button die-cutter. Close the die-cutter, and rotate the handle a full 360°.
9. Remove the cut photo from the button maker. Place the circular image on a button backing, then snap a clear plastic cover over the button.
10. Store this photo button with the framed photo souvenir at the end of this section.

Tips and Troubleshooting

- The PhotoMagic System is prefocused. Make sure your subject is the proper distance from the camera.
- Posing your subject close to a white background will make the photo background blend smoothly into the "logo" produced by the acetate, creating a more attractive product.
- Be sure to retrieve the border from the film pack when you have finished a complete pack of film.

Additional Resources

"Sales Promotion," Polaroid Guide to Instant Imaging
Special Events Ideas Kit

Exercise # 10

Make a print from a slide

Customer Need

Prints from slides. Customers whose primary photographic application involves 35mm slides often need to convert their slides into photographic prints. These customers— including scientists, law enforcement photographers, physicians, medical researchers, business people and professional photographers— all need prints from original 35mm transparencies.

Polaroid Solution

The Vivitar Instant Slide Printer with Polaroid Type 669 color print film or Polapan 100 black and white print film produces instant prints from 35mm slides. Using Type 665 positive/negative film, end users can generate instant black and white negatives for enlarging. If your customers have photographic aptitude, the DayLab II is appropriate. This system allows the customer to use pack, 4 x 5, or 8 x 10 film. It's more adaptable and capable of more advanced results.

Assignment

Make a color print, a black and white print, and a black and white negative from a 35mm color slide.

Necessary Equipment

- Vivitar Instant Slide Printer
- Type 669, Type 665, and Polapan 100 films
- 35mm color slide
- 2 x 2" filters in yellow and magenta

Step-by-Step Guide

1. Turn on the Vivitar Instant Slide Printer and load the Type 669 film.
2. Place the slide on the lighted panel to select cropping. (The aspect ratios of 35mm film and Polaroid pack film are different, so some cropping will always be necessary.)
3. Slide the holder left or right to select cropping.
4. Place the slide in its slot.
5. Set the exposure slider to the center position.

6. Press the exposure button. A flash in the slide printer will expose the film.
7. Pull, time, and peel the print.
8. For a black and white print, load Polapan Pro 100 into the slide printer and repeat steps 5 to 7.
9. For a black and white negative, load Type 665 into the slide printer and repeat steps 5 to 7.
10. Mount the finished prints and negative on the page provided at the end of this assignment.

Tips and Troubleshooting

- A high-quality print starts with a high-quality slide. Select a properly exposed original transparency for best results.

Additional Resources

Vivitar Slide Maker User's Manual

Exercise #11

Create passport and document photos

Customer Need

Accurate images for official purposes. Photo IDs are required for purposes ranging from passports and immigration documents to municipal transportation or recreation passes, to school and business cut-and-paste ID cards. These photos are almost always taken by employees with limited photographic knowledge. So end-users need an easy-to-use photographic system that generates images in the dimensions required for their particular document.

Polaroid Solution

The variety of configurations available with the Polaroid Miniportrait camera means there is a Polaroid solution right for every passport and document.

Assignment

Make a pair of photographs suitable for use on a U.S. passport.

Equipment Needed

- Miniportrait Model 203
- Type 669 color print film
- A plain white background (a roll of white paper, a projection screen, or a window shade are among the readily available materials you might use)
- A second flash unit with electronic "slave" attachment for background light
- A stool for the subject

Step-by-Step Guide

1. Seat the subject four to six feet in front of the background.
2. Position the background flash so that it will illuminate the area behind the head and shoulders of the subject. This background light should be stronger than the Miniportrait flash so that it eliminates shadows and renders the true white background necessary for passport photos. Attach the electronic "slave" trigger to the flash.

3. Load the camera and position it so that your subject is within the correct fixed-focus range and the lens is at eye-level with your subject.
4. Make camera settings (e.g. flash on, ISO 80, usually about f/16)
5. Turn your subject so that her or his legs are at about a 45° angle to the camera. Then turn the subject's face back toward the camera.
6. Encourage a pleasant, relaxed expression from your subject. (Contrary to a widely held belief, smiles are not forbidden on passport photographs.)
7. Through the viewfinder, you'll see a bar near the bottom and a dot near the top. Make sure your subject's chin is no lower than the bar and that the top of her or his head does not extend past the dot.
8. View, focus, and expose the images.
9. Pull the film through the rollers. Time, peel, and view the two identical prints.
10. Note color, composition, lighting, etc. Make any necessary adjustments to your exposure or processing procedure to improve print quality and repeat the necessary steps.
11. Trim the dry, finished prints down to two-inch squares, and place them in a blue presentation folder. Store the folder on the page provided at the end of this section.

Tips and Troubleshooting

- Many document photographs — especially photographs for government-issued documents — have very specific requirements in terms of size, pose of subject, finish, etc. Polaroid has a solution to match virtually all requirements you'll encounter, but you will need to know the requirements before you can recommend the appropriate system.

Additional Resources

Miniportrait Operator's Guide and videotape

Exercise #12

Create photos from a microscope

Customer Need

Photographs to document images seen through a microscope. The scientists, researchers and technicians who use microscopes almost always need to document their work, whether they're medical or university researchers or industrial analysis technicians. Virtually all microscopists need fast, accurate imaging to capture the results of their work.

Polaroid Solution

Polaroid MicroCam camera is designed specially to meet the imaging needs of optical microscopists in a variety of fields.

Assignment

Create a 4 x 5 micrograph.

Equipment Needed

- Microscope
- MicroCam camera
- Specimen

Step-by-Step Guide

1. Select eyepiece. Add an adapter if necessary.
2. Plug in power source.
3. Select film type by pressing the selector buttons on MicroCam until the correct film is indicated. In this case, select Type 339.
4. Eject the dark slide by pressing the shutter button.
5. Look through the microscope's viewfinder.
6. Adjust lighting of specimen.
7. Press trigger to expose image.
8. Evaluate image and adjust exposure if necessary.

Tips and Troubleshooting

- Performing MicroCam demonstrations in conjunction with a microscope dealer can ensure high-quality images.
- Image quality is dependent on the quality of the specimen and the microscope. Have the customer adjust the microscope to ensure optimal results.

Additional Resources

Photomicrography seminar

MicroCam User's Manual

Photomicrography: Instant Imaging through the Microscope.

Exercise #13

Document electrophoresis gels

Customer Need

Documentation of gels. Scientific and medical researchers use the electrophoresis process to identify genetic characteristics and compounds in biological samples. This process produces bands of material suspended in a translucent gel, where the bands' grouping and spacing reveals important information about the genetic make-up of the sample. Since these gels are fragile and deteriorate over time, researchers photograph them to ensure that electrophoresis results are accurately documented and analyzed.

Polaroid Solution

Using the DS-34 and a light box or the MP-4+ with its illuminated baseboard, scientific and medical researchers can create the sub-illuminated electrophoretograms needed to document their work.

Assignment A

Make two 3 1/4 x 4 1/4" black and white instant prints of a stained electrophoresis gel, one without filtration and one with filtration.

Equipment Needed

- DS-34
- Type 667 film
- 1:08 direct screen hood
- Fluorescent light box
- Filter kit for gel photography

Step-by-Step Guide

1. Place the gel on the fluorescent light box.
2. Make two or three test exposures to determine the optimum setting. (Make a record of the exposure you determine, since this should remain constant for your set-up.)
3. Make one unfiltered exposure. Pull, time, peel, and view the print.
4. To increase contrast, create a filtered image of the gel. (Use "Gel Electrophoresis," Polaroid Guide to Instant Imaging and the filter kit instructions to determine the correct kind of filtration for your gel.) Keep in mind that filters absorb light, so you will need to increase the exposure time or widen the aperture. After making the exposure, pull, time, peel, and view the print.
5. Mount both the filtered and unfiltered image on the page provided at the end of this assignment.

Assignment B

Make two 1:1 (life-size) 4 x 5" black and white instant prints of a stained electrophoresis gel (comassie blue), one without filtration and one with filtration.

Pework

- Review MP-4+ instruction manual
- Review Guide to Instant Imaging on electrophoresis and study the instructions for using a light box.

Equipment Needed

- MP-4+, XLR
- Type 52, Polapan 400 film, or Type 57
- MP-4+ baseboard subilluminator, or a separate x-ray viewing box
- Sliding head
- Ground glass focusing panel
- Reflex viewer and hood
- Shutter assembly with cable release
- 135mm or 105mm lens
- Model 545 or Model 545i film holder
- Filter kit including 3-inch square Wratten 8, 12, and 15 filters (yellow/red)

Step-by-Step Guide

1. Place the gel on the illuminated baseboard or lightbox and turn on the light.
2. Size the image on the ground glass by adjusting the bellows length of the camera head.
3. Focus the image by moving the camera head up and down. Critical focus is easier if you place a business card or other sharp-edged sample on the light box during focusing, then remove it.
4. Make a test strip to determine correct exposure and set the correct aperture and shutter speed accordingly.
5. Load film into the film holder, then insert the film holder onto the camera's sliding head.
6. Move the sliding head to the left to position the film holder over the lens.

7. Remove the film's dark slide.
8. Press the cable release to make the exposure.
9. Push the dark slide back in.
10. Move the sliding head back to the right.
11. Process and examine the photograph.
12. Make any corrections needed to improve the image and repeat the necessary steps.
13. Insert the correct filter into the MP-4+ adapter ring.
14. Adjust your exposure to compensate for the filter.
15. Repeat steps 4 to 12 to create a filtered 1:1 image.
16. Mount the unfiltered and filtered images on the page provided at the end of this section.

Technical Information

MP-4 magnification chart

MP-4 and photomacrography depth of field information

Filter and exposure guide from Guide to Instant Imaging

Tips and Troubleshooting

- When doing demonstrations, avoid gels stained with Ethidium Bromide, since they require UV illumination, which can be harmful to your skin and eyes. Choose samples stained with comassie blue.

Additional Resources

- "Gel Electrophoresis," Polaroid Guide to Instant Imaging
- Photomacrography with the MP-4

Exercise #14

Photograph small objects

Customer Need

Photographs that show details of small objects. People in science, law enforcement, security, medicine, business and professional photography need to make photographs that yield life-size or slightly magnified images of the original objects. These images are used for quality assurance documentation, crime scene and forensic evidence documentation, jewelry documentation and other insurables, among hundreds of other applications.

Polaroid Solution

The Polaroid CU-5 provides users with a compact, easy-to-use photographic system that can create instant photomacrographs in several magnifications. The Polaroid MP 4+ is one of the most versatile photomacrographic systems available and it provides instant results. Moreover, the MP 4+ (and its predecessors) meets a variety of other photographic needs customers are likely to face.

Assignment A

Create a 1:1, 2:1, and 3:1 color print of a small, non-shiny object.

Prework

Review MP-4+ instruction manual and video to get more comfortable with the system.

Equipment Needed

- CU-5 pack film body
- Type 669 or Polacolor Pro 100 color print film
- 3" lens
- Power supply, AC or battery
- 1:1 framer
- 2:1 framer
- 3:1 framer
- Two ratio multipliers
- Solid color, non-reflective background material (e.g., cloth, felt, cardboard)

Step-by-Step Guide

1. Position the object on the background.
2. Load film into the camera back.
3. Pull out dark slide from film pack.
4. Set the correct exposure on the lens assembly.
5. Turn on the flash power, set power in the middle position, and test fire the flash when ready.
6. Place camera frame over the object to be photographed. If the object is flat, the frame can rest on the background. If the object has depth, you may have to raise the frame to bring the top of the object into focus.
7. Expose the image.
8. Pull, time, and peel the image.
9. Make any corrections needed to improve the image, and repeat the necessary steps.
10. Add one ratio multiplier and 2:1 framer and repeat steps 6 to 9 for a 2:1 image.
11. Add a second ratio multiplier and 3:1 framer and repeat steps 6 to 9 for a 3:1 image.
12. Mount the three finished photographs on the page provided at the end of this section.

Assignment B

Create a 1:1 and 10:1 color print of a small top-lit object.

Equipment Needed

- MP 4+, Standard or XLR
- Type 59 or 64T film
- MP-4+ tungsten or halogen lighting assembly or, for 10x magnification, the Dolan Jenner Macro Light
- Sliding head
- Ground glass focusing panel
- Reflex viewer and hood
- Shutter assembly with cable release
- 135mm or 105mm lens for 1:1 photography
- Model 545 or Model 545i film holder

Step-by-Step Guide

1. Choose the appropriate film holder and insert the film (Type 59 or 64T)
2. Set the film processing time.
3. Measure the original and image size needed to determine the approximate reproduction scale. In this case, begin with the 135mm or 105mm lens for a 1:1 image. Attach the lens.
4. Open lens to the lowest f-number to provide the brightest image for focusing.
5. Turn the power on.
6. Turn on lighting assembly, if necessary. Adjust the lighting for the subject.
7. Slide camera into view position.
8. Position the subject on the baseboard. If available, a LabJack makes subject positioning and fine focusing easier.
9. Size the image on the ground glass by adjusting the bellows length of the camera head. (See Photomacrography with the MP-4, p. 11, for instructions on achieving the desired magnification. Also, consult the instruction manual (p. 5) for sizing and focusing information.)
10. Focus the image by moving the camera head up and down.
11. Center the subject on the baseboard in the way that you want it reproduced.
12. Move the sliding head to the left to position the film holder over the lens.
13. Use the exposure chart to determine correct exposure and set the aperture and shutter speed accordingly.
14. Remove the dark slide.
15. Press the cable release to make the exposure.
16. Push the dark slide back in.
17. Process the photograph by following the processing instructions in the instruction manual. Examine the photo.
18. Make any corrections needed to improve the image and repeat the necessary steps.
19. For the 10:1 image, replace the MP-4 halogen or tungsten lights with a Dolan Jenner fiber light. Install the 35mm lens and repeat the subsequent steps. Remember, you will need to recalculate the exposure for each magnification.
20. Mount the finished prints on the page provided at the end of this section.

Technical Information

Reciprocity failure chart (MP-4+ Exposure Guide)

Magnification/exposure chart (See Photomacrography with the MP-4+)

Tips and Troubleshooting

- Increasing the depth of field can yield the most informative images. Therefore, select the smallest aperture possible to achieve the greatest depth of field.
- If you are having trouble getting a satisfactory exposure using just the exposure chart as a guide, try a test strip. Your instructor can give you an introduction to creating and using test strips to ensure proper exposure.
- Since photomacrographs typically require relatively long exposures, expect to compensate for reciprocity failure. The MP-4 Exposure Guide takes reciprocity failure into account.

Resources

Photomacrography with the MP-4
MP-4+ User's Manual

Exercise #15

Photograph fingerprints

Customer Need

Images that document fingerprints. Law enforcement agencies routinely create 5x photographic enlargements of fingerprints. These enlargements allow agencies to study fingerprints and to meet standards for scanning fingerprint information into national law enforcement computer networks.

Polaroid Solution

The Polaroid MP-4+ with Type 51HC film creates the high contrast 5x enlargements law enforcement agencies need. The MP-4+ also meets a broad spectrum of other photographic needs facing law enforcement agencies.

Assignment

Create a high contrast 5x enlargement of a fingerprint.

Equipment Needed

- MP-4+, Standard or XLR
- Type 51HC High Contrast print film
- A fingerprint card from a local law enforcement agency
- Baseboard, Standard or XLR
- MP-4+ Lighting assembly
- Sliding head
- Ground glass focusing panel
- Reflex viewer and hood
- Shutter assembly with cable release
- 50mm lens
- Model 545 or 545i film holder
- A small sheet of glass

Step-by-Step Guide

1. Place the fingerprint card on the MP-4+ baseboard.
2. Size the image on the ground glass by adjusting the bellows length of the camera head. (See Photomacrography with the MP-4, p. 11, for instructions on achieving 5:1 images.)

3. Focus the image by moving the camera head up and down.
4. Use the exposure chart to determine correct exposure and set the correct aperture and shutter speed accordingly. Type 51HC speed will be 200 with tungsten or halogen lights.
5. Load Type 51HC into the film holder, then load the film holder onto the camera's sliding head.
6. Move the sliding head to the left in order to position the film holder over the lens.
7. Remove the dark slide.
8. Press the cable release to make the exposure.
9. Push the dark slide back in.
10. Process and examine the photograph.
11. Make any corrections needed to improve the image and repeat the necessary steps.
12. Mount the finished print on the page provided at the end of this section.

Technical Information

MP-4 magnification chart

Tips and Troubleshooting

- If the fingerprint card will not lie flat, place the small piece of glass over it. Be sure the glass is clean and dust free and be on guard for reflections. If reflections are marring your exposures, create an 8 1/2 x 11" black card with a hole cut into the center for the lens. Making sure you can see the fingerprint through the hole, position this card just below the lens during exposure.
- If you have trouble getting a satisfactory exposure using just the exposure chart as a guide, try a test strip.

Additional Resources

- Photomacrography with the MP-4
- "Law Enforcement," Guide to Instant Imaging

Exercise #16

Photograph shiny objects

Customer Need

Documentation of shiny objects. Customers in business, science and industry and medicine often need to photograph shiny objects such as printed circuits, jewelry, gross specimens, and glossy illustrations. These customers may also require large prints to document their work, thus using copystand photography or photomacro-graphy.

Polaroid Solutions

The MP 4+ XLR, with its tremendous versatility both in lighting options and photographic output, can meet almost any photographic challenge, including rendering shiny objects.

Assignment

Create one 4 x 5" and one 8 x 10" print of a shiny object using diffused lighting techniques.

Equipment Needed

- MP 4+ XLR
- Type 59/Type 809
- XLR baseboard
- MP-4+ tungsten or halogen lighting assembly
- TTI AV810 8 x 10 camera head
- 8 x 10 processor
- 8 x 10 loading tray
- 8 x 10 film holder
- MP 4+ shutter and cable release
- 135mm lens assembly
- Diffusion material

Step-by-Step Guide

1. Place the object on the XLR baseboard.
2. Open the shutter and lens to full aperture.
3. Turn on the lights and adjust if necessary. Create diffusion tent by surrounding specimen with light-diffusing material (check with your instructor about what type of material to use).
4. Size and compose the image on the ground glass. The area of interest should fill about 80 percent of the film image area.
5. Focus the image on the ground glass.
6. Close the shutter.
7. Load a piece of 4 x 5" film (Type 59) into the film holder and make a test strip to

determine the correct exposure. Set the aperture and the shutter speed accordingly. (See Photomacrography with the MP-4 for details on creating test strips.)

8. Load another piece of Type 59 film into the film holder and remove the dark slide.
9. Remove the ground glass focusing panel and load the film holder into the camera head.
10. Make the exposure and reinsert the dark slide.
11. Place the receiver sheet into the loading tray.
12. Load the holder on top of the receiver sheet into the loading tray.
13. Time, peel, and view the print.
14. Make any corrections needed to improve the image and repeat the necessary steps.
15. Repeat the process using the TTI 8 x 10 head and Type 809/891 film. [Need to provide step-by-step for use of 8 x 10 head]
16. Mount the finished prints on the pages provided at the end of this section.

Technical Information

Exposure Guide for the MP-4 System

MP-4 Magnification guide for TTI 8 x 10

Tips and Troubleshooting

- When taking the 4 x 5 image practice the techniques of diffused lighting, as highlighted by your instructor and described in Photomacrography with the MP-4.
- 8 x 10" films are not closed systems. A trap paper lines the edge of the receiver sheet which is designed to trap any excess reagent and stop it from leaking out along the edge of the film sandwich. This method usually works, but not always. Edge leakage is a deposit of reagent on the edges of the rollers and on the trap door at the end of the film holder. Reagent can also deposit on several surfaces inside the film processor. Clean these areas frequently.

Resources

Photomacrography with the MP-4

Congratulations! You're on your way!

Now that you've completed this workbook, you should feel confident that you have a good grasp of the major applications for Polaroid photography.

But these exercises are just the beginning of your hands-on use of Polaroid products. As you continue to familiarize yourself with your product line, you'll find many opportunities to learn from more experienced Polaroid professionals. Your District Manager, Applications Manager, and Regional Trainer are all excellent sources of real-world product information.

Every time you handle your products, both your comfort level and your confidence will increase. Use this confidence to your advantage during product demonstrations for dealers and customers. When you look like you've used the product for years, you provide powerful proof that Polaroid cameras and systems provide maximum ease-of-use and high-quality images.

