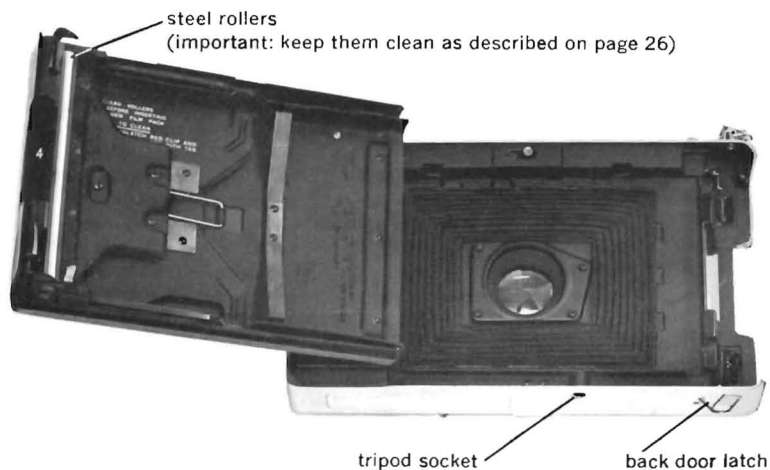
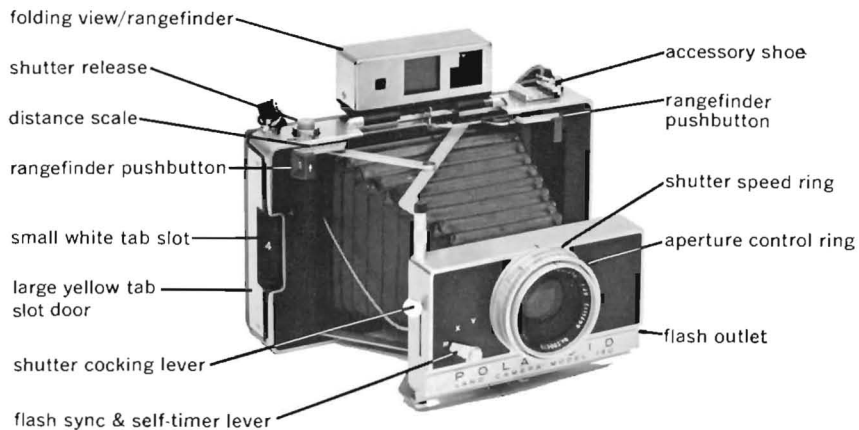




**How to use the  
Polaroid Land camera  
Model 180**



## JUST A MINUTE, PLEASE

Eager as you may be to get at your new camera and begin making pictures, please take the time to go through this booklet carefully before loading film.

As you read the text and look at the pictures, go through all the motions of using the camera — without film.

Once you get the simple operating routine down pat, load a film pack. We suggest that you start with black and white. Please remember that even the finest camera and film need some help from the photographer if they are to produce good pictures. That help can be summed up in one sentence: **Plan and think before you shoot.** As a starter, read carefully the instruction sheet packed with your film. Those instructions may change from time to time, so it's a good idea to review them occasionally.

As a quick guide to help you get a good picture every time, here are eight helpful hints. They're important.

1. **Be careful about exposure.**
2. **Move in close**, to get a big image in the print.
3. **Focus accurately.**
4. **Choose colorful subjects** for your color pictures.
5. **Pick a good background**, particularly with flash.
6. **Pull the tabs correctly.**
7. **Time development carefully.**
8. **Keep an eye on the temperature.**

As you go through this booklet you'll find these eight points explained in detail. They can make the difference between getting good pictures and poor ones.

---

## THE CAMERA

The Model 180 is an extremely versatile camera that meets the highest standards of professional quality and picture taking ability.

Its 114mm, f/4.5 Tominon lens has four elements and is of the Tessar type. The lens is highly color corrected and all air-to-glass surfaces are coated to reduce internal reflections and improve image quality.

The lens is mounted in a Seiko SLV between-the-lens shutter, and this shutter/lens combination gives the cam-

era extraordinary exposure capabilities. The shutter is described on page 8.

For accurate focusing, the lens is coupled to an easy-to-use combined range/viewfinder specially designed and made for this camera by the famous German firm, Zeiss Ikon.

The picture development system is similar to that used in other Polaroid pack film cameras. Pictures are developed outside the camera, producing color prints in a minute and black and whites in 15 seconds.

## THE FILM

Two kinds of Polaroid Land pack film are presently available for use with the Model 180 camera: 3000 speed black and white, Type 107, and 75 speed color, Type 108. Each pack produces eight 3¼ x 4¼ in. (8.3 x 10.8 cm) pictures.

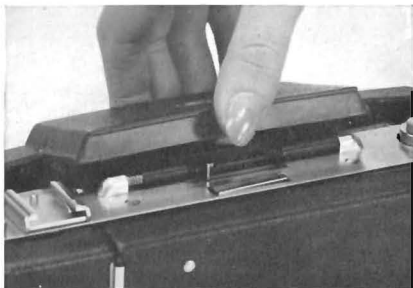
There may be additional types of pack film in the future.

Complete instructions for loading and using film packs are given elsewhere in this booklet and in the instruction sheet packed with the film.

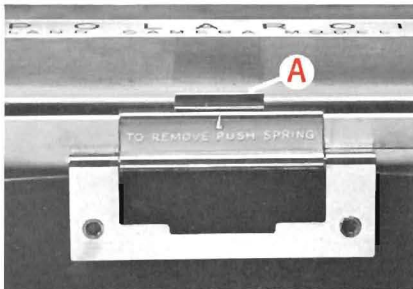
## HOW TO OPEN THE CAMERA

A magnet holds the top of the cover down. Lift the back edge.

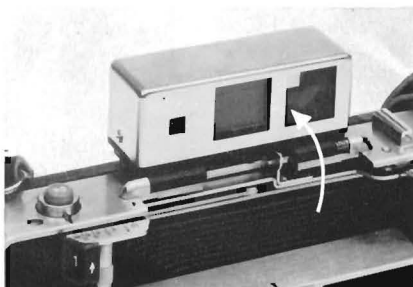
You can let the cover hang down while using the camera.



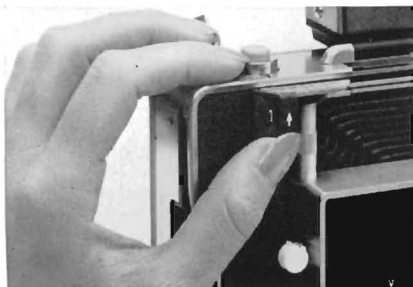
Or, to remove the cover, push in on the spring (A) and lift.



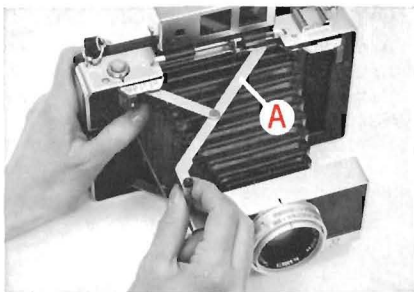
Lift the finder up and back; the magnet will grip it.



Raise button No. 1; this unlocks the front of the camera.

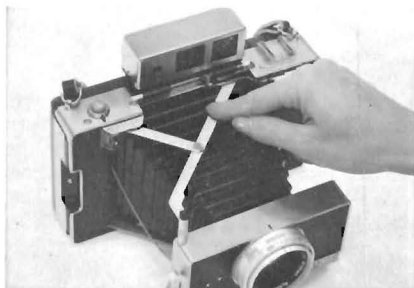


Pull the camera front out as far as it will go, until there is a definite click and the locking bar (A) snaps into place. If the front isn't fully out and locked, your pictures will be blurred.

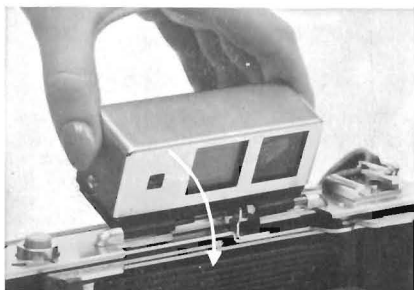


## HOW TO CLOSE THE CAMERA

Press down on the locking bar. This releases the front of the camera. Push the front in all the way until it locks.



A magnet holds the finder up. Fold the finder down gently. Try not to bang it on the camera.



To replace the cover, slide the hinge down over the lock spring until it snaps into place. Swing the cover up; the magnet on top of the camera will hold it in place.



## HOW TO HOLD THE CAMERA

**Horizontal:** Grip the two ends. Place your forefingers on the No. 1 buttons; you can easily shift the right forefinger to No. 2 button.

To steady the camera, press your elbows into your ribs; rest the camera against your nose.



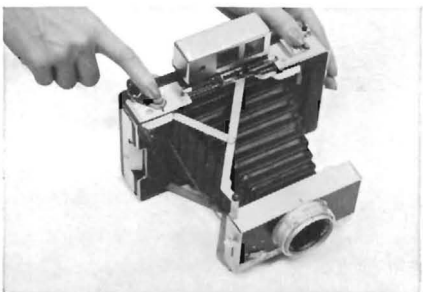
**Vertical:** Grip the camera as you would for a horizontal picture, then turn it so your right hand is below. Brace the camera against your forehead and face.



## IN DIM LIGHT

When you're shooting at shutter speeds slower than  $1/30$  sec., the camera must be rock steady or your pictures will be blurred. A tripod is the best support.

If you don't have a tripod, rest your elbows on something. Or, set the camera on a flat, solid surface and press the back down firmly to prevent movement.



## HOW TO FOCUS THE CAMERA

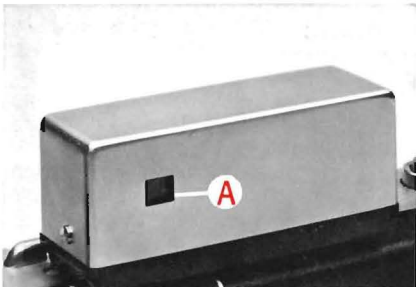
The Model 180 has a single window, combined rangefinder/viewfinder with a projected bright frame line that automatically adjusts to the correct size as you focus the camera.

Holding the camera horizontal, place your forefingers on both No. 1 buttons and push them all the way to your left.



Look through the range/viewfinder window (A) and aim the bright spot in the center at a nearby subject (about 4 ft. away, for example).

**Keep your eye centered in the finder window**, or you will be unable to see the bright spot.



You should see two images of your target in the bright spot; this means the camera is not focused for that distance.

**OUT OF FOCUS →**



**IN FOCUS →**

Push the No. 1 buttons back and forth until the two images in the bright spot become one — sharp and clear. Now the camera is focused. Center your subject in the frame and shoot.

For vertical pictures, focus with the camera horizontal; turn it to vertical position to aim and shoot.



## THE EXPOSURE CONTROLS

**Shutter speeds:** The shutter has 10 speeds, ranging from 1 sec. to 1/500 sec., plus a B setting for time exposures. These are set by turning the shutter speed ring (A). The normal setting for flash (1/60) is marked in yellow.

When setting shutter speeds, be sure that the arrow points directly at the speed number, not between two numbers.

**Lens openings:** They can be varied from wide open (f/4.5) to the tiniest aperture (f/90) by turning the aperture control ring (B). There are click stops at every f-number and halfway between the f-numbers.

The recommended settings for bright daylight and flash color pictures are marked in red (f/11, f/8).

The recommended settings for bright daylight and flash black and white pictures are marked in blue (f/64, f/45).

**EV numbers:** Although the f-numbers are there if needed, ordinarily it's simpler to disregard them and set exposure with the EV numbers visible in an opening (C) in the shutter speed ring.

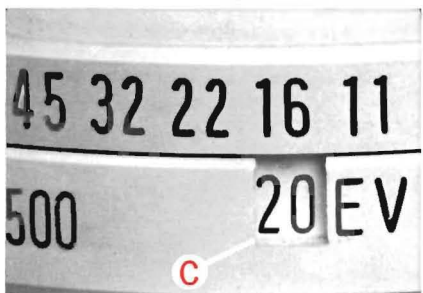
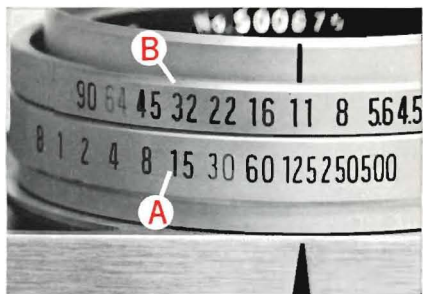
On this camera the EV numbers range from EV 5 to EV 22. Each EV number represents the exact amount of light that must pass through the lens to produce a picture that is correctly exposed — not too light, not too dark.

Examples: With average subjects in bright sunlight, EV 14 is the basic exposure for color film and EV 20 is the basic exposure for black and white.

To set an EV number, first turn the shutter speed ring to the desired speed mark, then turn the aperture control ring to the right EV number. To change to a higher or lower EV number, move either the shutter speed ring or the aperture control ring.

Low EV numbers, such as 8, 9, 10, represent slow shutter speeds and wide lens openings for use in dim light.

High EV numbers, such as 18, 19, 20, represent fast shutter speeds and small apertures for use in very bright light.



When you turn the aperture control from one EV number to the next higher one you cut the exposure in half. Turn it again to the next higher number and once again you cut exposure in half. And so on, up to the highest EV number — exposure is halved at each step up.

When you turn the aperture control from one EV number to the next lower one, you double the exposure. Turn it again to the next lower number and once again exposure is doubled. And so on, down to the lowest EV number — exposure is doubled at each step down.

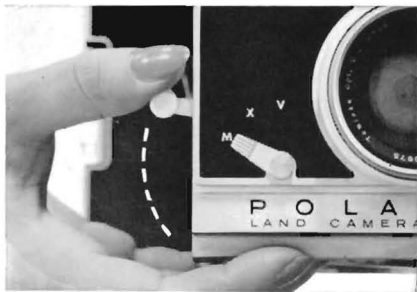
At EV 5 the exposure is about 130,000 X the exposure at EV 22. With this enormous range you can handle practically any picture situation with EV numbers.

There is a click stop at each EV number, and also between the EV numbers to permit a small change in exposure. For example, for EV 13½ set the aperture control between EV 13 and EV 14.



## HOW TO COCK THE SHUTTER

Push No. 3 button down as far as it will go and let it come up. This cocks the shutter mechanism so it will operate when you press No. 2 button. If you forget to depress No. 3 button, nothing will happen the next time you try to take a picture except that you will be disappointed.



## HOW TO RELEASE THE SHUTTER

No. 2 button is the shutter release. Press it slowly with your forefinger until you hear a definite click. Don't jab at it — you may shake the camera.



## HOW TO MAKE TIME EXPOSURES

To make a time exposure, set the shutter speed ring to B. The shutter must be cocked just as for a snapshot.

Press No. 2 button to open the shutter, which will stay open as long as you hold down No. 2 button. To close the shutter, let No. 2 button come up.

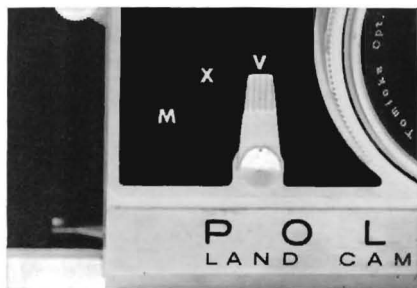
Use of a cable release and a tripod is recommended for all time exposures.



## THE SELF-TIMER

The shutter has a built-in self-timer. Either before or after you set the desired shutter speed, move the lever to V, as shown. When you press No. 2 button a timing mechanism will give you about 10 seconds to get into your own picture before the shutter clicks.

The self-timer may be used for flash or electronic flash pictures. Setting the self-timer automatically sets X flash synchronization. Use 1/30 sec. shutter speed for flash pictures made with the self-timer.



## CHOOSING SHUTTER SPEED AND LENS OPENING

One EV number can stand for several combinations of shutter speeds and lens openings, all giving the same exposure.

For example, at EV 14 you have a choice of eight combinations ranging from 1/500 sec. at f/5.6, to 1/2 sec. at f/90. If you grip both the shutter speed ring and the aperture control ring, you can turn them together to any one of the eight combinations. Which is the best one to use?

In general, you should use as small an aperture as possible in any given situation, while at the same time keeping the shutter speed fast enough to avoid blurring due to camera shake.

For most people, 1/125 sec. is a safe speed; some can use 1/60 sec. without shaking the camera. At 1/30 sec., most people will shake the camera unless they brace themselves carefully. At speeds slower than 1/30 sec. the camera should be resting on a solid support, such as a tripod.

Still using EV 14 as an example, you can also choose special settings for various needs. To stop very fast action, 1/500 sec. and f/5.6 (you'll have to focus carefully with such a wide aperture). Or, to get both near and far objects into sharp focus at the same time, f/45 and 1/8 sec., for which you'll probably need a tripod.

## THE ZONE OF SHARP FOCUS, OR DEPTH OF FIELD

When you focus on the most important part of a nearby subject, some other parts in the foreground and background of the scene will also be in sharp focus in the picture. The distance between the nearest and farthest points in sharp focus is called the zone of sharp focus, or the depth of field.

In any given situation the smaller the

aperture the greater the zone of sharp focus. At very small apertures (such as f/64) with the distance scale preset to 6 ft., practically everything in the scene, from near to far, will be in sharp focus.

However, when the lens is set to a relatively wide aperture, such as f/5.6, the zone of sharp focus is quite shallow, so it's important to focus carefully.

The table below shows the depth of field at various apertures and distances.

Distance	f/4.5	f/8	f/16	f/45	f/64	f/90
3.5'	3'4"-3'7"	3'3"-3'9"	3'0"-4'1"	2'6"-6'3"	2'2"-9'9"	1'11"-51'0"
4'	3'9"-4'2"	3'8"-4'4"	3'5"-4'10"	2'8"-8'2"	2'5"-15'7"	2'1"-Inf.
5'	4'8"-5'3"	4'6"-5'7"	4'1"-6'5"	3'1"-14'4"	2'8"-99'2"	2'4"-Inf.
6'	5'6"-6'5"	5'3"-6'11"	4'8"-8'3"	3'5"-29'1"	2'11"-Inf.	2'6"-Inf.
8'	7'3"-8'10"	6'9"-9'9"	5'10"-12'8"	4'0"-Inf.	3'4"-Inf.	2'9"-Inf.
10'	8'10"-11'5"	8'1"-13'0"	6'10"-18'9"	4'5"-Inf.	3'8"-Inf.	2'11"-Inf.
15'	12'6"-18'8"	11'1"-23'1"	8'10"-51'8"	5'2"-Inf.	4'1"-Inf.	3'3"-Inf.
25'	18'9"-37'4"	15'9"-61'3"	11'7"-Inf.	6'0"-Inf.	4'7"-Inf.	3'6"-Inf.
50'	30'1"-150'10"	23'0"-Inf.	15'0"-Inf.	6'9"-Inf.	5'1"-Inf.	3'9"-Inf.
Inf.	74'11"-Inf.	42'4"-Inf.	21'4"-Inf.	7'10"-Inf.	5'7"-Inf.	4'1"-Inf.

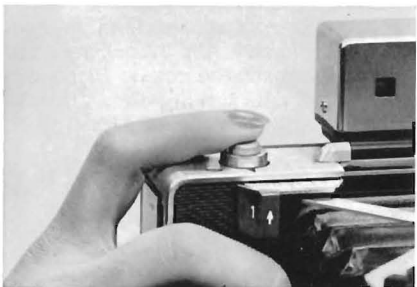
## PRACTICE THE 1, 2, 3 SYSTEM

**ONE** is for focusing. Look through the finder and aim the bright spot at various subjects. Push the No. 1 buttons and practice bringing together the two images of your subject in the bright spot to make one clear image. Then center your subject inside the bright frame line.

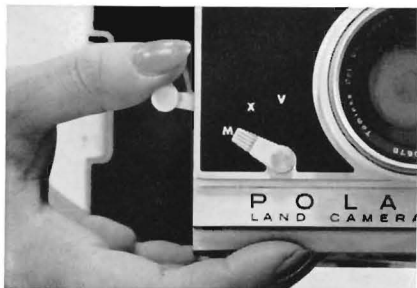


**TWO** is for shooting. Practice pressing the No. 2 button slowly until the shutter clicks. In dim light hold No. 2 down and stay very still until you hear the second click as the shutter closes.

If nothing happens when you press No. 2, perhaps you forgot to reset No. 3.



**THREE** is for resetting. After snapping a picture always push down No. 3 button firmly; then let it come up again. This resets the shutter for the next picture. If you don't reset No. 3 button, nothing will happen when you press No. 2 button for your next picture.



## OPEN THE FILM PACKAGE

Open the top of the box. In addition to the instruction sheet (please read it) there's a set of print mounts with color film, and a coater in a tube with black and white film.

Remove the film package. Handle it gently. Save the box to carry prints in safely.

Hold the package near the edges. Don't press on the middle of the package or you may damage one or more pictures.

Tear open the entire side of the package along the dotted line; then rip apart the front and back and lift out the pack. Handle it only by the edges. Dispose of the moisture absorbing card that lies flat against the pack of color film.



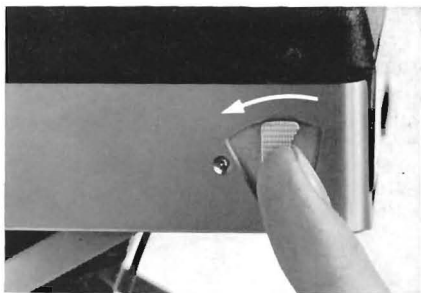
## SPECIAL EXPOSURE INSTRUCTIONS

On some color film packs you may find printed instructions to set the Lighten/Darken control of electric eye cameras one mark toward Lighten for all pictures made with that pack. This is done to increase the exposure for all pictures made with that pack.

To give the same exposure increase with the Model 180, first determine the correct exposure with your meter or from the chart on page 16. Then set the aperture control ring halfway (one click) toward the next lower EV number or f-number. Do this for all pictures made with that pack.

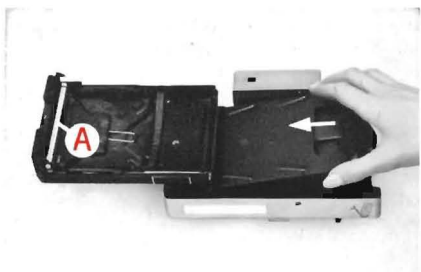
## HOW TO LOAD A FILM PACK

Push the back door latch; the door will pop up a short distance.

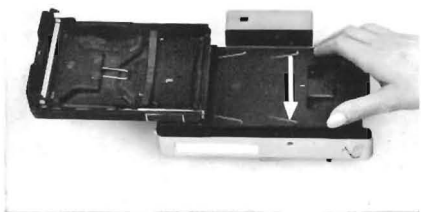


Open the back all the way. Note the steel rollers (A). They must be kept clean as shown on page 26.

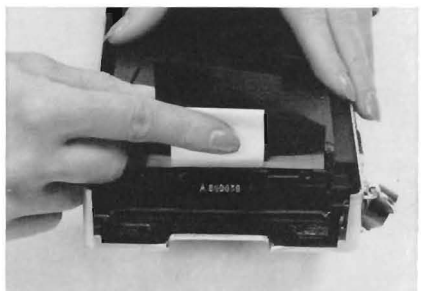
Hold the pack by the edges so the printing on the safety cover faces the lens. Push the closed end of the pack under the door hinge, as shown, against a light spring tension.



Push the pack down into the camera. You'll feel it snap into place.



Be sure the white tabs are free and are not folded under the pack.



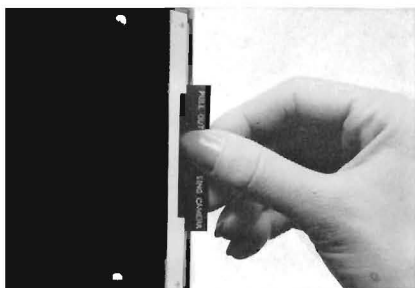
## LOADING (cont.)

Close the back door. Press both sides firmly to be sure they latch.

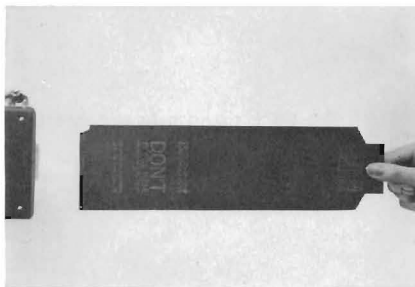
The black tab of the safety cover (A) must stick out of the small slot (No. 4). If not, reopen the back and lead the tab out into the slot.



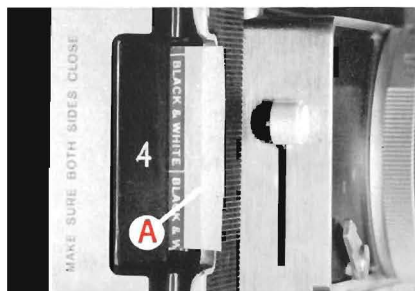
Grip the black tab with your thumb and forefinger.



Pull the safety cover all the way out of the camera without stopping. Pull straight so you won't rip it! Discard the black safety cover.



With the safety cover out, a white tab (A) should stick out of the small slot (No. 4). Don't pull the white tab at this time. You're now ready to make your first picture.

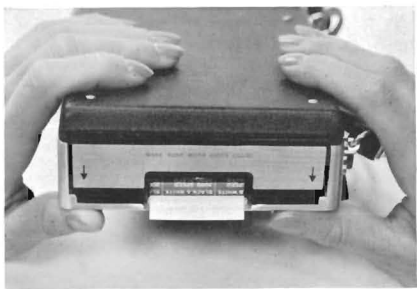
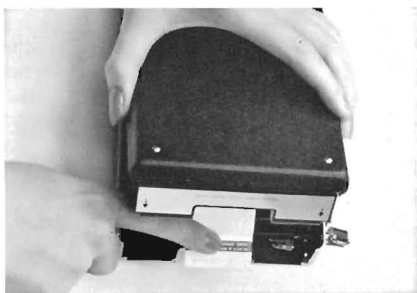
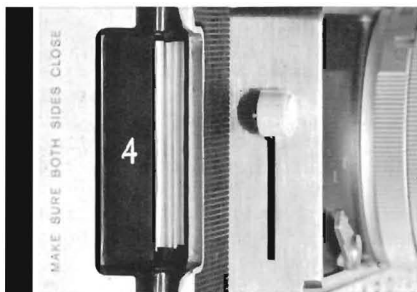


## IF THERE'S NO WHITE TAB

If, after you remove the safety cover, there's no white tab to pull, do the following in the shade or indoors, not in bright sunlight.

Open the back of the camera part way and, without disturbing or moving the film pack, push the end of the white tab out into the open.

Close the back of the camera, making sure that both sides are locked securely and the white tab is out in the slot.



## HOW TO GET CORRECT EXPOSURE

The best way to get correctly exposed pictures is to use a meter consistently.

The Polaroid Exposure Meter #628 is designed specifically for use with this camera. It's accurate, small, light, easy to use, and gives the exposure in EV numbers and combinations of shutter speeds and f-numbers. Instructions for its use come with the meter.

An important point to remember is that the meter measures the brightness of the light reflected from the entire scene. Therefore, when using the meter with a nearby subject, bring the meter close enough so that it "sees" only the subject, as shown, but be careful not to cast a shadow on the subject.

If you already own an accurate exposure meter you may be able to use it for color pictures with the Model 180. Set the film speed dial to the closest number lower than 75 (usually 64). However, you may have difficulty using it with black and white film as there are only a few meters besides the #628 that can be used with 3000 speed film.

If you have no exposure meter, you can still get well exposed pictures of average subjects in bright sunlight or bright open shade with the settings shown in the table at right.

Bright open shade is what you have when the subject's face is just out of direct sun, with nothing overhead except the bright, open sky.

To set the exposure, first turn the shutter speed ring to the desired speed; then turn the aperture control ring to the proper EV number or f-number.

When setting shutter speeds, be sure that the arrow points directly at the speed number, not between two numbers.



### BLACK AND WHITE

subject in bright sun	EV 20 1/250, f/64
--------------------------	----------------------

subject in bright open shade	EV 17 1/125, f/32
---------------------------------	----------------------

### COLOR

subject in bright sun	EV 14 or 13½ 1/125, f/11 or between f/11-f/8
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subject in bright open shade	EV 12 1/60, f/8
---------------------------------	--------------------



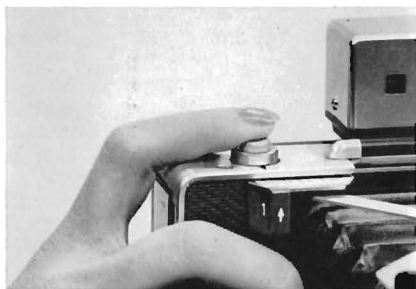
## HOW TO TAKE A PICTURE

After setting the shutter speed and proper EV number (or f-number) for correct exposure, do the following:

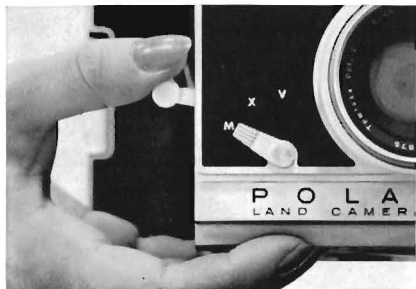
**1. FOCUS:** Look at your subject through the viewfinder. Come close enough to fill most of the frame. Push the No. 1 buttons until the bright spot shows a single clear image of the most important part of your subject. Center your subject in the bright frame.



**2. SHOOT:** Firmly but smoothly press No. 2 button, the shutter release, until you hear a distinct click. Don't jab at No. 2 — you may shake the camera.



**3. RESET:** Immediately after snapping a picture, press the No. 3 button down firmly all the way; then let it pop up again. This resets the shutter so you'll be ready for the next picture.

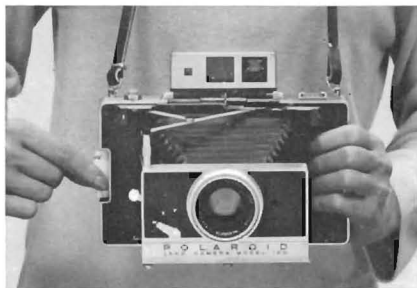


Now you are ready to develop the picture as shown on the next page.

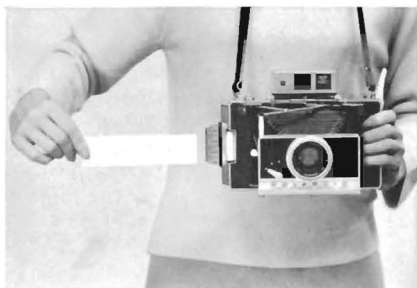
## HOW TO DEVELOP THE PICTURE

Hold the camera in your left hand, as shown, with the lens pointing straight ahead of you. Don't hold it any other way.

Grip the small white tab with your thumb and forefinger.



Pull the white tab straight out of the camera, all the way, without stopping.

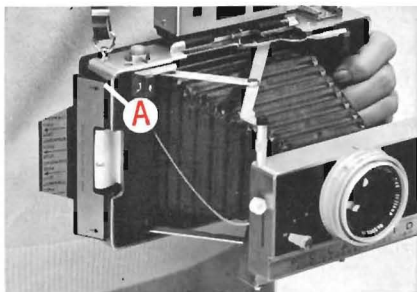


When you pull the white tab out, a concealed door (A) opens and a yellow tab pops out. Don't block this door while pulling the tabs.

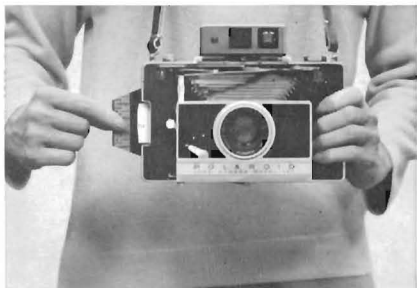
If no yellow tab pops out when you pull the white tab, stop. Don't pull another white tab. Page 20 shows you what to do in this situation.

**Never pull a white tab when you can see a yellow tab.**

Pulling the small white tab does not start development; it only prepares the film for the next step, which is pulling the yellow tab (below).

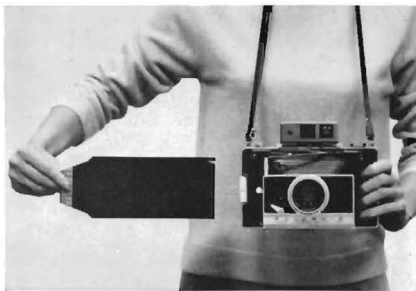


Grip the yellow tab in the center so it will come out straight when you pull.



Pull the yellow tab straight out of the camera all the way, swiftly, without hesitating. This starts development of your picture, so begin timing as soon as you get the tab out.

How fast is a swift pull? It should take about as long as it takes you to say, "PULL IT" briskly, each time you pull the tab. If your picture is full of white specks, pull a bit slower.



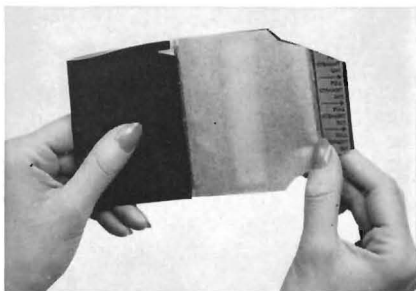
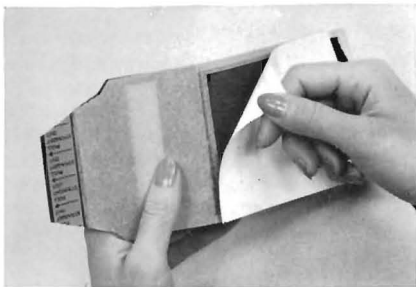
The picture develops outside the camera. While it's developing, hold the tab by the yellow tip, or lay the picture assembly down flat; don't touch or bend the picture assembly or lift off the white paper. Outdoors, don't let the picture assembly flap in the breeze. Develop the picture for the full time recommended in the instruction sheet packed with the film.

After the recommended development time, quickly strip the white paper (the print) off the brown paper, starting from the end nearest to the yellow tab.

A color print will look nearly dry, but don't touch the face for a few minutes. It will harden to a tough, glossy finish. When it is dry, mount it on a color print mount.

Don't touch the face of black and white prints. You must coat them to prevent fading and other damage (see page 23 for how to coat prints).

Avoid contact with chemicals left on the negative after the print is removed. (Be sure to read the CAUTION paragraph about this in your film instructions.) Fold up the negative with the moist side in. Please put it in a wastebasket or film box. Don't be a litterbug!



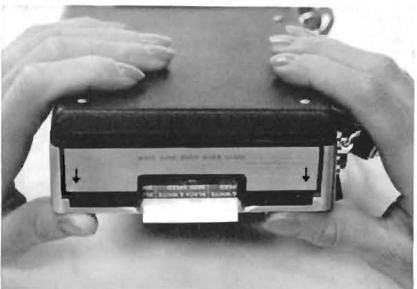
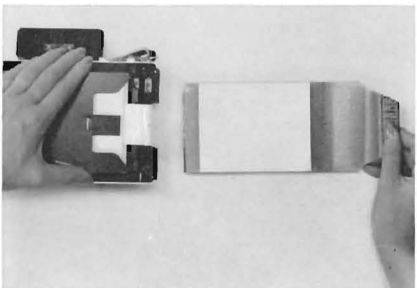
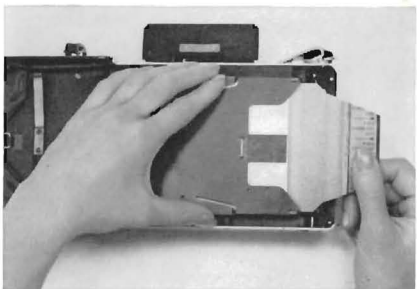
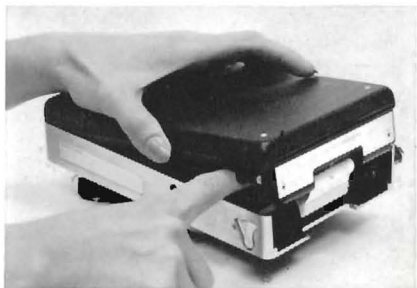
## IF NO YELLOW TAB POPS OUT AS YOU PULL THE WHITE TAB

Stop! Don't pull another white tab. Instead, gently open the camera back just enough to get one finger under it to hold down the film pack and keep it in place. Do this indoors or in the shade, not in bright sun.

While holding the pack down lightly with a fingertip, slowly open the back all the way. Steady the pack with your left hand and take hold of the topmost yellow PULL tab, as shown.

Gently pull the entire jammed picture assembly all the way out of the pack and discard it. Don't try to save it. While the back door is open, check that the rollers are clean. If you find dirt or bits of developer on them, clean them as described on page 26.

Close the back of the camera, making sure that the next white tab sticks out of the No. 4 slot. Check that both sides of the back latch securely.



## TEMPERATURE IS IMPORTANT

Cold and heat have a great effect on the way your picture develops and on the print quality. Even moderate cold can ruin your pictures unless you take precautions.

The important factor is the temperature of the camera and film at the time you're developing the picture.

A loaded camera carried outdoors in cold weather for half an hour gets thoroughly chilled. If you then enter a warm house and a few minutes later shoot a flash color picture, the results are likely to be bad. It takes a long time for a cold camera and film to warm up.

However, if camera and film are indoors and warm, you can step outside to snap the children in the snow, pop back in again in a minute and develop the picture normally.

In cool weather, development times may have to be adjusted according to the temperature. The instruction sheet with each film pack contains detailed information about development times and temperatures. Be sure to read these recommendations; they may change from time to time.

In very hot weather there is a greater tendency for chemicals to be squeezed out of the edges of the picture assembly as you pull the yellow tab to begin development. If these chemicals collect on the steel rollers they can cause defects in your prints. So, when it's hot, be extra careful to keep the rollers clean (page 26).

**How temperature affects color film:** The normal developing times for color film are set for temperatures of 75°F (24°C) and warmer. When it's a bit cooler the action of the developer chemicals slows down and you must develop for a longer time. See the film instruction sheet for more details.

When the temperature gets below 65°F (18°C) the chemical action is so sluggish that the picture won't develop properly without help. That help is the Cold-Clip (page 27). Prints developed in cold weather without the Cold-Clip will be dark, with muddy colors.

**Whenever it is cool enough so that you must wear warm clothes, use the Cold-Clip for all color pictures.**

You'll get your best color in pictures made in pleasantly warm weather.

But when you're sweltering and can think only of a cool drink and a swim, it may be too hot for best results with color film; your prints may show weak colors. For details see the film instruction sheet.

**How temperature affects black and white film:** The film's normal range of development times gives good results in temperatures of 70°F (21°C) and above.

When the temperature of film and camera is below 70°F (21°C), develop for a longer-than-normal time. For details see the film instruction sheet.

Never use the Cold-Clip with black and white film.

## POINTERS FOR GOOD NATURAL LIGHT PICTURES

### FOR COLOR PICTURES

**Use bright sun:** You'll get strongest colors if your subject is in bright sun (but you can also get very pleasing results on an overcast but bright day).

**Have plenty of color:** Look for subjects and backgrounds with strong, bright colors in big, solid chunks.

If your subject isn't wearing colorful clothes, add color with a bright skirt, scarf, or jacket. Or, find a colorful background — anything that will fill at least one-third of the picture area with strong, solid color.

Don't expect colorful prints of people dressed in dark clothes, or wearing delicate colors or white.

Plain, drab backgrounds won't add color to your prints.

### FOR BLACK AND WHITES

**Use bright, even light:** For portraits, you'll get best results when a cloud blocks the direct sun, or on an overcast but bright day, or in bright open shade.

**For scenic pictures:** Avoid shooting

when the sun is right overhead; shoot when the light casts shadows to the side.

**Indoor snapshots without flash:** Try to have the room lighting even so as to avoid deep shadow areas.

### FOR ALL PICTURES

**Move in close and focus accurately:** The bigger your subject is in the print, the more color and details you'll be able to see.

**For scenic pictures:** Try to get something big and solid looking (and colorful, if possible) into the foreground to help fill the print.

**Time development carefully:** Follow the recommendations in the film instruction sheet. These may change from time to time. A few seconds overdevelopment is not harmful. However, if you develop for less than the recommended time, color pictures will have poor colors and black and whites will look gray and washed out.

**Keep an eye on the temperature:** Cold weather or excessive heat can affect your pictures. See page 21.

## HOW TO LIGHTEN OR DARKEN PICTURES

For the next picture of the same subject, in the same location and lighting conditions, follow this rule:

For a **lighter** picture, use the next **lower** EV number or f-number. Or, use the next slower shutter speed.

For a **darker** picture, use the next **higher** EV number or f-number. Or, use the next faster shutter speed.

For a small change in exposure turn the aperture control ring halfway (one click) toward the next higher or lower EV number or f-number.

## BLACK AND WHITE PRINTS MUST BE COATED

Coat all black and white pictures as soon as it is convenient to do so — within two hours, if possible. If prints are left uncoated for more than a few hours they may begin to fade and streak. Avoid touching the face of uncoated prints as they are easily damaged; carry them in an empty film box.

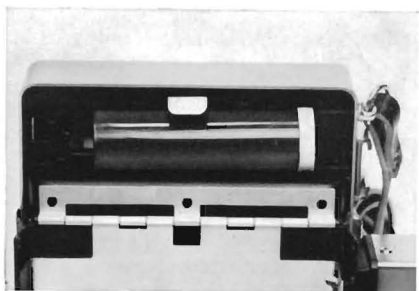
In each black and white film box there's a tube containing a coater. This is a wad of absorbent material soaked with a clear liquid; it's in a plastic handle.

Lay the print, face up, on a clean smooth surface, such as a piece of paper on a table, and hold it down by one edge. An empty film box will do; open the ends of the box and press it flat.

Remove the coater from the tube. Spread the liquid straight away from you over the ENTIRE print, including the borders. Use 6 to 8 straight overlapping strokes and moderate pressure. Don't scratch the print with the edge of the coater. To get more liquid out of a partly used coater, press it down on the near end of the print; then spread the squeezed-out liquid across the face of the print.

The coating dries quickly and forms a tough protective layer over the image. For more details about coating see the film instruction sheet. Keep freshly coated prints away from each other, or they will stick together.

You can carry an extra coater in the small compartment in the rear of the camera, as shown.



## FLASH AND ELECTRONIC FLASH

There is a special Polaroid flashgun for this camera, the Model 280. It clips onto the camera and fires when you press the No. 2 button.

Once the basic settings for color or black and white film are made, you just focus the camera on your subject; the camera/flashgun combination then sets the exposure for you automatically.

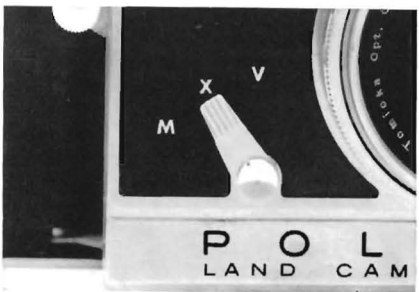
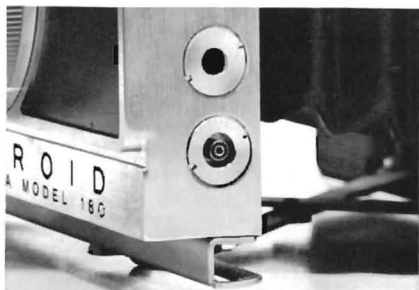
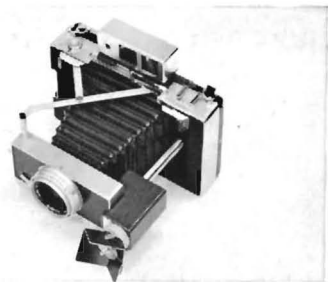
Complete instructions for making flash pictures are packed with each flashgun.

The flashgun connection is on the side of the shutter. It has a special fitting for the Model 280 flashgun. In addition, it will accept standard PC connectors used on other makes of flashguns and on electronic flash units.

Suitable electronic flash units can give excellent results with both black and white and color films. It will, of course, be necessary to work out exposure guide numbers for the particular electronic flash unit that you are using. These guide numbers are then used in conjunction with the distance scale on the camera to get correct exposure.

**Settings for flash.** Use only AG-1B blue flashbulbs. Set the flash synchronization lever to M, and the shutter speed ring to 1/60 sec. For self-timed pictures made with flash, set the lever to V and use a 1/30 sec. shutter speed.

**Settings for electronic flash.** Set the lever to X as shown. For self-timed pictures with electronic flash, set the lever to V. Suggested shutter speed at both positions is 1/125 sec.





## ACCESSORIES

These simple-to-use accessories can add greatly to your picture taking fun.

**Exposure Meter #628.** Quickly gives correct exposure settings for color and black and white films in a wide range of lighting conditions. The information is given in both EV numbers and combinations of f-numbers and shutter speeds.

**Filter Kit #595.** It contains three items in a neat carrying case.

The #596 Cloud Filter for black and white pictures makes white clouds stand out against the blue sky.

The #597 UV Filter, for use only with color film, prevents excessive bluishness in pictures made in the shade or on overcast days.

The #598 Lens Shade helps to keep stray light rays from hitting the lens when you aim the camera at subjects near a strong light source, such as the sun or a powerful lamp.

**Portrait Kit #591 and Close-up Kit #593.** They let you focus on subjects much nearer than the normal closest focusing distance (3½ ft.). With the Portrait Kit #591 (shown at right) you can come as close as 19 in. to take head and shoulder portraits. With the Close-up Kit #593 you can photograph small objects like flowers and coins from as close as 9 in.

**Development Timer #128.** It fits on the camera strap, times the development of pictures to assure best results.

**Cable Release #191.** A plastic adapter holds it in place over the No. 2 button. It's a great help for time exposures.

**Custom Fitted Case #328.** Compact deluxe container for Model 180, film, flashgun, bulbs, and other accessories.



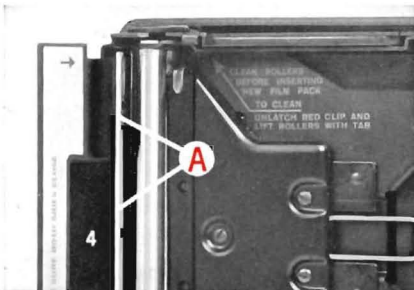
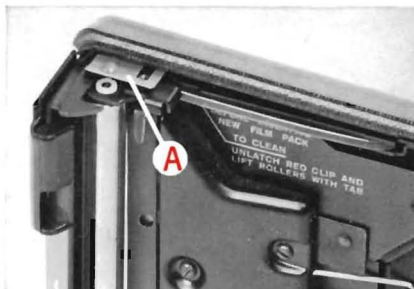
## CARE OF THE CAMERA

**Keep the rollers clean:** Dirt on the rollers causes repeated spots on the print (right). It may also cause poor colors, and even prevent the yellow tab from popping out. Bits of developer can collect on the rollers and in the back of the camera. It's a good idea to inspect the rollers before loading each new film pack. You can also check them when the camera is loaded with film, provided that you don't disturb the film pack, or lift it out.

To check the rollers, lift up the red latch (A) and swing out the roller assembly. Turn and inspect the rollers.

Clean the rollers with a damp cloth and dry them. Never scrape them with anything metallic nor with your fingernail.

Open the tab slot door; clean out any dirt around the tab slot (A). Blow out lint or dust in the back of the camera. Push the roller assembly back into place.



**Clean the lens gently:** Never use silicone coated eyeglass tissues on it. Blow dust off or brush it off lightly. Breathe gently on the lens to moisten it, wipe lightly with clean, dry absorbent cotton. Clean the view/rangefinder windows in the same way.

## PROTECT FILM AND CAMERA FROM HEAT

Extreme heat and high humidity can damage your films, especially after the film pack has been placed in the camera. Don't leave a loaded camera or packages of film lying in direct sun. Remember that the glove compartment or trunk of a car can get as hot as an oven. If you store film or a loaded camera in a closet, keep it near the bottom where the air is cooler. Don't remove a film pack from its sealed foil inner wrapping until you are ready to use it.

## THE COLD-CLIP

The Cold-Clip (right) makes it possible to get good color pictures when the temperature is 65°F (18°C) or below.

If you are unsure of the temperature, use the Cold-Clip anyway. It may make a noticeable improvement in the color of your pictures and it can do no harm even if the temperature is somewhat higher than 65°F (18°C). To use the Cold-Clip, preheat it in a warm inside pocket, or between your body and arm, for about five minutes before starting to take pictures.

When it's cold enough to use the Cold-Clip, you should give 2X the normal exposure for your color pictures. That is, set the exposure controls one EV number or one f-number lower than is indicated by your exposure meter or the chart.

*Immediately* after pulling the yellow tab to start development of your picture, place the picture assembly in the Cold-Clip with the yellow tab hanging out. This must be done within 10 seconds.



Place the Cold-Clip, with the picture assembly inside, between your body and arm. Develop the picture for 60 seconds inside the Cold-Clip next to body heat, then remove the picture assembly and separate the print from the negative.

Occasionally, developer may leak from the picture assembly and stick to the Cold-Clip. Avoid contact with this material. (Please read the CAUTION paragraph in your film instructions.) Before using the Cold-Clip, wipe it clean with a damp cloth. Store it under the retainer in the camera cover.

**Never use the Cold-Clip for black and white pictures.** Instead, follow the cold weather directions on the instruction sheet packed with the film.



## POSSIBLE PICTURE PROBLEMS

**Too dark, daylight pictures:** Use the next lower EV number or f-number for the next picture of the same subject in the same lighting conditions. For a small change in exposure, set the aperture control ring halfway (one click) toward the next lower EV number or f-number.

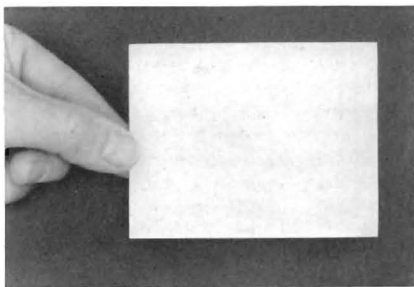


**Too light, daylight pictures:** Use the next higher EV number or f-number for the next picture of the same subject in the same lighting conditions. For a small change in exposure, set the aperture control ring halfway (one click) toward the next higher EV number or f-number.



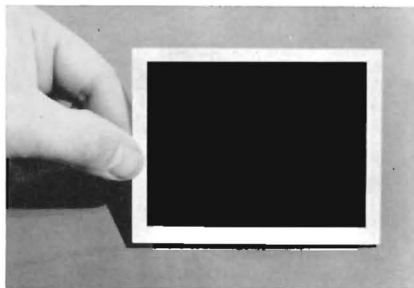
**White, faint image or none:** Film was greatly overexposed or light struck. This will happen if you pull the safety cover before putting the film pack in the camera, or if you remove a film pack from the camera after pulling out the black safety cover.

One possible cause is that you exposed for color film when the camera was loaded with black and white.



**Black, faint image or none:** If no details at all are visible, the shutter didn't open. Perhaps you didn't reset No. 3 button.

If a color print shows a few faint details, you may have mistakenly used an exposure suitable for black and white film.



**Many white specks:** They are a sign that you pulled the yellow tab too swiftly; slow down a bit.



**U-shaped white area, any size:** Several possible causes: One or more white tabs were folded under when you loaded the film pack (correct this as shown on page 15). Or, you pulled the yellow tab too slowly (page 19). Or, there may be dirt on the ends of the rollers; keep them clean (page 26). Or, in some way you squeezed the tab slot end of the camera back while pulling the yellow tab (see page 19 for the correct way to hold the camera).



**Undeveloped or streaked areas in print:**

There may be a single blank white area, or a combination of blank areas and streaks (orange in color pictures) as shown at right. You pulled two or more white tabs before pulling a yellow tab, and caused one of the following: uneven spread of developer; jammed film; or developer smeared on the rollers. If you get a picture like the one at the right, always inspect and clean the rollers before taking more pictures.



If no yellow tab appears when you pull a white tab, never pull another white tab. Instead, follow the directions on page 20.

**Repeated white spots:** Marks like these show that the steel rollers are dirty. Inspect and clean them frequently (page 26).



**Muddy looking print:** It wasn't developed long enough. Develop both black and white and color prints for the full time recommended in the film instruction sheet. See page 27 for details of how to use the Cold-Clip with color prints. If you don't develop long enough, color prints will be brownish pink over-all; black and whites will be muddy gray.



**Subject fuzzy, rest sharp:** If the subject didn't move but is unsharp you didn't focus carefully. Check page 7 to be sure that you are focusing in the proper manner.



**Oblong in print:** The oblong is pink or red in a color picture. You didn't pull the white tab all the way out of the camera. As a result, when you pulled the yellow tab, the white tab was dragged back into the camera and spoiled the picture.

Always pull the white tab all the way out of the camera (page 18).

**Undeveloped edges or corners:** Such picture flaws are usually caused by pulling the white or yellow tab out at an angle. In this example the tab was pulled down, instead of straight. When this happens the developer is not spread evenly over the picture and edges and corners may not develop. Pull both tabs out straight and swiftly, all the way (pages 18, 19).

Dried developer chemicals at the ends of the steel rollers also may cause this. Keep the rollers clean.

**Orange-red marks along edge:** Reddish-orange marks like this (A) along the edge and/or in the corners of the print generally indicate that the yellow tab was pulled out of the camera at an angle. Pull the yellow tab out straight, all the way (pages 18, 19).



## TO OBTAIN INFORMATION AND HELP

If you ever have a problem with the camera or film, or if you don't know whether or not a repair is needed, we urge you to seek help promptly to avoid film waste and disappointment. See your dealer or write to the nearest Polaroid office (list on back page), or to Customer Service, Polaroid Corporation, Cambridge, Mass. 02139. **Or, call Cus-**

**tomor Service toll-free at 800-225-1384 from anywhere in the U.S.A. except Massachusetts. From within Massachusetts, and from Canada, call collect (617)864-4568.** When writing, send sample pictures and, most important, state what camera model you have. Please be sure to include a clearly printed return address.

## POLAROID SERVICE CENTERS AND OFFICES

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875 Stanton Road  
Burlingame 94010

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El Segundo 90245

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