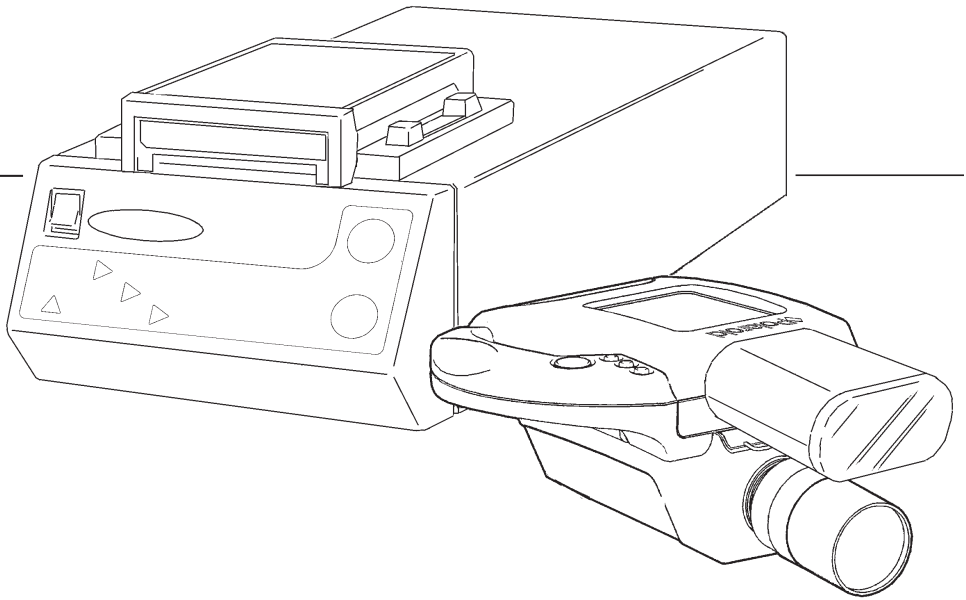




# Polaroid

## SP 350



## User Guide

# Contents

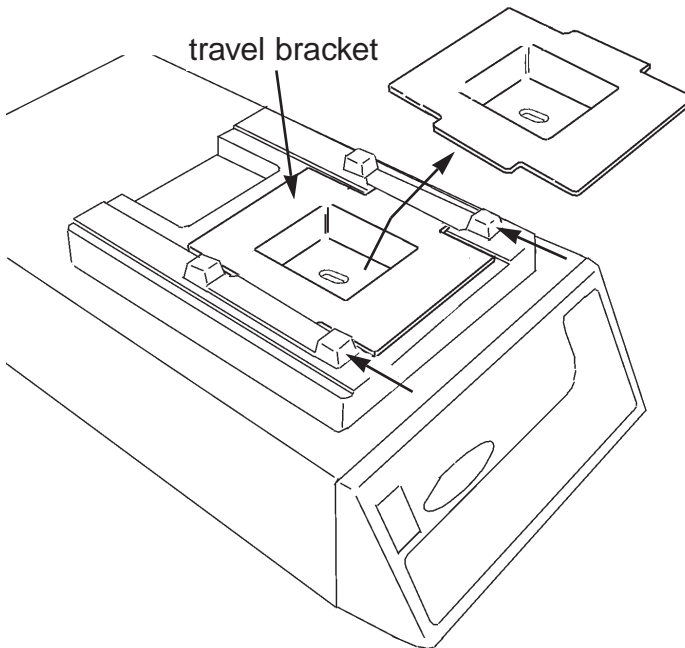
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# 1. Introduction

The Studio Polaroid 350 is a video based imaging system which allows you to quickly and easily take instant photographs to meet a variety of photo-identification needs. This guide describes all the features of the Polaroid SP350. It takes you from unpacking the boxes to setting up the system through any trouble-shooting problems you may have. All bracketed numbers refer to the diagrams of the camera and printer shown in section 3.

# 2. Unpacking

System will arrive in two boxes as follows



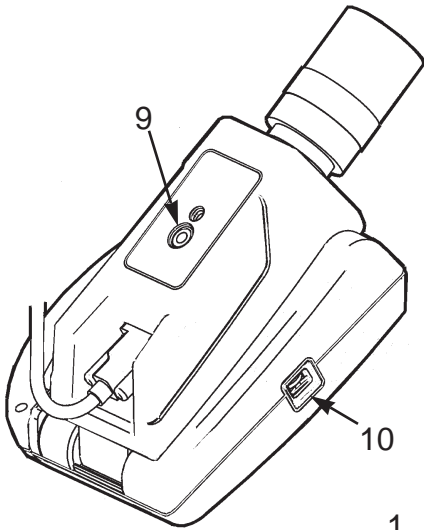
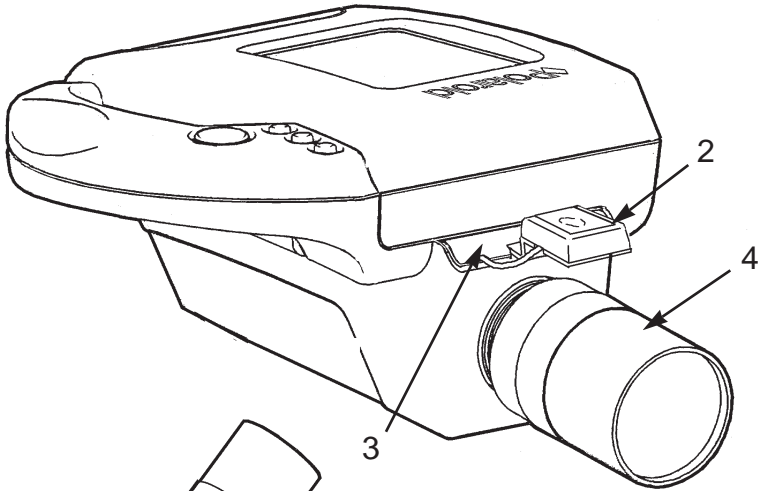
**a.** Printer, film holder, power supply, mains cable and Polaroid film.

**b.** Camera, strobe, batteries, camera cable, user guides, calibration overlay, grey card and colour adjuster.

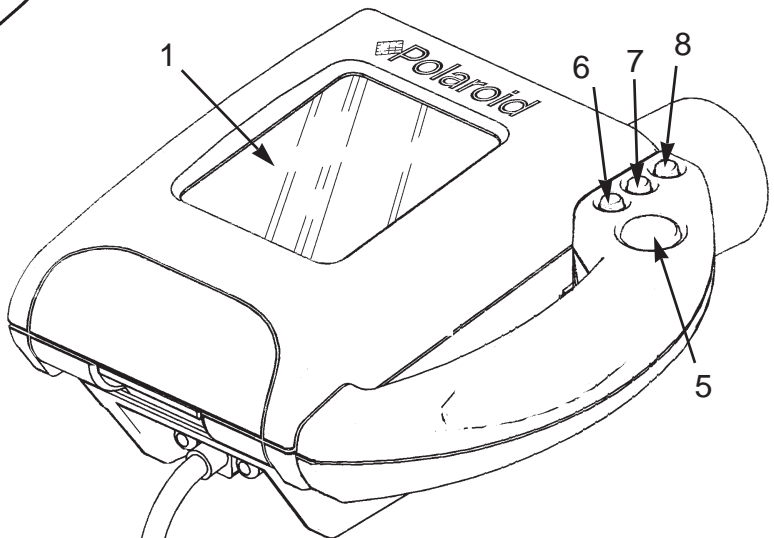
Carefully unpack the contents of both boxes.

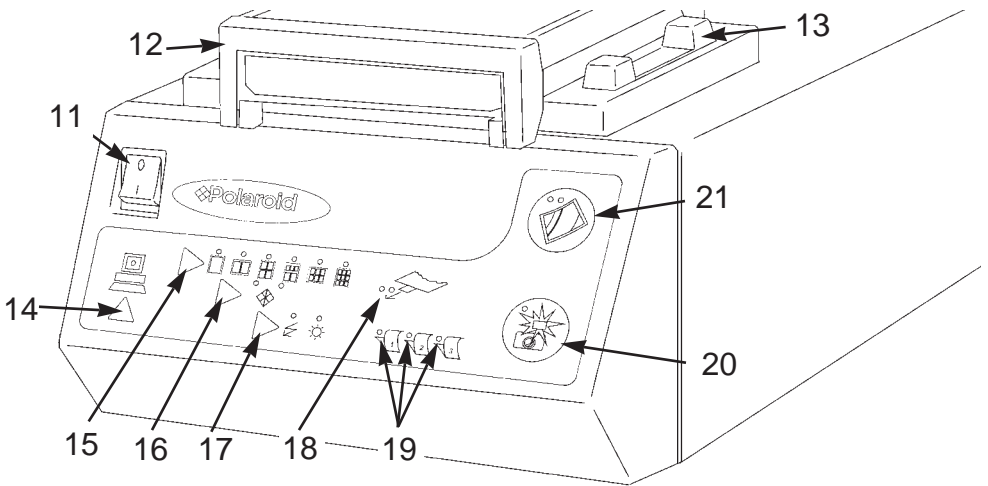
**Important:** Remove the travel bracket from the printer as shown above by unscrewing the locking screw and washer. After removing, replace the screw and washer. Keep the travel bracket in a safe place for future shipping of the printer.

### 3. System Diagrams

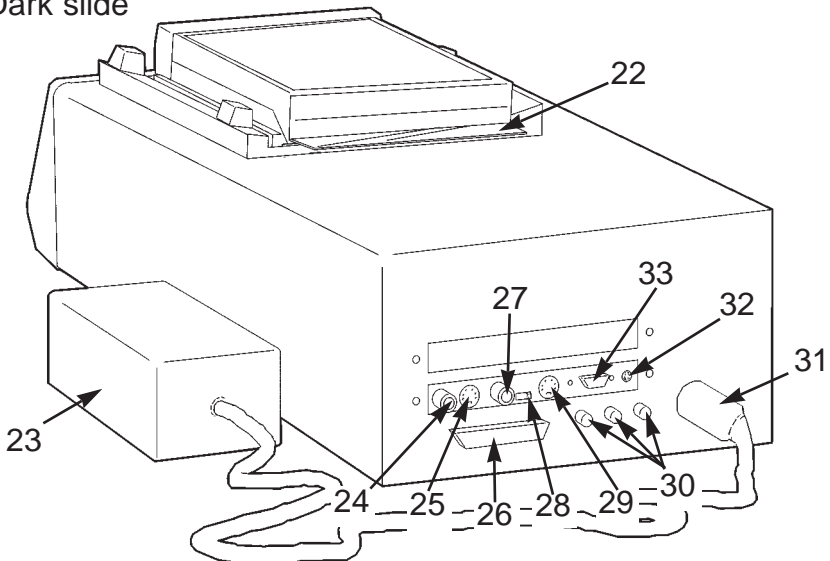


1. Preview screen
2. Hot shoe
3. CS mount access cover
4. Lens
5. Live / freeze button
6. Print format button
7. Print button
8. Film button
9. Tripod mount point
10. Brightness dial



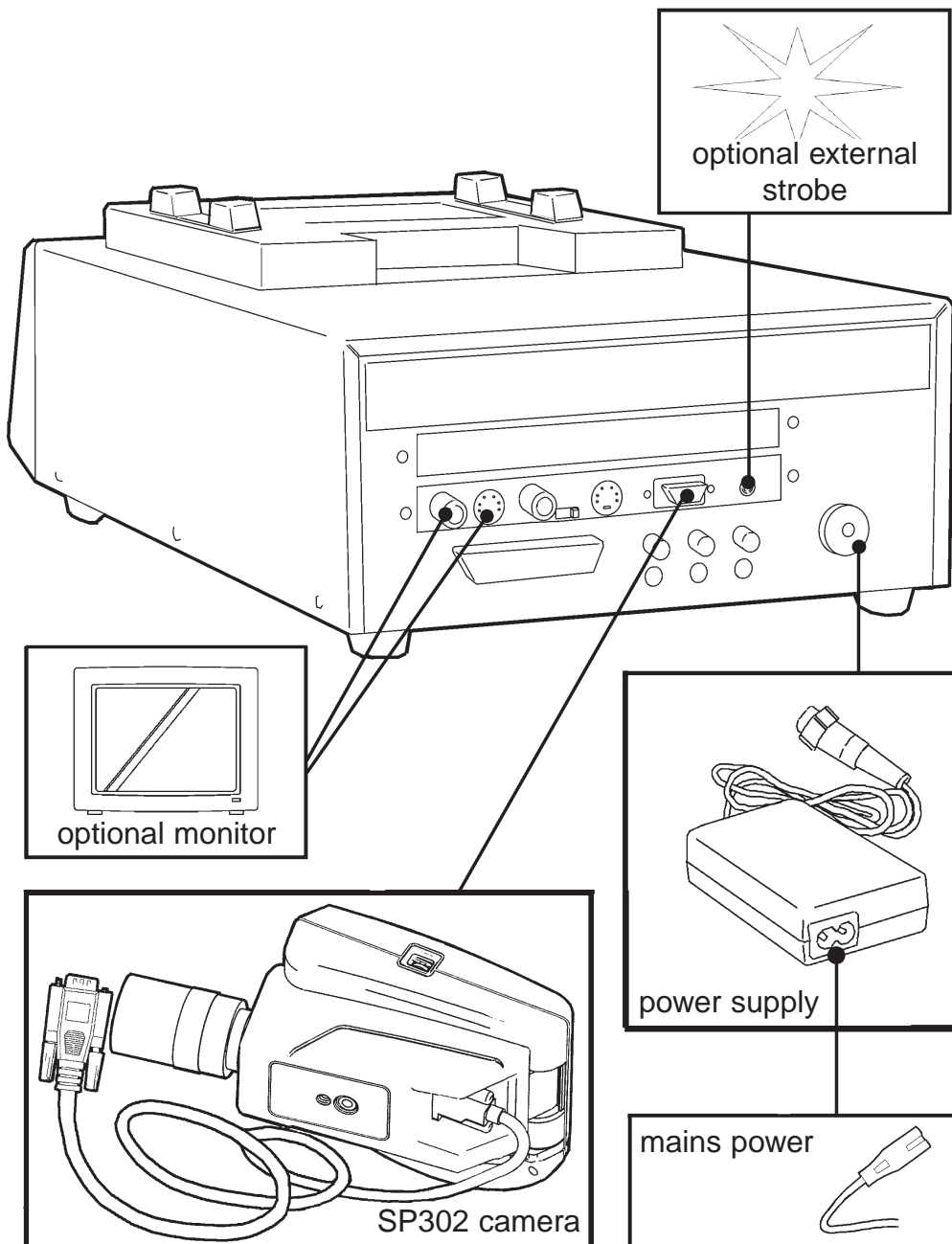


- |                                       |                                  |
|---------------------------------------|----------------------------------|
| 11. Power switch                      | 23. Power supply                 |
| 12. Film holder                       | 24. Video out (CVBS)             |
| 13. Locking mechanism                 | 25. S-Video out (Y/C)            |
| 14. PC switch                         | 26. PC parallel connector        |
| 15. Print format switch               | 27. Video in (CVBS)              |
| 16. Film switch                       | 28. Video /S- Video input switch |
| 17. Lighting switch                   | 29. S-Video in (Y/C)             |
| 18. Pull tab / out of film indicators | 30. Colour compensation controls |
| 19. Film peel time indicators         | 31. Power inlet                  |
| 20. Live / freeze switch              | 32. Strobe X-sync connector      |
| 21. Print switch                      | 33. SP camera connector          |
| 22. Dark slide                        |                                  |



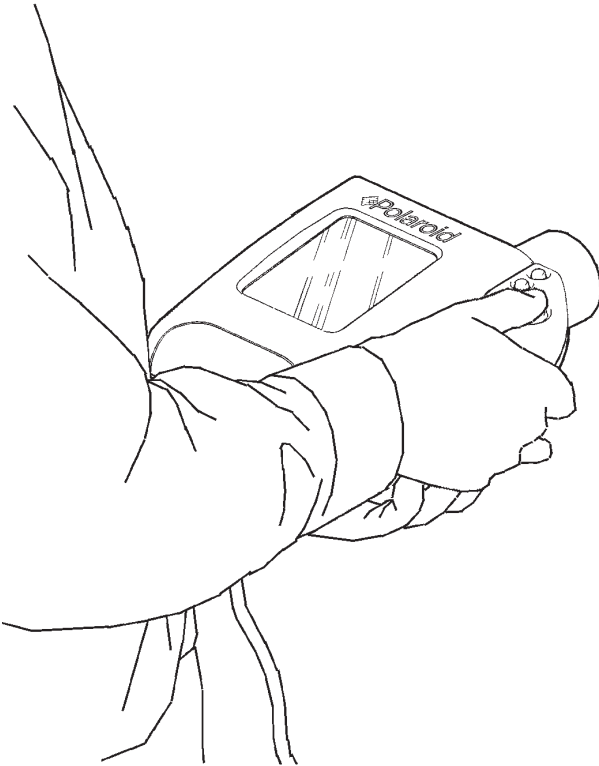
## 4. Connecting Up

Use the diagram below to connect up the SP 350 system



**Important:** Switching on the printer with the travel bracket in place may damage the printing mechanism. Ensure the travel bracket has been removed from the printer as described on page 3 before powering up the system

The camera can either be tripod mounted or hand held, as shown below. Sit the printer on a nearby work surface.

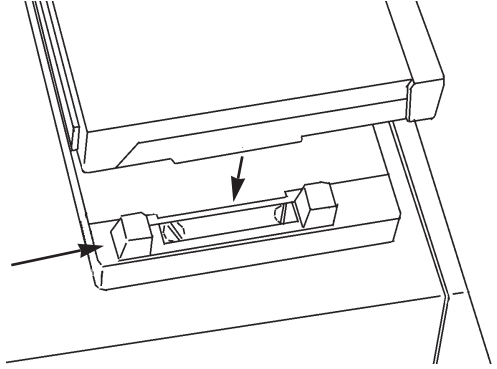


Power up the system by switching the power switch (11) on the front panel of the printer.

## 5. Loading Film

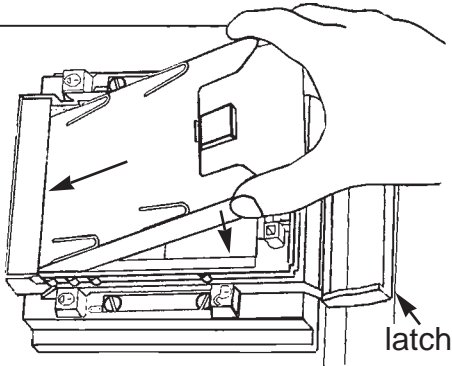
### Attaching The Film Holder

- a. Place the film holder on the opening on the top of the printer so that its retaining flanges align with the locking mechanism (13) on the printer.
- b. Lock the film holder in place by sliding both retaining bars in the direction shown.

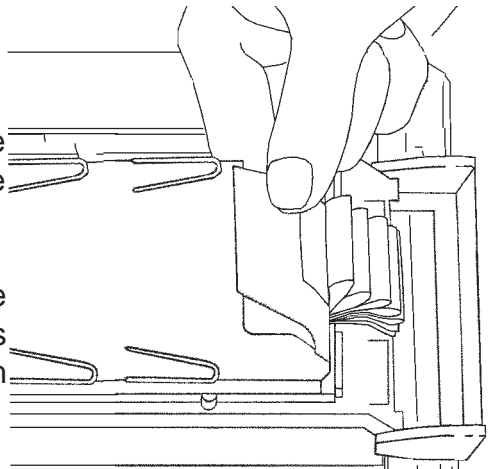


**Important:** The SP350 system is not designed for use with the Thermoback or Thermobox product.

### Loading A Fresh Film Pack

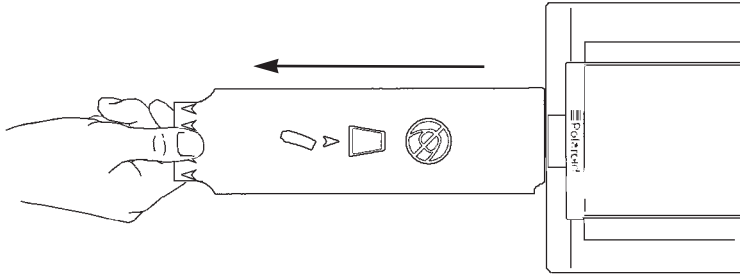


- c. Use only Studio Polaroid colour and / or Polapan Pro 100 black & white film.
- d. Open the film holder by pulling down the ends of the latch and lifting the cover.
- e. Insert a fresh film pack into the film holder as shown above with the black paper tab facing you.
- f. Check below the black tab to make sure you see a number of white tabs (one white tab is used for each film exposure.)

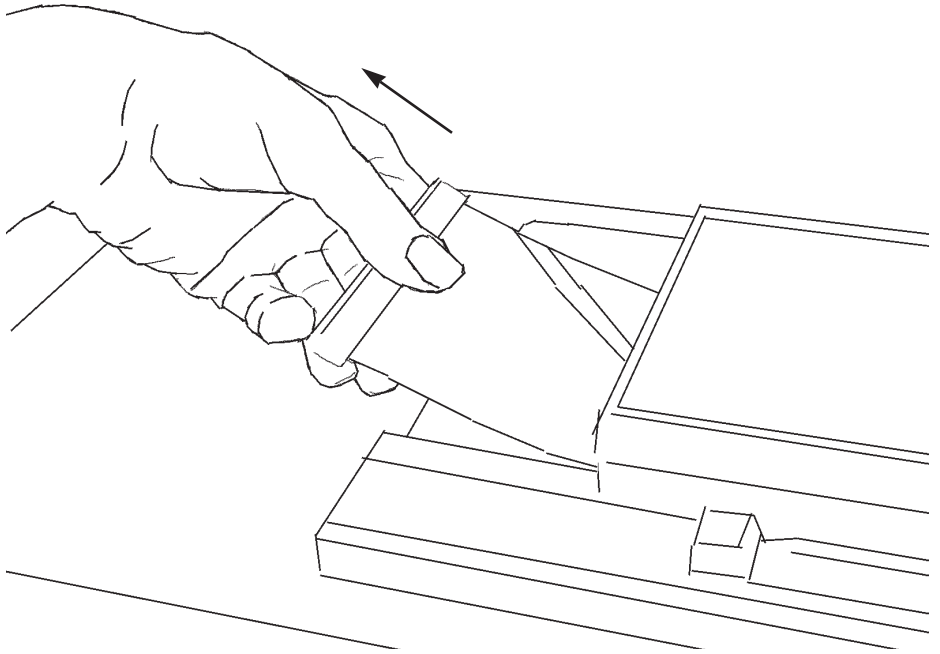


**g.** Close the film holder making sure the black paper tab is outside the film holder.

**h.** Pull the black paper tab out of the film holder, keeping the tab horizontal at all times.



**Important:**



Be sure to remove the dark slide (22) before trying to take pictures.

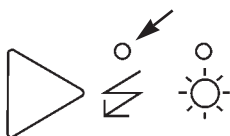
## 6. Lighting Techniques

### Lighting Set-Up

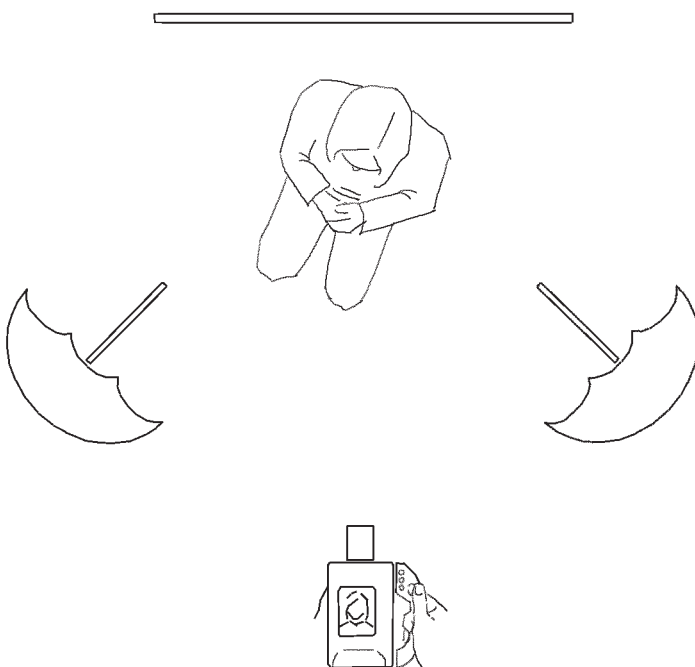
To obtain the best possible results from the SP350 system, it is essential to set up studio lighting correctly. Using the lighting switch (17) select the setting applicable to your studio set up. In set up, the recommended minimum distance from subject to lens is 1.3m.

### Strobe Lighting

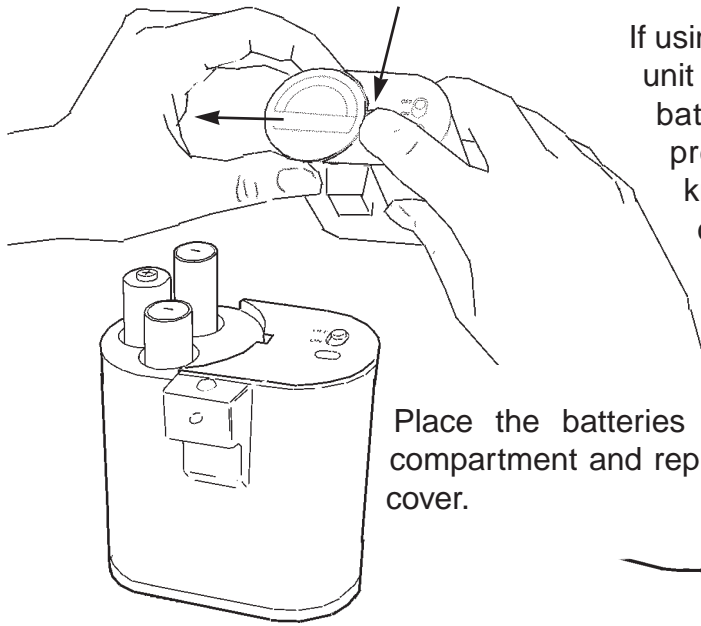
When using strobe lighting, the ideal set up is with two lights positioned as shown below. If you are using only one strobe light, it should be positioned as close to the lens as possible (preferably directly above).



ensure strobe lighting mode is selected on the printer front panel



**Important:** It is particularly important when using strobe lighting, to ensure balanced lighting of the subject and the backdrop. If backdrop lighting is used, it should be set to low power to avoid over-exposing. Saturating the backdrop may cause an imbalance in the video image. For optimum results with either flood or strobe lighting, a grey backdrop is recommended.

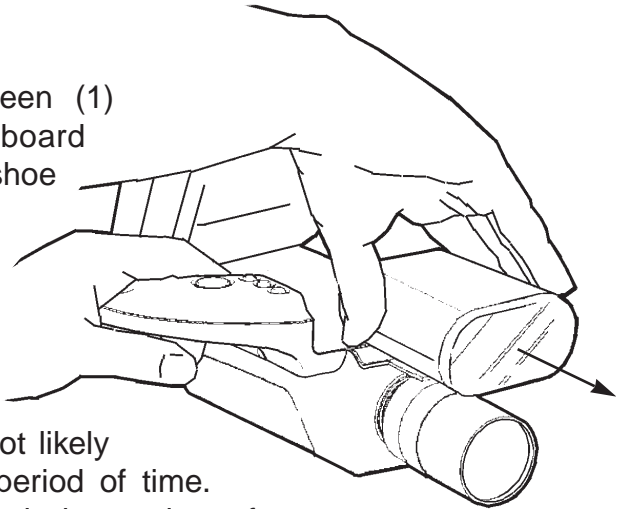


If using the on board strobe unit provided, insert the batteries provided by pressing the locking knob and opening the compartment cover as shown opposite.

Place the batteries as illustrated in the compartment and replace the compartment cover.

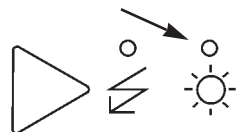
Tilt up the preview screen (1) before sliding the on board strobe unit on to the hot shoe (2) as shown opposite.

Switch off the on board strobe unit when the camera is not in use and remove the batteries if you are not likely to use for an extended period of time. See on board strobe unit instructions for further information.



### Flood Lighting

When using flood lighting, the ideal set up is also with two lights positioned as shown on the previous page. Ensure flood lighting mode is selected on the printer front panel as shown. If backdrop lighting is used, ensure balanced lighting of the backdrop and the subject.



## Exposure

Freeze an image by toggling the live / freeze button (5). If exposure correction is needed see below

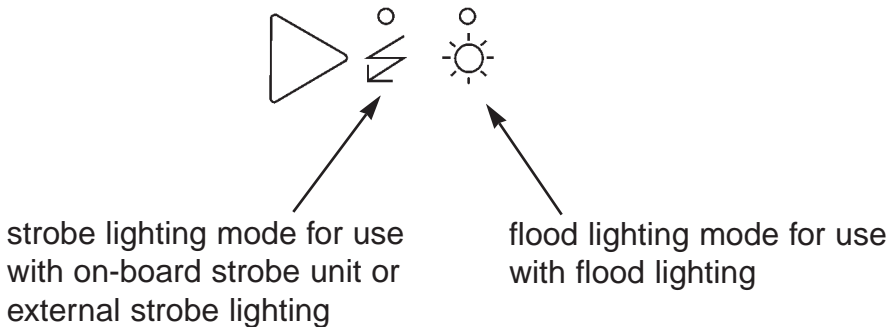
If image is too dark	If image is too light
Use a larger lens aperture or Move lights closer to subject or Increase light output	Use a smaller lens aperture or Move lights away from subject or Decrease light output

After correcting the exposure it is advisable to take a test picture as there are differences between the preview screen image and the photo image.

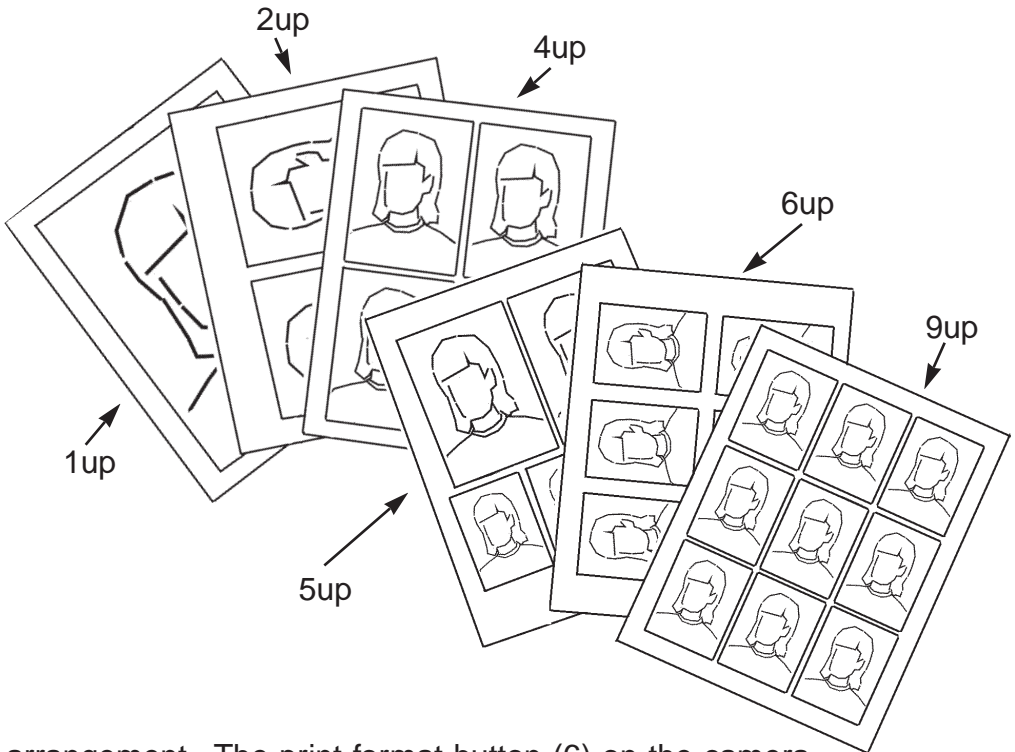
## 7. Printer Settings

The printer allows you to make a number of choices. Set these before capturing an image. The choices are as follows;

**Strobe or flood light** (17) - this allows you to match the SP350 system to your studio lighting set up. This must be set before capturing an image.



**1up, 2up, 4up, 5up, 6up or 9up print format (15)** - this allows you to specify whether your print will be a 1up, 2up, 4up, 5up, 6up or 9up



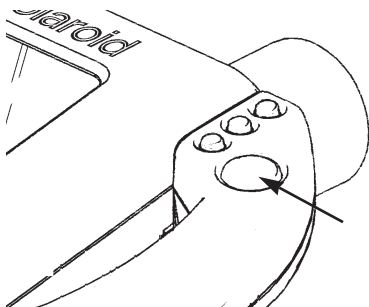
arrangement. The print format button (6) on the camera performs the same function.

**Film switch (17)** - this switch has the same function as the film button (8) on the camera and allows you to choose whether your image is printed out on to colour or black & white film.

**PC switch (14)** - there is no support for this switch at present but in the future it will allow you to link the printer to your PC and send images in either direction i.e. download images from your PC to print or send images to your PC from the camera for storage and /or manipulation.

## 8. Capturing The Customer's Image

a. Check your customer's image is correctly framed on the preview screen (1). If using the on board strobe unit provided, ensure the ready indicator shows red before capturing an image. This is easiest to view with the preview screen in the lowered position.



b. Press the blue live / freeze button (5) as illustrated to capture the image.

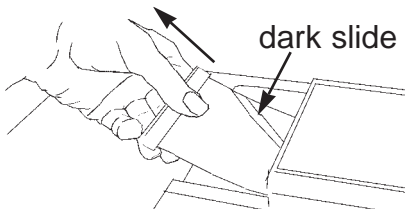
c. If you or your customer are dissatisfied with the image on screen, press the live / freeze button (5) again and you will be returned to "live" mode.

d. Pressing the live / freeze button once more will capture another image on the preview screen.

## 9. Printing The Captured Image

a. You must have a captured image on the preview screen in order to print.

b. Be sure the dark slide (22) is removed from the film holder before sending an image to print.

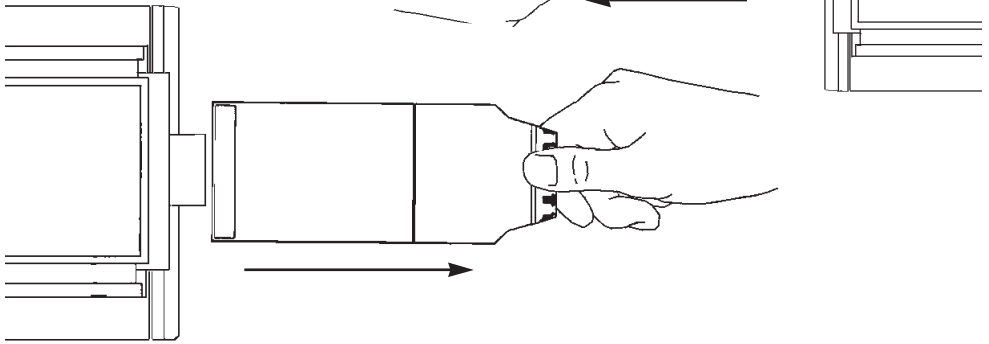


c. With an image captured on screen, check the printer is in the desired film mode and that the corresponding film is loaded.

d. Select a print arrangement using the print format switch (15) on the printer or (6) on the camera.

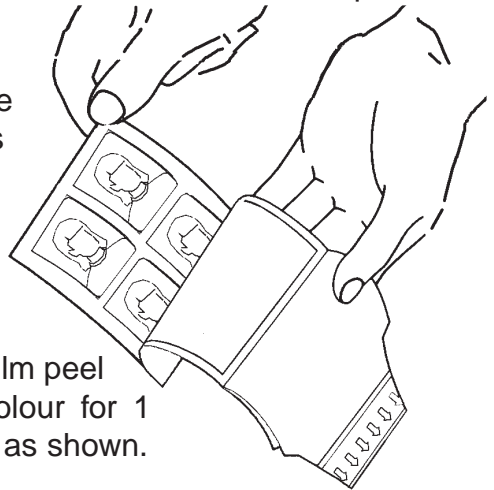
e. To print, simply press either the print button (7) on the camera or the print switch (21) on the printer. Printing takes 30-60 seconds during which time the print indicator above the print switch (21) shows green.

f. The printer beeps and the pull tab indicator (18) flashes green indicating that the print cycle is complete. Pull the white film tab keeping it horizontal to ensure that the film in the film holder remains aligned.



g. Pull the tab marked with arrows straight out in one uninterrupted motion as shown above. Lay the film down flat either on the printer or the surrounding work surface.

h. The printer now starts counting the development time of the film. As this is the only picture currently developing, it is film peel time indicator 1 (19) that flashes for the duration of the development period.



i. When the camera beeps and the film peel time indicator (19) displays solid colour for 1 second, peel the back from the print as shown.

**Important:** The film uses a caustic paste. Avoid contact with skin, eyes and mouth and keep 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.

## 10. Improving The Focus Setting

The lens range markings can be used to focus the image if the subject distance is known. For a more accurate setting:

- a. Adjust lens aperture to the maximum setting (f/1).
- b. Adjust lighting to stop image saturation (e.g. switch off studio lights).
- c. Move camera to correctly frame the subject on the preview screen.
- d. Adjust the zoom lens to it's most telephoto (highest magnification).
- e. Focus lens on the subject.
- f. Re-zoom to correctly frame the subject on the preview screen.
- g. Return aperture setting and lighting to original configuration.

## 11. Approximate Depth Of Field

See below for the range within which the subject will remain in focus for different aperture settings. This has been calculated for a nominal camera to subject distance of 2m and a zoom setting which gives a typical portrait shot. Different subject distances and zoom settings will affect depth of field and so these values are intended as a guide only.

F number	Min. Subject distance	Max. subject distance
1	1.95	2.05
4	1.80	2.25
8	1.65	2.60
16	1.40	3.85

**Important:** It is recommended that the camera is operated in the range of f/4 to f/8 to optimise the depth of field and maintain image sharpness. Adjust studio lighting to achieve an f-number within this range

## 12. Display Screen Adjustment

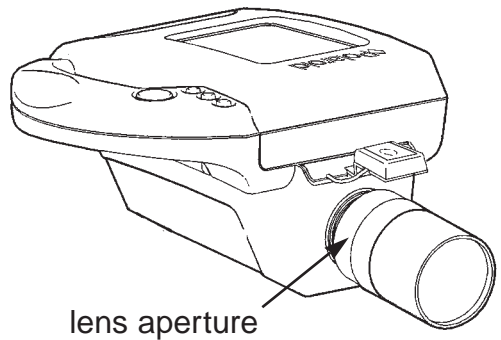
It is recommended that the brightness of the camera preview screen (1) matches the brightness of the printed photograph. Use dial (10) to adjust the brightness of the preview screen if necessary.

## 13. Colour Adjustment

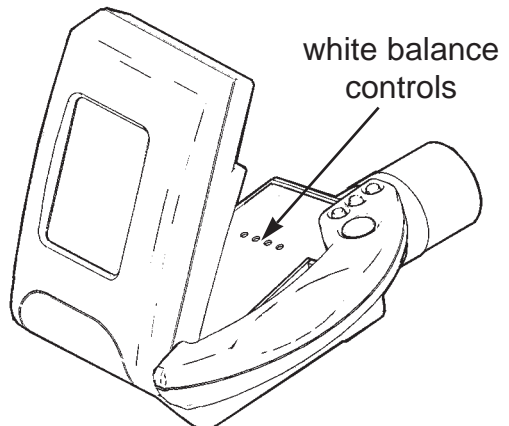
If you are not satisfied with the colour balance seen in your prints, you need to check that the camera is calibrated to suit your particular studio set up. The camera colour balance has been factory preset to 3200K for tungsten flood light and 5500K for strobe light. However lighting used and personal preference will vary from one user to another meaning fine adjustment may be necessary.

**Camera Colour Calibration** is split into two stages and must be carried out in the following order:

**1. Aperture Adjustment** sets the correct light level in the video signal (prior to performing the colour check) by adjusting the lens aperture.

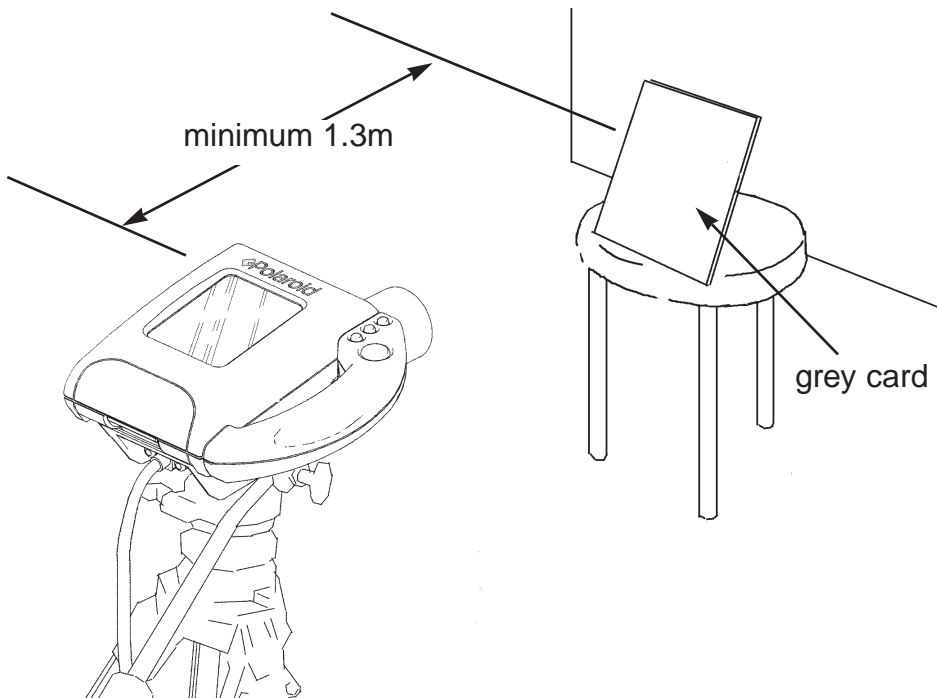


**2. Colour Check** allows adjustment of the camera white balance through fine adjustment of the camera white balance controls.

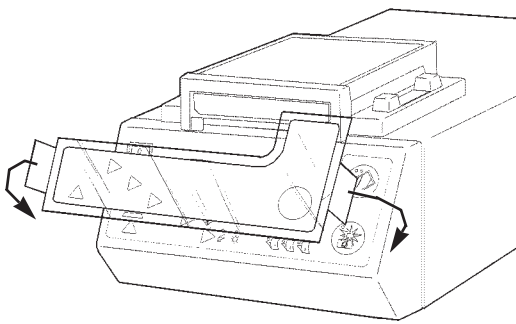


To set up for calibration, make the following checks:

- a. Ensure your lighting is set up as for normal operation (see section 5 for further details)
- b. Calibration is best carried out with the camera mounted on a tripod as shown below.

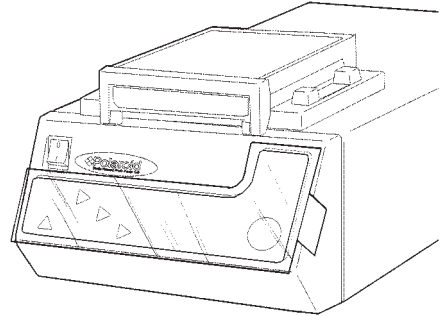


- c. You will need the calibration overlay, grey card and colour adjuster which are all packaged with the camera.
- d. Position the grey card in the intended focal plane. This is easiest achieved by seating the grey card as shown above. Note that the recommended minimum distance from subject to lens is 1.3m.
- e. Switch off the printer.

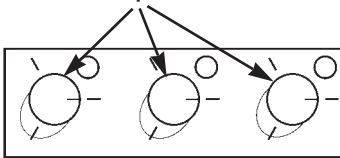


f. Peel back the securing tabs on the calibration overlay and position over the front panel of the printer.

g. Ensure the the overlay is aligned with the printer switches and press the tabs to hold in place.



colour compensation controls

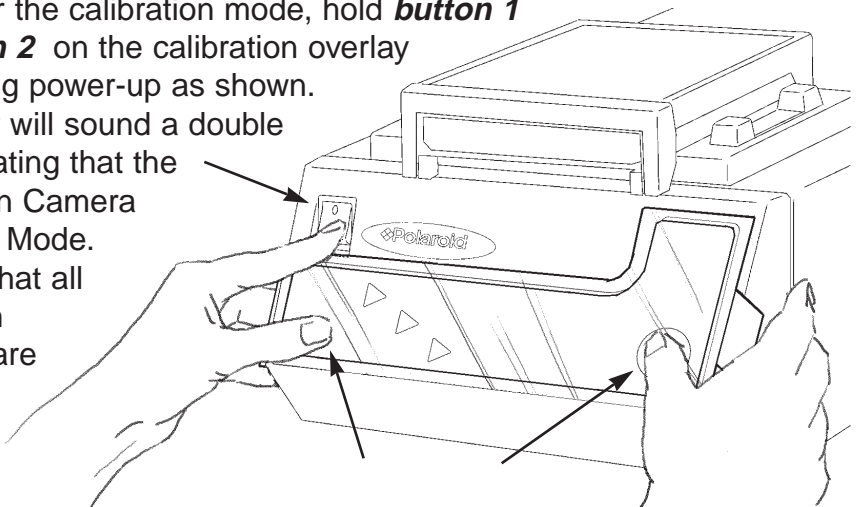


h. Reset the colour compensation controls (30) on the rear panel of the printer if they have been adjusted at all. Align the slot on each control with the horizontal mark on the label as illustrated.

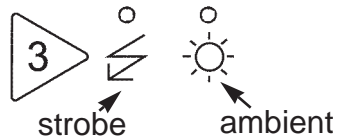
You are now ready to start camera colour calibration. To exit this calibration mode, at any stage, simply switch off the printer.

## Camera Colour Calibration Mode

a. To enter the calibration mode, hold **button 1** and **button 2** on the calibration overlay down during power-up as shown. The printer will sound a double beep indicating that the system is in Camera Calibration Mode. Also note that all print option indicators are off.

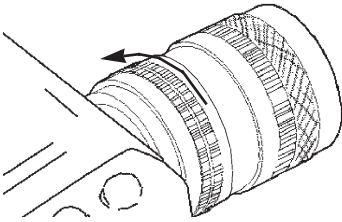
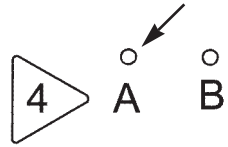


b. Press **button 3** on the calibration overlay to select the lighting mode which corresponds to your lighting set up.



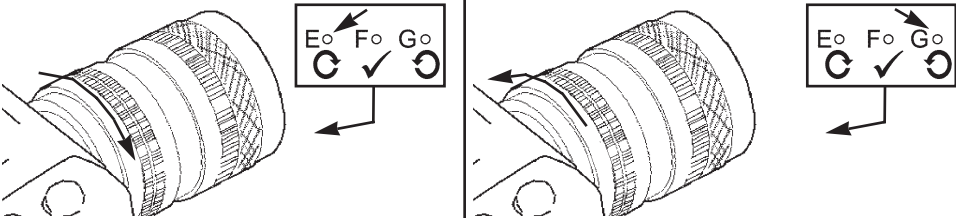
### Aperture Adjustment

c. Press **button 4** on the calibration overlay until indicator A is lit as shown.



d. Zoom the camera in on the grey card by turning the middle lens ring fully anti-clockwise as shown. Ensure the grey card fills the preview screen completely and press **button 2** on the calibration overlay.

e. **E**, **F** and **G** indicate which direction to turn the lens aperture to achieve the correct setting. **E** indicates that there is insufficient light and **G** indicates too much light. Make a small adjustment of the lens



aperture (ring closest to camera body) in the direction shown according to which indicator is lit.

f. Press **button 2** on the calibration overlay twice and look again at indicators **E**, **F** and **G**.

g. Repeat steps e and f until **F** lights indicating that the light level is acceptable.

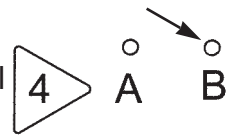


h. Fix the aperture at this point by tightening the locking screw. Check that the aperture ring has not moved in tightening locking screw by repeating steps f and g.

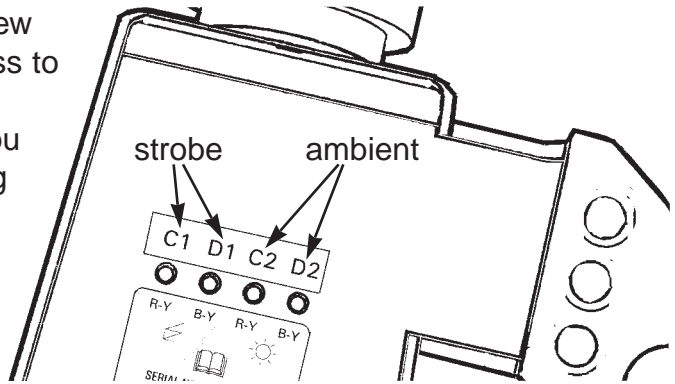
**Important:** Do not adjust the lens aperture and / or move the position of the tripod during the following Colour Check procedure.

## Colour Check

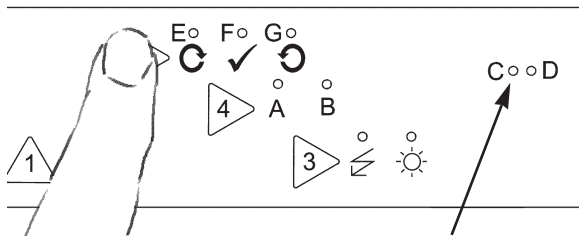
i. Press **button 4** on the calibration overlay until indicator **B** is lit as shown.



j. Tilt the camera preview screen up to gain access to the four white balance controls. Note that if you are using strobe lighting you will be adjusting **C1** and **D1** and if you are using flood lighting you will be adjusting **C2** and **D2**.

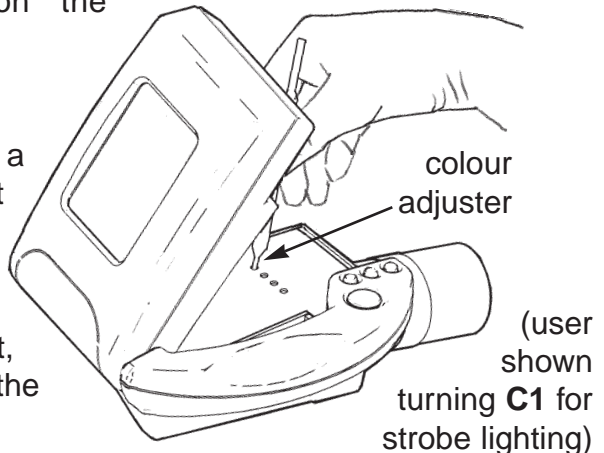


k. Press **button 5** on the calibration overlay until indicator **C** lights on the printer as shown.

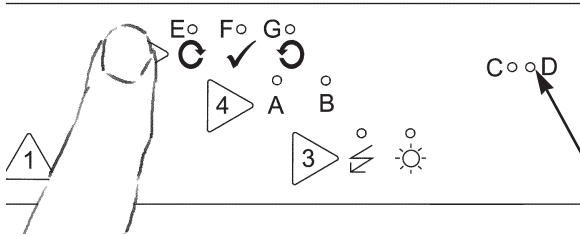


l. With the camera still zoomed in on the grey card, freeze the image by pressing **button 2** on the calibration overlay twice.

m. If indicator **E** is lit, make a small clockwise adjustment of **C1** (for strobe) or **C2** (flood) on the camera using the colour adjuster as shown. If indicator **G** is lit, turn **C1** / **C2** a fraction in the anti-clockwise direction.



- n. Press **button 2** on the calibration overlay twice and look again at indicators **E**, **F**, and **G**.
- o. Repeat steps m and n until **F** lights.
- p. Press **button 5** on the calibration overlay until indicator **D** lights on the printer as shown.

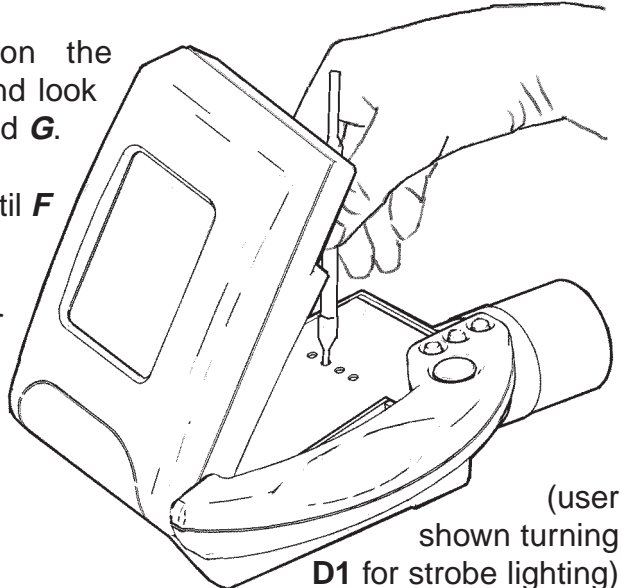


- q. Press **button 2** on the calibration overlay twice.
- r. If indicator **E** is lit, make a small clockwise adjustment of **D1** (strobe) or **D2** (flood) using the colour adjuster. If indicator **G** is lit, make a small anti-clockwise adjustment of **D1** / **D2**.

s. Press **button 2** on the calibration overlay twice and look again at indicators **E**, **F**, and **G**.

t.. Repeat steps r and s until **F** lights.

u. Switch off the printer and remove the calibration overlay.



**Important:** If you have calibrated for strobe lighting mode you may have to repeat the Colour Check process for flood lighting mode since the preview live image seen on screen is in flood lighting mode.

v. Switch on the printer, setup and print a test picture as you would in normal use. The camera is calibrated to match your particular studio lighting set up however you may wish to adjust the camera white balance controls further to suit your own personal preference.

Alternatively adjustment of the **Colour Compensation Controls** (30) can optimise printer performance to match film output. Note that these controls do not alter the white balance of the camera in any way.

If you are still not satisfied with the colour balance of the prints, contact your nearest Polaroid office for further assistance.

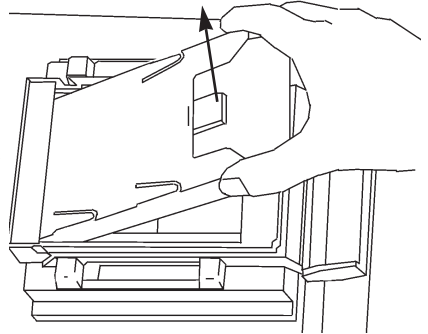
## 14. Film

**Important:** Use only Studio Polaroid colour and Polapan Pro 100 black & white film.

### Removing A Spent Film Pack:

a. Open the film holder.

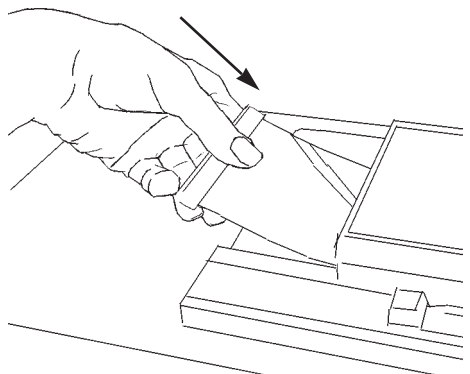
b. Remove the empty film pack by grasping it at the tab end, pulling it up and lifting it out as shown opposite.

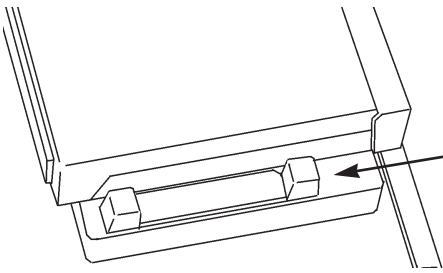


### Removing the film holder

You do not have to remove the film holder to load film. However if you are using two different film holders, for example, one for colour and one for black & white film, you may need to switch holders from time to time.

a. If there is film in the printer, a black or white film tab shows. Insert the dark slide (22) into the slot on the end of the film holder, and slide it in until the blue line is no longer visible. This prevents the film from being exposed when you remove the film holder.





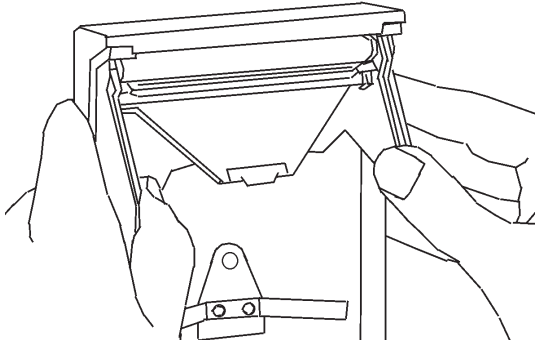
**b.** Unlock the film holder by sliding the retaining bars (13), as shown in the illustration opposite and on the labels on the locks themselves.

**c.** Remove the film holder by lifting it off the printer.

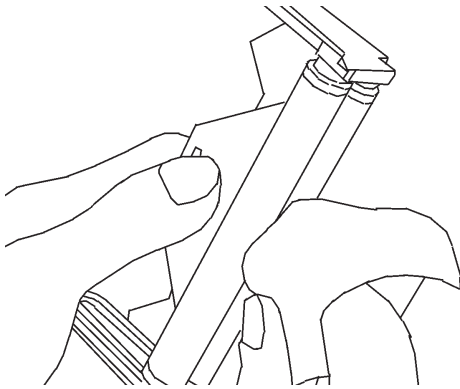
### **Cleaning the rollers**

**a.** Open the door of the film holder (12).

**b.** Remove the rollers by placing your thumbs at the ends of the roller assembly and rotating it upwards.



**c.** While the rollers are out of the film holder wipe them gently with a clean, lint free cloth moistened with water.



**d.** Replace the rollers by placing the assembly against the film exit door and rotating it downwards.

**e.** Check the film exit door and remove any pieces of paper or dried film developer.

**f.** Close the film holder and load film as normal.

**Important:** Clean the rollers at the end of every pack of film.

## 15. Troubleshooting

This troubleshoot should help you correct the most common problems that you may encounter with the system. If the problem persists unplug your unit and contact your nearest Polaroid office.

<b>Symptoms</b>	<b>Checklist</b>
System will not power on	Check all connections are made. Check LED on power supply is on.
No image on camera preview screen	Check their is power to the system and ensure connection to the printer is correct. Check lens cap has been removed and aperture opened. Adjust brightness dial (10.)
System is powered up but not responding	Check the PC switch (14) is off.
No image captured in strobe mode	Check on-board strobe unit is switched on and seated correctly in hot shoe (2). Check batteries have been inserted in the correct orientation. Replace batteries if charging takes longer than 60 seconds.
Nearly black or solid black image	Check the dark slide has been removed from the film holder before printing. Check correct lighting mode (17) has been selected.
Green / yellow print	Could be caused by trying to print a black and white print on to colour film - check film mode selected matches loaded film.

Symptoms	Checklist
Repeated white spots on film	Caused by dirt on the film holder rollers - clean rollers, see section 14.
Curtain shaped mark or streak on film	Caused by hesitation during pulling of film tab - always pull the tab out in one uninterrupted motion.
Undeveloped edges or corners of film	Usually caused by pulling the film tab out at an angle which prevents the developer from spreading evenly over the film.
Muddy looking print	Picture not developed long enough - develop images for full time recommended in the instructions.
Very light image or none at all	Film has been greatly overexposed to light.

## 16. Specifications

### Lens specification

Focal length 5.7 mm to 34.2 mm

Zoom 6:1. ratio

Aperture f/1 to f/16

Focus. 1.3m to infinity

### Sensor specification

Image sensor resolution 752 by 582 pixels

### Preview screen specification

PAL format composite video

3.8" display, 240 x 3 (RGB) x 130 pixels

Single tube, back lit, cold cathode fluorescent tube with diffuser

Adjustable viewing angle

Adjustable brightness

## 17. EMC Statement (Europe)

Polaroid warrants that this product complies with the following directives :

89/336/EEC, 73/23/EEC, 93/68/EEC

### **Safety:**

EN60950

### **EMC:**

EN50081-1(1992)

EN55022(1994) Class B

EN50082-1(1998)

EN61000-4-2(1995)

EN61000-4-3(1996)

ENV50204(1995)

EN61000-4-4(1995)

EN61000-4-6(1996)

## 18. SP350 Warranty / Service

Since 1947, Polaroid has been the world's leading manufacturer of instant imaging products for consumers and business alike. Over the years, customer needs have changed, and so has the technology - but the importance of high quality service has endured. As more and more products are built with digital technology, and product downtime becomes more and more critical, Polaroid has built a service infrastructure to ensure a rapid response to any issues that you encounter.

Polaroid always aims to produce products of the highest quality and to support them with the service you need to keep your business running smoothly. Please contact your nearest Polaroid office for more information.



# Studio



# Polaroid

As with any electrically operated equipment, basic safety precautions should be observed. Remember:

1. Follow all instructions.
2. Do not leave unit unattended.
3. If unit will not be used for extended period of time unplug from the electrical outlet.
4. Do not operate unit which has been dropped or damaged, until it has been examined by authorised service centre.
5. Before storing, allow unit to cool completely.
6. To avoid electric shock hazards, do not immerse unit in water or other fluids. Do not operate unit near water or with wet hands. If service or repair work is required, contact authorised service centre. Incorrect re-assembly can cause shock when unit is used subsequently.
7. Close supervision is necessary when unit is used by or near children.
8. The use of accessories other than those recommended may cause risk of fire, electric shock or injury.

**PLEASE KEEP THESE INSTRUCTIONS.**