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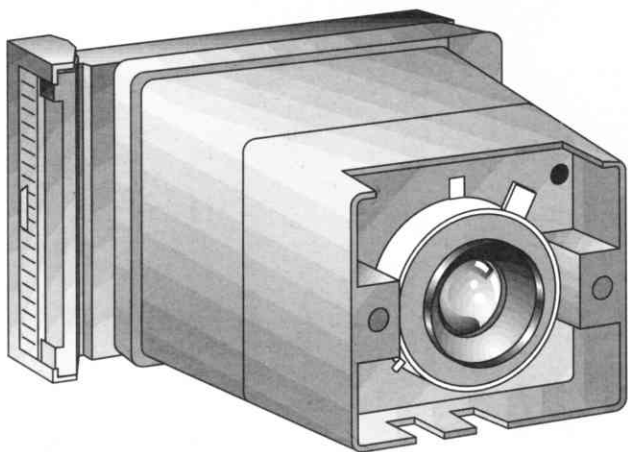
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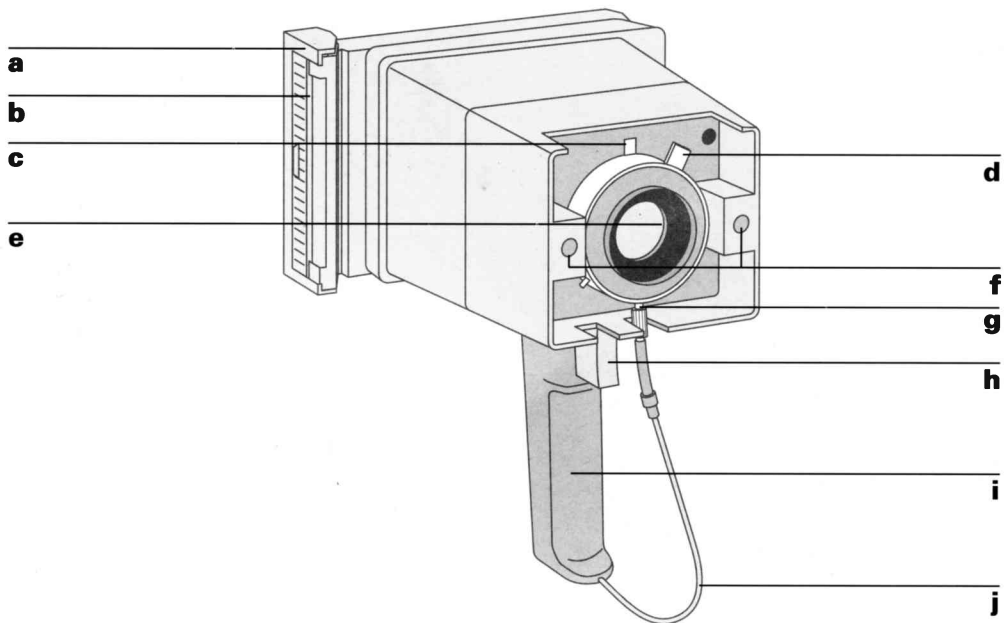
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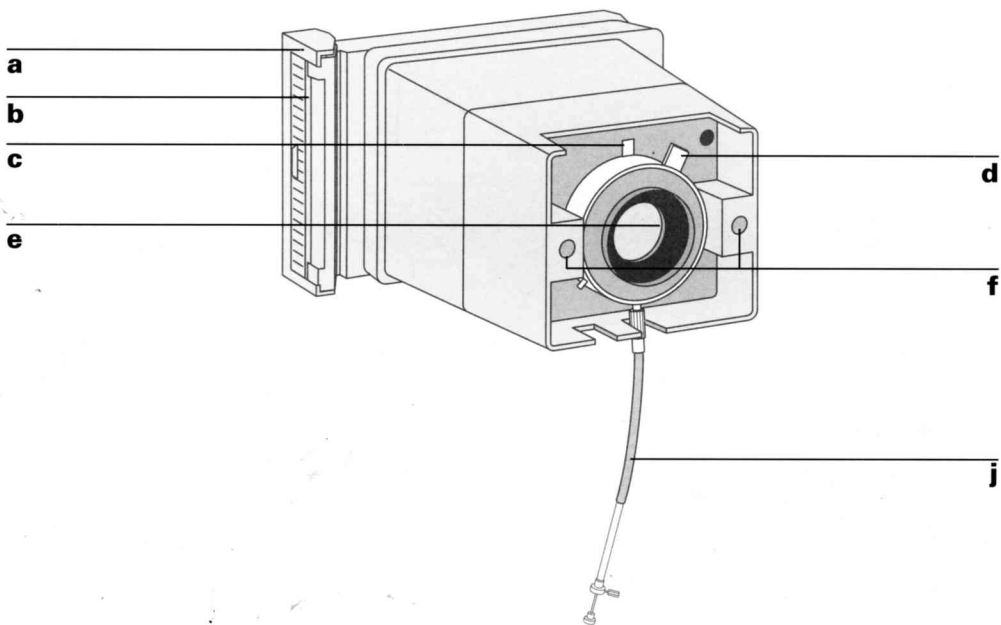
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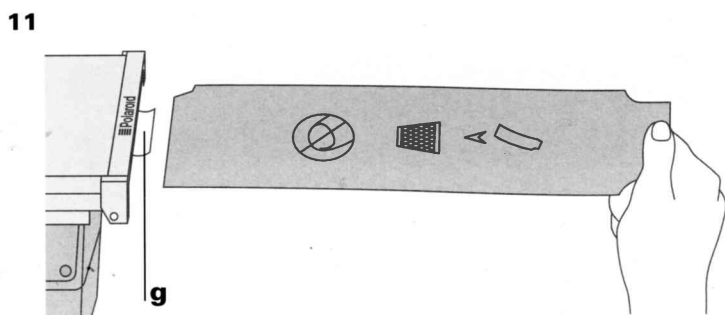
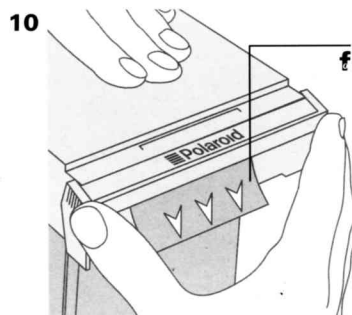
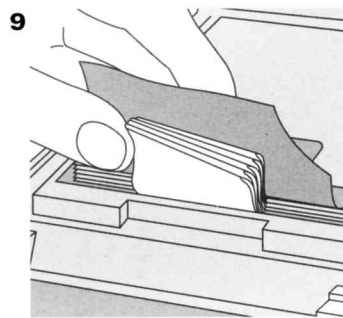
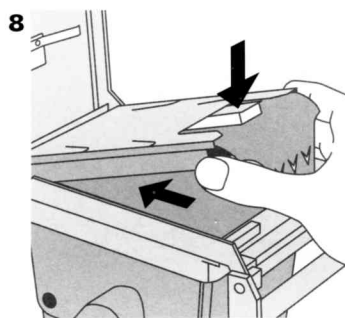
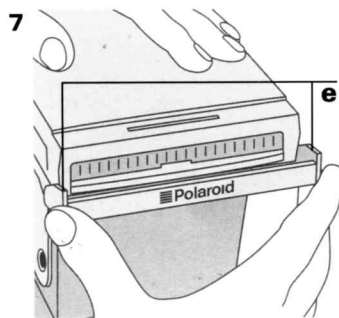
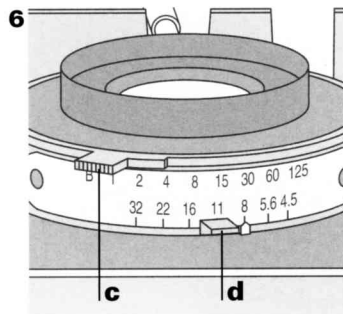
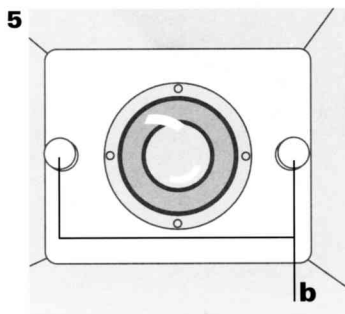
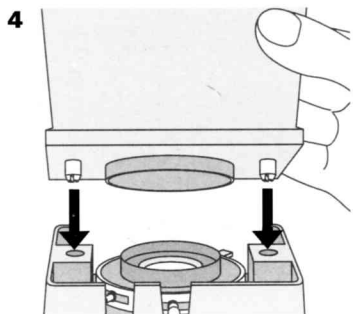
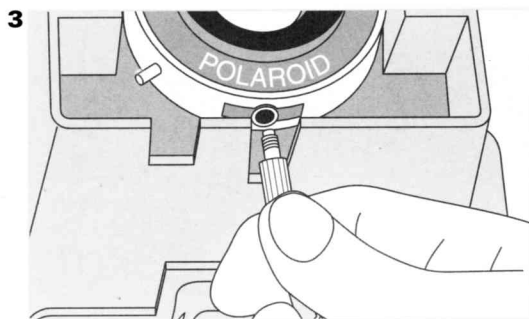
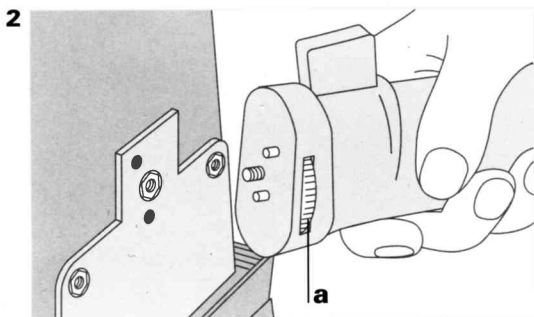


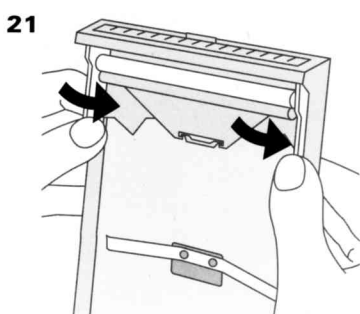
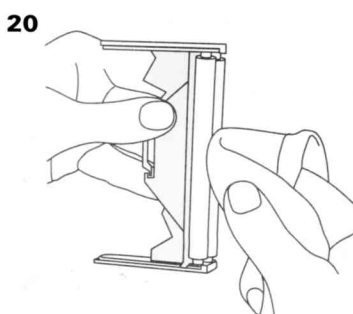
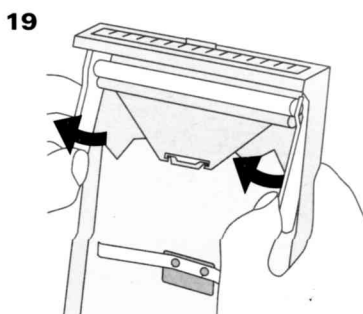
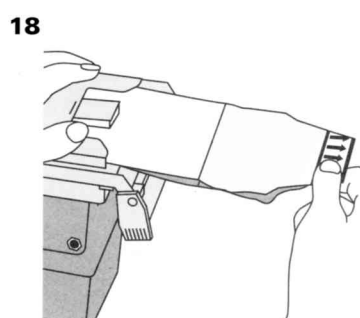
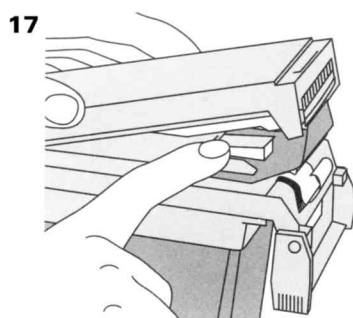
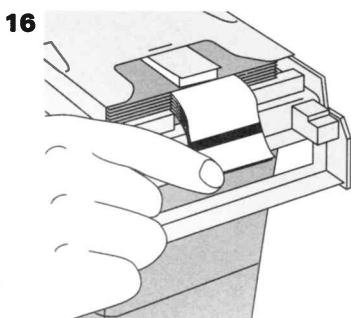
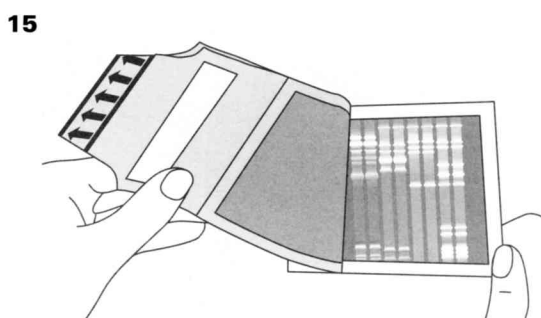
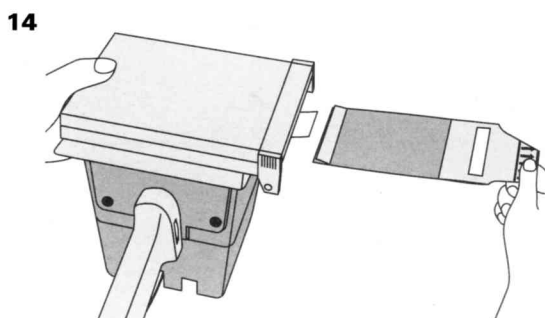
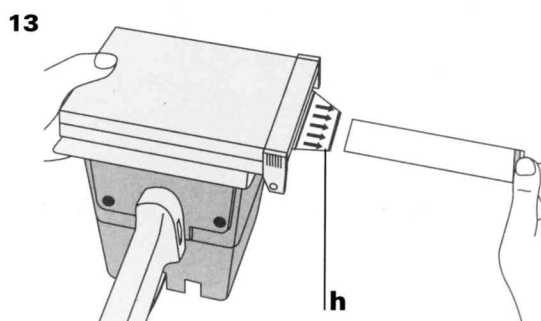
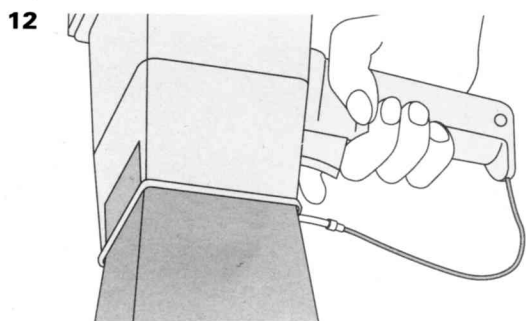
1A



1B







Polaroid GelCam**Contents**

Introduction	1
Technical assistance	1
Camera parts	2
The film	2
Polaroid Electrophoresis Filter Kit	3
Accessory hoods	3
Camera assembly	4
Set the exposure	4
Load the film	5
Make the exposure	5
Process the film	6
Filtration	8
Possible picture faults	9
Care and storage of photographs	10
Warranty	10

Introduction

The Polaroid GelCam is an easy-to-use instant photographic system for photographing electrophoresis gel patterns (or autoradiograms), stained or fluorescent-labeled, using transilluminated light sources. The camera can also be used for other applications such as direct-screen CRT photography.

Snap-on hoods of various sizes make the camera compatible with a variety of gel formats. Each hood has a built-in lens, ensuring proper magnification and sharp focusing of your image.

The camera uses Polaroid instant peel-apart pack films, including high-speed black-and-white films, ideal for electrophoresis gel recording. Electrophoresis filters, available in an accessory kit, allow you to enhance the details in your images by increasing the contrast in black-and-white prints.

Technical assistance

If you ever need additional help in the use of your Polaroid GelCam, or advice on any other photographic problem, call us, Mon.-Fri., 8 AM to 8 PM (Eastern Time). From anywhere in the U.S.A., call toll free at 1-800-343-5000. Or, write to the Customer Care Center, Polaroid Corporation, 201 Burlington Road, Bedford, MA 01730. From anywhere in Canada, call toll free at 1-800-268-6970.

For assistance outside North America, contact the nearest Polaroid office (see the back page for a list of offices.)

The numbers throughout the text refer to the illustrations on the fold-out pages at the back of the booklet.

Camera parts

Refer to picture **1A** if your GelCam comes with a hand grip (cameras sold within the U.S.). Refer to picture **1B** if your GelCam comes with a cable release (cameras sold outside the U.S.).

- a** Door latch
- b** Film tab slot
- c** Lens aperture control
- d** Shutter speed control
- e** Lens (105mm, f/4.5–f/32)
- f** Hood sockets
- g** Cable release socket
- h** Hand-grip trigger
- i** Hand grip
- j** Cable release

The film

The GelCam uses Polaroid instant peel-apart pack films with a print size of 3¼ x 4¼ in. (8.3 x 10.8 cm). Refer to the list below. The instructions packed with the film contain the most up-to-date information on exposure and processing times. For detailed information about each film, contact the Customer Care Center or the Polaroid office nearest you to request a data sheet.

Time, temperature and development:

The ideal development temperature for all films is about 70-75°F (21-24°C). When it is much warmer or colder, you may need to adjust the development time or the exposure. The adjustment varies from type to type; the film instructions contain full details.

Polaroid films for the GelCam:

- High-speed, coaterless, black-and-white film, Type 667
- Positive/negative, black-and-white film, Type 665
- High-speed black-and-white film for CRT recording, Type 084
- Ultra high-speed, high-contrast, black-and-white film for CRT and instrument recording, Type 612

Polaroid Electrophoresis Filter Kit

This filter kit is designed for use with the GelCam and is available as an accessory. The kit contains the three filters most commonly used when photographing electrophoresis gels. The filters are for use with black-and-white films only. Each glass-covered filter is in a 40.5mm threaded mount, to fit the GelCam lens.

Filter	Electrophoresis gel
#8 yellow	ELISA stain Coomassie Blue stain
#58 green	Silver stain SYBR Green stain
#15 orange	Ethidium Bromide stain

Accessory hoods

Designed to place the camera the correct distance from your subject, special accessory hoods are available in various sizes for specific applications. The electrophoresis hood allows you to frame the gel on the light box or transilluminator, blocks out ambient light, and contains a supplementary lens to focus the image properly. The selected hood should just fit over the gel to ensure maximum use of the image area. For specifications and recommendations on which hood is appropriate for your electrophoresis application, contact your Polaroid dealer. Accessory hoods are also available for direct-screen CRT photography.

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Camera assembly

Within the U.S.: When sold within the U.S., the GelCam comes with a hand grip that attaches to the camera base. The hand grip has a built-in cable release.

The GelCam hand grip screws into a standard tripod socket on the bottom of the camera; additional pins and holes prevent it from turning. Align the screw on the hand grip with the socket on the camera (2) and tighten the ring (2a) firmly. Then screw the hand-grip cable release into its socket (3).

For some applications, you may prefer to use a separate cable release in place of the hand grip. An optional cable release is available as a GelCam accessory. Contact your Polaroid dealer for more information.

Outside the U.S.: When sold outside the U.S., the GelCam comes with a standard cable release that screws into the socket at the bottom of the GelCam lens assembly (3). An optional hand grip with a built-in cable release is available in selected markets as a GelCam accessory. Contact your Polaroid dealer for information on its availability.

Attach the filter: Select the filter appropriate for your electrophoresis application; refer to the list on page 3. (For exposure recommendations, refer to the section, *Filtration*, on page 8.) Rotating the filter clockwise, screw it into the threaded mount of the GelCam lens.

Attach the hood: Select the appropriate hood for your application. Place the hood against the front of the camera so the pins on the hood fit into the sockets on the camera (4). Then reach inside the hood and push the buttons (5b) in firmly, to lock the hood to the camera. Take care to avoid touching the lens. To remove the hood, release the buttons (pull them gently outward); never attempt to remove the hood without first releasing the pins.

Set the exposure

Move the lever (6c) to align the red indicator with the appropriate shutter speed. It should click into position. Never set the indicator between shutter speeds. Move the lever (6d) to place the pointer opposite the desired lens aperture. The lens may be set *between* full aperture settings.

See page 8 for suggested aperture and shutter speed settings for your application.

Filtration: For black-and-white photography, high-contrast images of your electrophoresis gels are essential, and color filtration improves the contrast of your black-and-white gel photographs. For best results use the electrophoresis filter appropriate for the stain technique you are using. Avoid using acetate filters as they can distort the optical path of the camera.

Load the film

Unlatch and open the door: Pull down the latching cover (7e) and open the door.

Before loading the film, check that the steel rollers are clean. Dirt on the rollers may cause a number of picture problems, such as repeated spots or bars on pictures, and jammed film. If necessary, clean the rollers as explained in *Cleaning the developer rollers*.

Hold the film pack by the edges only. Push the closed end of the pack in at an angle. Then push it down into the camera (8).

Check that the white tabs are free, as shown (9), not caught between the pack and the camera.

Close and latch the door: Hold the door closed and push the latching cover up over the end of the camera (10), so it clicks into position.

The end of the film safety cover (10f) must stick out of the slot. If it does not, reopen the door and straighten the tab so that it does.

Grip the end of the film safety cover firmly and pull it straight, all the way out of the camera (11).

When the safety cover is removed, a small white tab (11g) should stick out of the slot. If not, see *No leader tab?*

The camera is now loaded and ready for the first exposure.

Make the exposure

Place the hood over your subject, and (depending on the shutter-release mechanism your camera has) squeeze the hand-grip trigger (12) or press the cable-release button (1B-j) to release the shutter.

Note: Place the camera hood firmly against the light box or transilluminator to prevent ambient light from reaching the film. When using long exposure times, keep the camera steady, to ensure a sharp image.

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Process the film

You must pull the film tabs straight out, to assure proper picture development. Hold the camera as shown while pulling the tabs.

Pull the leader tab: Grasp the white leader tab and pull it straight out of the camera (13). A large processing tab (with arrows) appears (13h). If no processing tab appears, follow the instructions in *No processing tab?*

Pull the processing tab: Grip the processing tab in the center and pull it straight, at moderate speed, without hesitation, all the way out of the camera (14). The picture is now developing, so start timing. The recommended processing time is specified in the film instructions. Do not disturb the print while the film is developing.

After the full processing time, separate the print from the negative, starting at the end nearest the tab (15). Do not allow the print to drop back onto the damp negative. See *Caution*.

See *Care and storage of photographs* for full details on the care and handling of prints and negatives.

Caution: The Polaroid instant film process uses a caustic paste. Avoid letting the paste come in contact with skin, eyes and mouth and keep it away from children and animals. **If you get some paste on your skin, wipe it off immediately and wash with water to avoid an alkali burn.** If eye or mouth contact occurs, quickly wash the area with plenty of water and see a doctor. Keep discarded materials away from children, animals, clothing and furniture.

No leader tab? Carefully open the door and push the tab out (16). Then close and latch the door with the tab outside.

No processing tab? Do not pull another leader tab. Instead, do the following in dim light:

- Carefully open the door without moving the film pack. You can use a fingertip to hold the pack in position (17).
- Take hold of the processing tab that failed to come out, and gently pull it all the way out of the camera (18) and discard it.
- While the door is open, inspect and clean the developer rollers if necessary. Then close and latch the door, with the next leader tab outside.

If you accidentally pull two leader tabs in a row: You will get two processing tabs out at the same time. Both pieces of film will be ruined, and unless you are careful, you may lose a third picture.

Do not open the camera. Grip both processing tabs firmly, pull them both out together, and discard both pieces of film. This may cause developer to be spread around the inside of the camera. Open the door and, without disturbing the film pack, clean the camera and developer rollers.

Cleaning the developer rollers: With both hands, lift the steel loops and remove the roller assembly (19).

Clean both rollers with a soft, lint-free cloth, dampened with water if necessary (20). Or, hold the roller assembly under clean running water. Rotate both rollers as you clean and inspect them. (Note that one rollers turns more easily than the other.) Never scrape the rollers with anything metallic, nor with your fingernail; do not attempt to disassemble the rollers.

Blow out any dust or lint in the back of the camera. Then replace the roller assembly. Slide the rollers into position, then push the steel loops down flat (21).

Filtration

As filters absorb light, be sure that your gel is properly illuminated. You must compensate for the use of the filter by increasing the exposure time or by using a wider aperture. Experiment to achieve the proper exposure for the light source you use and the degree of contrast you want.

Use the camera settings below for initial testing, and make adjustments as needed. If your test pictures are too light, use a smaller lens aperture (higher f-number), or a shorter exposure time. If too dark, use a larger lens aperture (lower f-number) or a longer exposure time.

Note: Using a smaller aperture yields a greater depth of field. Use f/16 whenever possible.

Warning: The Ethidium Bromide and SBYR Green stain techniques require the use of an ultraviolet transilluminator. Follow the manufacturer's recommendations for safety. When using an ultraviolet transilluminator, always wear a full face shield and protective hand gloves. Cover the exposed areas of the transilluminator filter with foil or something similar to protect anyone in the near vicinity.

Check the shutter and aperture settings of the camera, position the camera onto the hood pins and operate the shutter release.

Note: Ultraviolet light generates a low level of illumination. Use a high-speed film to preserve the depth of field and image sharpness.

Gels stained with ethidium bromide require relatively long exposure times. Use a cable shutter release to minimize the potential for camera movement.

Stain	Illumination	Exposure
Ethidium Bromide	UV transillumination (302 nm)	f/16, 1/4 sec.*
SYBR Green	UV/white light transillumination (254/497 nm)	f/16, 1/4 sec.*
Coomassie Blue	White light transillumination (400-700 nm)	f/16, 1/30 sec.*
ELISA	White light transillumination (400-700 nm)	f/16, 1/30 sec.*
Silver	White light transillumination (400-700 nm)	f/16, 1/30 sec.*

*Exposure times are based on Polaroid Type 667 film (ISO 3000). Use longer exposure times or wider apertures if you use a lower-speed film.

Possible picture faults

Repeated white spots: Marks like these are caused by dirt on the steel developer rollers. Inspect these rollers before loading film, and clean them if necessary.

Curtain-shaped mark or broad streak: If the processing tab is pulled part-way and then stopped briefly, one of these marks results. When the hesitation occurs early in the pull, a curtain-shaped mark along the picture edge occurs. When the pull is stopped about halfway, you are likely to get a broad streak. Always pull the tab out in one uninterrupted motion.

Oblong in print: This indicates that you did not pull the leader tab all the way out. When you pulled the processing tab, the leader tab was pulled back into the camera, thus spoiling the picture. Always pull the leader tab all the way out.

Undeveloped edges or corners:

These are usually caused by pulling the processing tab out at an angle. This prevents the developer from being spread evenly over the picture. Always pull the processing tab straight and smoothly, all the way out.

Many small white specks: These are a sign that you pulled the processing tab too swiftly. Try to pull the processing tab a little less rapidly.

Muddy looking print: The picture was not processed long enough. Process films for the full time recommended in the instructions.

Very light image or no image at all:

The film was greatly overexposed or it was accidentally fogged. Be sure your exposure is based on the correct film speed. Pulling out the safety cover before you put the film pack in the camera, or removing the film pack from the camera after you pull out the safety cover causes the top sheet of film to be fogged.

Nearly black or solid black image:

If no detail at all is visible, your equipment may not be functioning. Have it inspected.

UV tubes appear on film: This results if you forget to use the filter. See *Filtration*, page 8, for recommendations.

Care and storage of photographs

Prints and negatives can be adversely affected by improper storage or handling. Allow prints to dry thoroughly before stacking or filing. Treat the negatives as directed in the film instructions. To protect image density during storage, insert prints and negatives in individual protective covers (as recommended below) and keep them in a cool area (below 75°F/24°C) with low relative humidity. Do not file prints face-to-face or in contact with conventionally-processed photographs, radiographs or xerographic copies.

For long-term storage, use seamless envelopes or sleeves made of acid-free paper, cellulose acetate, polyethylene or polyester. Avoid using glassine envelopes, unstable plastics (such as PVC), ordinary black album paper, brown Kraft paper, and cardboard. If necessary, staples may be used to attach the storage sleeves (not the prints) to documents.

Warranty

Your Polaroid GelCam has been thoroughly tested and inspected before shipment. All parts are guaranteed to be free of defects in materials or workmanship for one full year from the date of original shipment. During this period, any such defects will be remedied by Polaroid Corporation, without charge, except for transportation costs. To make returns, pack the unit carefully in its original shipping container and ship it to the nearest Polaroid Service Center. (See the list of addresses on the back page.)

U.S.A. and Canada: This warranty excludes all incidental and consequential damages. All expressed or implied liability for this equipment including but not limited to the implied warranty of merchantability and fitness for a particular purpose are limited in duration to the one-year warranty period.

Some states do not allow the exclusion or limitation of incidental or consequential damages or the duration of implied warranties so the above limitations may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which may vary from state to state.

Outside the U.S.A. and Canada:

This warranty excludes consequential damages and does not affect your statutory rights.