

## Instructions (Problems & Reasons)

### ■ Problem: image too deep:

#### Reasons:

- 1: The development time is too long;
- 2: Washing liquid temperature is too high.

### ■ Problem: image too shallow:

#### Reasons:

- 1: The washing time is too short;
- 2: Washing liquid temperature is too low;
- 3: The liquid uses too long.

### ■ Main factors of dental film imaging quality

1. Right usage of X-ray and exposure;
2. Contact of film and teeth. (Affect clarity);
3. Quality & temperature of developer and fixer liquid.

### ✓ Process tips:


- a. Handle film carefully to avoid scratches, creases, fingerprints and spots;
- b. Film viewer shall be clean to avoid misjudgment caused by dirt during diagnostic assessment;
- c. Darkroom washing: Film should be unpacked in the dark room under safe-light(red), exposure time should not be too long and flush as soon as possible to avoid affecting film quality.
- d. Disposable washing fluid temperature set at about 22 °C is better; too high will make image blackish and fog easily, too low will make image quiet.

### Problem: image too quiet, blurry, details not clean, and lack of contrast between light and dark.

#### Reasons

1. Exposure
  - X-ray light quantity is too low to generate sufficient X-ray to expose film;
  - Film pack in mouth poured back upon irradiation;
  - Voltage is too high;
  - Film contrast is too low.
2. Washing
  - Film washing time in wash machine is too short;
  - Wash machine temperature is too low;
  - Washing liquid and fixer liquid pollution;
  - Liquid is not supplemented, washing liquid activity decline.

### ✓ Solutions:

1. Exposure
  - Check exposure quantity set; compare exposure set on Ray machine and voltage on device.
  - Check the timer switch for exposure.
2. Washing
  -  Hand wash
    - Check the temperature of washing liquid, especially for developer liquid.
    - Do not make excess liquid drain back to the tank when removing the film from developer liquid tank in order to ensure the right supplement liquid.



**Auto wash**

- Check the set speed on traction device, a faster speed will shorten film washing time in developer liquid. The ways to solve this problem is to reduce speed or increase temperature of developer liquid.

**Problem: image blurry, lack of clarity.**

**Reasons:**

1. Blurred image cause by shaking when exposure;
2. Patient or X-rays tube head move.

✓ **Solutions:**

1. After correcting X-ray bald irradiation, wait for several seconds and then exposure to prevent bits shift and remind patients to keep completely still during exposure.

**Problem: complete or partial loss of image**

**Reasons:**

1. Partial film is immersed in developer liquid;
2. Emulsion departing from film base;
3. Contacting other films when washing;
4. Contacting washing liquid early or delayed.

✓ **Solutions:**

1. If the film stay for too long time in washing liquid, such as a night or a weekend, emulsion may depart from film base;
2. without enough developer liquid, developing lack of motivation;
3. When hand wash, please ensure one film is apart from another one; If films contact or stick on developer tank, image may partial loss or some emulsion depart from film base;
4. It will make a small shadow area if contacting developer or fixer liquid early, delayed or partial contacted.

**Problem: partial film unexposed.**

**Reasons:** Partial film are beyond exposure area.

✓ **Solutions:** Shooting position calibration

**Problem: white spots on film**

**Reasons:**

1. Bubble;
2. Developer contacted with solid or liquid.
3. Film bending in mouth before exposure.

✓ **Solutions:**

1. When hand wash, the bubble will cause developer liquid not contacted with emulsion under bubble, resulting in white spots on film (not develop). Please stir up and down when development to avoid bubble.
2. Before washing, if film contacts fixer powder on desk or fixer liquid splashes on the film, white spots may be on the film;
3. If film contacts with another one or touch with developer tank when washing, white or brown spots may be on the film;
4. If film is bended to fit the patients' mouth, force applied to the film emulsion may make radiographs on a white crescent-shaped fold spot.