

**Toray  
Waterless  
Plate**

*Positive working type*

U S E R ' S  
M A N U A L



**< Advantages of the Waterless Plate >**

**Less Dot Gain**

**Better Color Saturation**

**More Consistent Color**

**Faster Make-ready**

**More Paper Choice**

**Environmentally Friendly**

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# 1. What is the Toray Waterless Plate?

## A Characteristic

The Toray Waterless Plate is an innovative pre-sensitised offset plate which needs no dampening system. The waterless plate utilizes the feature of mutual repellence between silicone (plate) and oil (ink).

### Equipments for waterless printing

#### \* Vacuum frame / lamp / step-and-repeat machine

You can use the same machine for conventional plates.

#### \* Plate processor

Special processor is needed.

#### \* Ink

Special inks are needed.

#### \* Press

Cooling system is required for large presses.

#### \* Other chemicals and implements

##### ► For hand development

- Developer "HP-7N"    · Dye Solution "P"
- Hand developing pad with handle

##### ► For machine development

- Pre-treatment solution "PP-1" or "PP-F"
- After-treatment solution "PA-1" or "PA-F"

##### ► Common products

- Stop-out solution (deletion pen) "ST-1"
- Application tip for ST-1 "C-1", "FC-1", "MC-1"
- Plate cleaner "PC-1"
- Ink addition tape "ADT-2"

## B Variety and Basic Property

### ① Thickness

0.15mm(0.006"), 0.24mm(0.009"),  
0.30mm(0.012")

### ② Size

Please consult your local dealer for availability

maximum size :  
1610x1240mm (63<sup>3</sup> x48<sup>8</sup>inch)

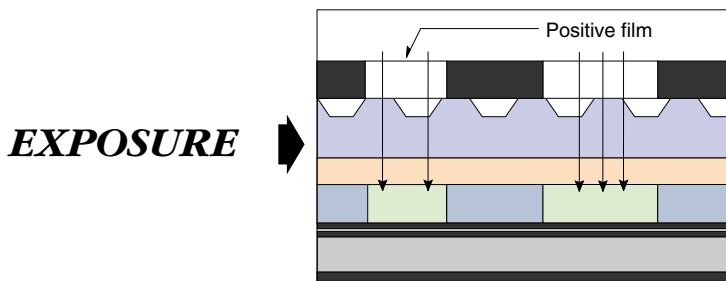
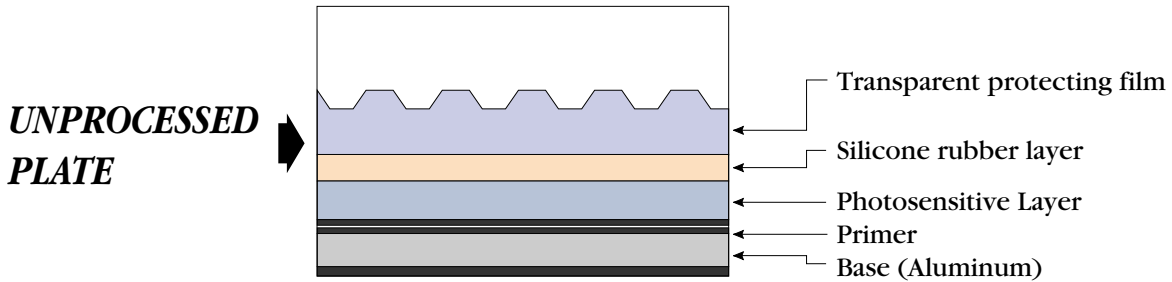
### ③ Shelf life

One year after production

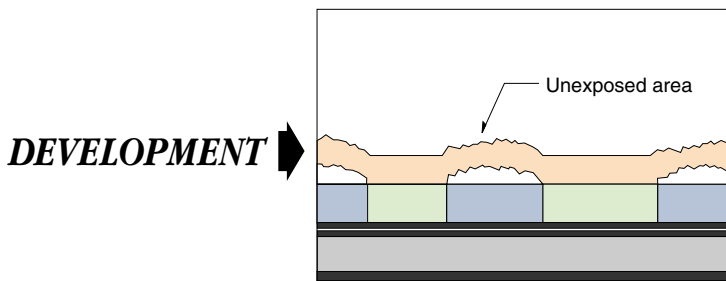
### ④ Type and Property

	Main Application	Durability (Coated paper)	Reproducibility
TAPH-G2	Sheet-fed	100,000 - 200,000	1-99% at 175lpi
TAPD-G1	Sheet-fed / Web	150,000 - 300,000	1-99% at 175lpi
TAPD-G3	Web	200,000 - 500,000	1-99% at 175lpi
TAPD-G5	Web	400,000 -1,000,000	1-99% at 175lpi

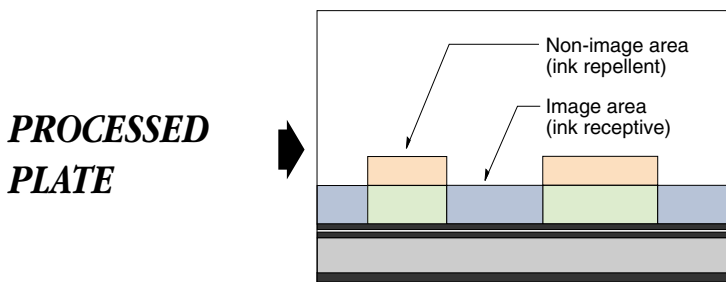
**C** Structure and Working principle



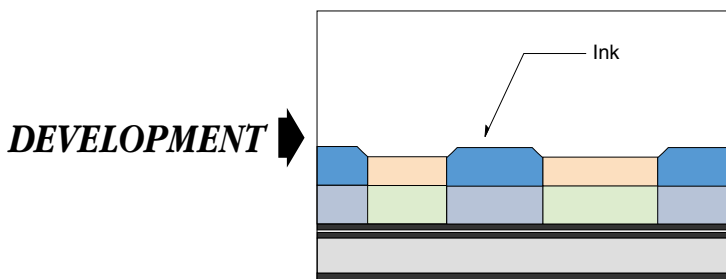
Exposure to light through the protecting film causes the photosensitive layer to bind itself firmly to the silicone rubber layer.



The protecting film is peeled off and a developer is applied to the plate surface, then the silicone rubber in unexposed areas is brushed off the photosensitive layer.



The photosensitive layer in the unexposed layer makes ink-repellent background areas, whereas the remaining silicone rubber layer makes ink-receptive image areas.



# 2. *Let's make a plate*

## **A** For your safety

- \*Be careful not to cut your hand by plate edges.
- \*Although the waterless system is environmentally friendly, some chemicals may suffer you when misused.  
Read Material Safety Data Sheet (MSDS) prior to use.

## **B** Storing

### ① Recommended Storage Condition

1. Temperature - 15 - 25°C ( 59 - 77°F)
2. Humidity - About 50% RH

*(Note) Heat or cold can change the sensitivity.*

If a processed plate is not going to be printed within 1-2 days after development, coat the plate with a cotton pad saturated with the Plate Cleaner PC-1 carefully beforehand.

*(Note) If you don't apply PC-1 before storage, the ink receptivity of image area becomes worse.*

### ② Safety Light

Handle under yellow safety lamp.

<i>Type of Lamp</i>	<i>Room Light Tolerance</i>
· <i>Yellow Fluorescent Lamp(40Wx2 at 1.5m,5ft)</i>	· <i>5 hours</i>
· <i>White Fluorescent Lamp (40Wx2 at 1.5m,5ft)</i>	· <i>1 minute</i>
· <i>Tungsten Lamp (100Wx1 at 0.5m,1.7ft)</i>	· <i>0.5 minutes</i>

*(Note) Once a plate is exposed unnecessarily, poor development (fogging) problem happens. (The appearance is shown in the trouble shooting guide.)*

## **C** Exposure

### ① Equipment

The peak wave length is 365nm. Strong UV lamps such as Metal Halide, Pulsed Xenon or Super Mercury lamp are recommended.

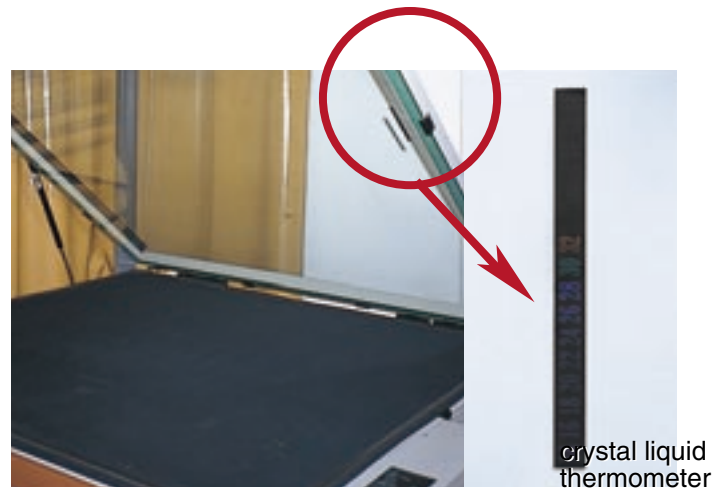
*(Note) Don't peel off cover film before exposure. Once the cover film is removed, the plate has almost no photosensitivity.*

### ② Preparation

- a) Clean the film positive and the vacuum glass to remove dusts and dirt.  
(To eliminate electro-static, wipe the glass with damp sponge with a little kitchen soap in it.)
- b) Warm the plate and the vacuum frame in order to keep correct sensitivity.  
(More than 25°C or 77°F)  
(For first job in the morning and winter time only)

*(Note) When a plate is exposed under cold temperature, dots in shadow area may be clogged or silicone layer in the non image area may be peeled. (The appearance is shown in the trouble shooting guide.)*

(Note) We recommend to put a crystal liquid thermometer on the glass of vacuum frame.



c) You can use a fine ballpoint pen to add register marks on the cover film

d) Mask Sheets

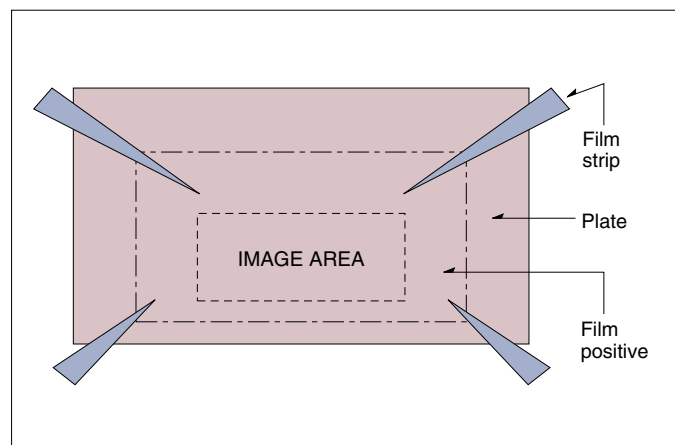
Use black or red color mask sheets.

e) Vacuum Contact

Place a film positive over the plate and vacuum the frame.

(Note) When the vacuum contact is not sufficient, fogging problem or dot loss in high-light area will happen. (The appearance is shown in the trouble shooting guide.)

(Note) In order to ensure the vacuum contact, the following procedure is efficient. Insert clear narrow film strips between the plate and the film positive. They make air channels to help evacuate air inside plate.



f) Step-and-repeat machine

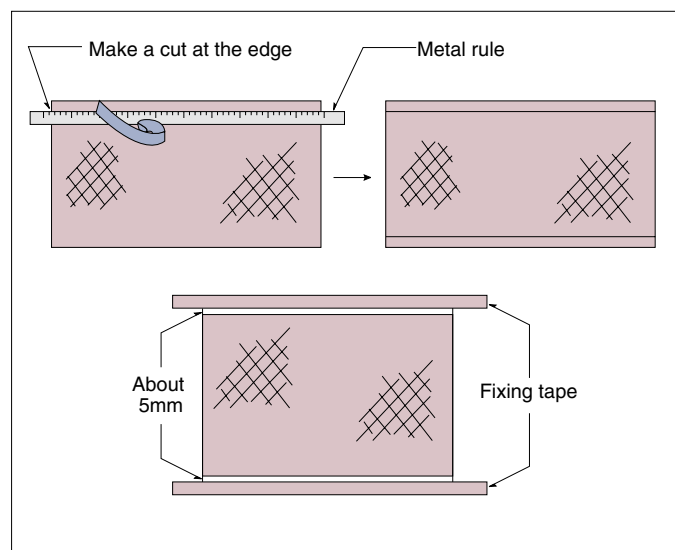
a. Tear off the cover film about 25mm(1 inch) width along the metal rule.

b. Fix the plate with an adhesive tape.

(Note) Ensure that the tape is not placed over the cover film.

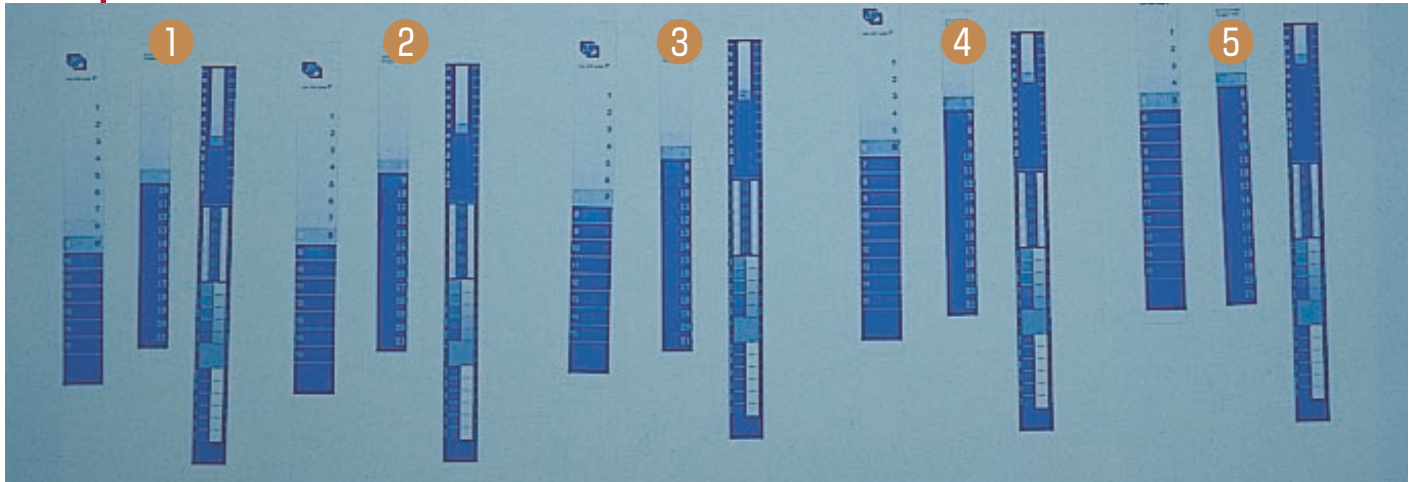
If not, when vacuum is released air should creep under the film creating fogging problem.

(The appearance is shown in the trouble shooting guide.)



### ③ Exposure Time Setting

Check the appropriate exposure time with Gray Scale as follows:



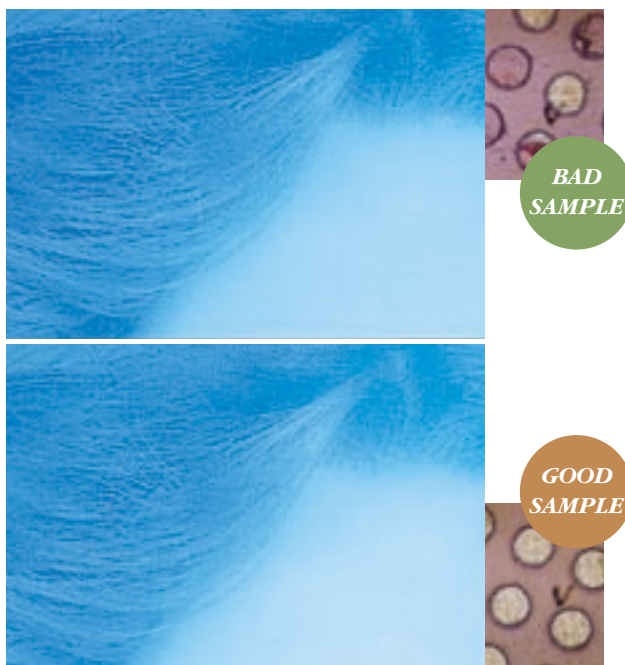
- Double time
- Current standard time
- Half time

Our recommended exposure time is open step 7-9 on Fuji's or Stouffer's step guide and 6-8 on Ugra's guide. According to the above pictures, ① or ② is recommended.

#### *When the exposure time is too short...*

##### **Less than Open 5 (Stouffer)**

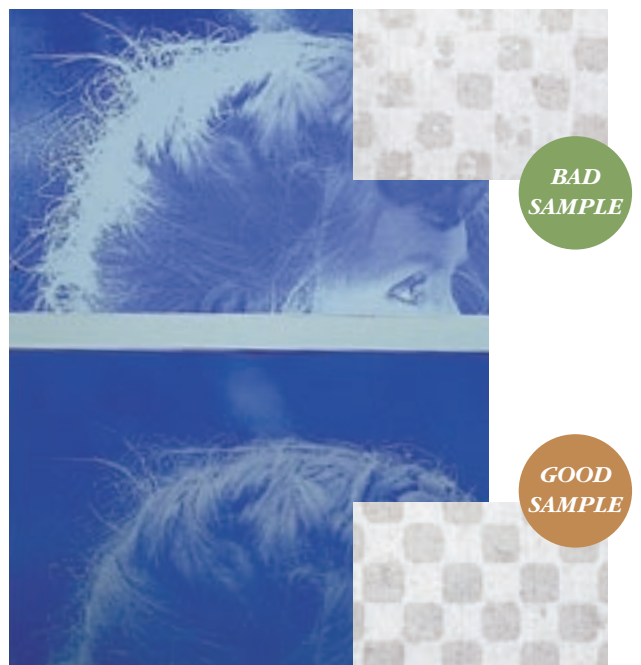
- Film edge and dusts didn't disappear.
- Clogging problem happens in shadow area.



#### *When the exposure time is too long...*

##### **More than Open 10 (Stouffer)**

- Difficult to develop!
- Dot loss problem happens in high-light area.



(Note) The above bad samples were made intentionally.

## D Development

The next step is development. There are two methods Hand processing Machine processing. The proper method for Hand development is show below.

### ① Hand Development



a) Remove the cover film

*(Note) Once the cover film is removed, plate has almost no photosensitivity. You can handle the plate under normal white light.*



b) Pour Developer HP-7N into a special developer pad.

*(Note) Keep the pad clean without hard particles.*



c) Add small amount of dye solution P on the special developing pad and rub image areas uniformly.

*(Note) Do not scratch plates by sharp edges of the pad.*

- d) Wipe off silicone residues on plate with a soft cotton pad.
- e) Check the plate and rub the under-developed areas moderately with pad. Especially edges, register marks and high-light areas.

*(Note) No gumming is required. When you gum, toning problem will occur!*

*(Note) Be careful not to mix HP-7N with water. It becomes out of use.*

- f) Water-wash the plate with a clean cellulose sponge, squeeze out water, and air dry the plate.

*(Note) Be sure to insert paper sheets. Processed plates may adhere each other.*

- f) When you find the under-developed area on press, rub with cotton and HP-7N.

## ② Machine Development

You can also develop a plate by a special plate processor.

- a) Remove the cover film.
- b) Pass the plate to the processor.

### Functions

#### 1) Pre-treatment section

Pre-treatment solution weakens the bonding between silicone and photosensitive layer in non-image area.

#### 2) Development section

The plate is brushed by a rotating and oscillating brush roll under water spray. Silicone rubber in the image area is brushed off and washed away with water.

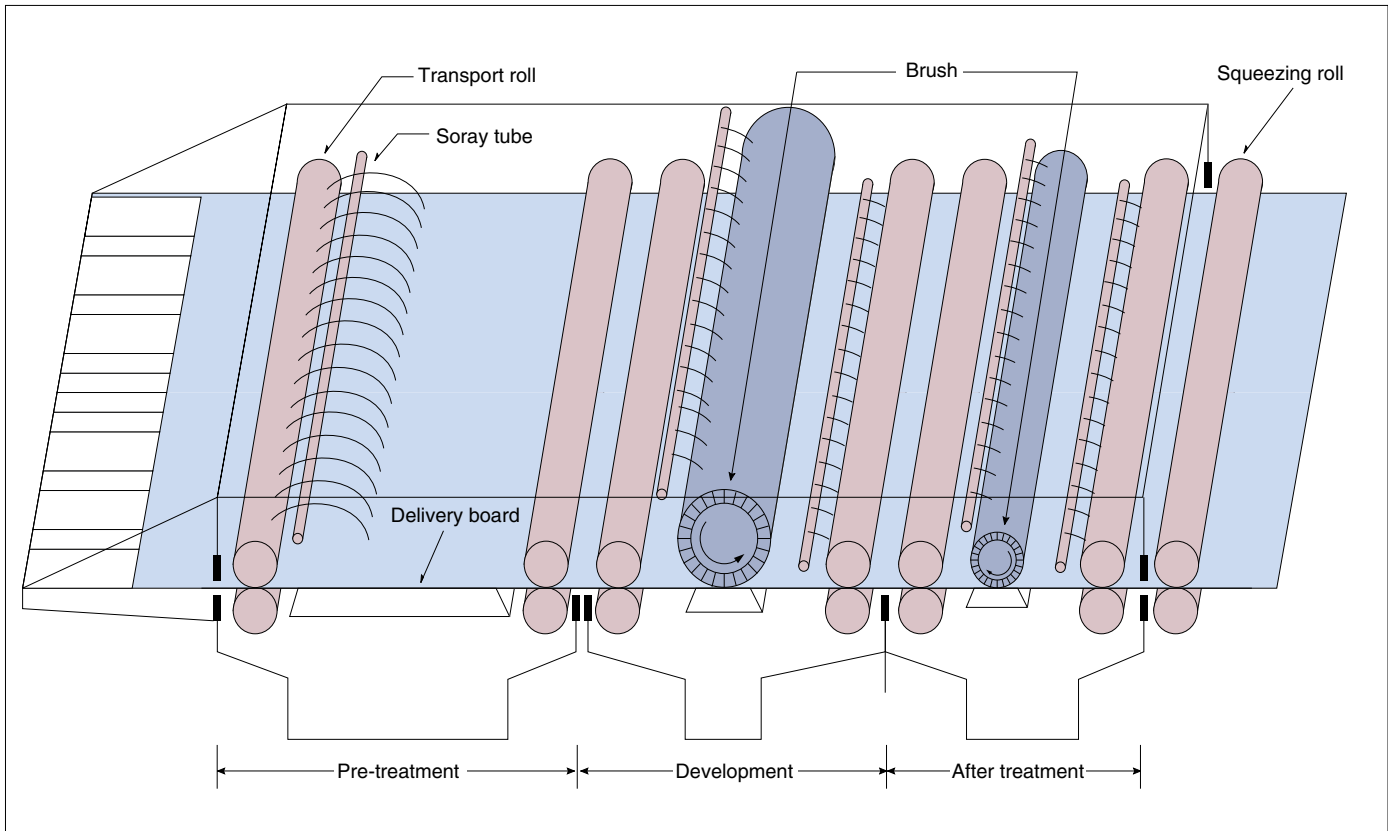
#### 3) After-treatment section

The image areas are dyed with after-treatment solution being brushed with a smaller rotating brush roll.

#### 4) Squeezing rolls

Excessive chemistry is squeezed out by two pairs of rollers and the plate is delivered. The plate becomes dry in one or two minutes after delivery.

● **PROCESS DIAGRAM**



● **MAINTENANCE OF MACHINE**

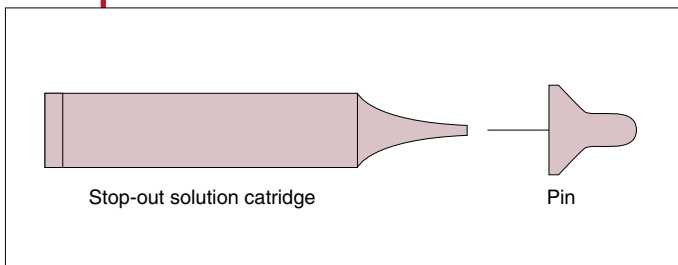
	Chemicals	Temperature	Maintenance
Pre-treatment solution	PP-1(for TAPH-G2) PP-F(for TAPD-G1,3.5)	42 °C(109 °F)	Change after developing approx. 1,000sqm of plates.
Developer	Tap water	Room Temperature	Drain out water. Clean the tank and filter every month.
After-treatment solution	PA-1(for TAPH-G2) PA-F(for TAPD-G1,3.5)	Room Temperature	Replenish with PA-1 or PA-F.

## **E** Inspection

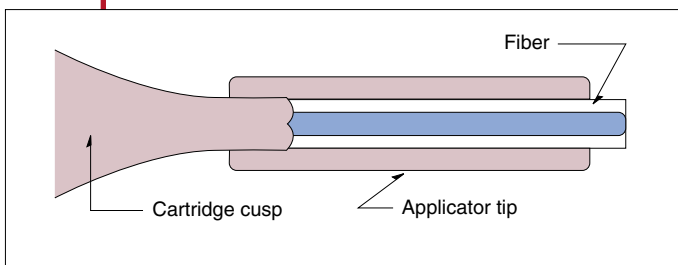
### **1** Deletion

You can cover the unwanted images with the special deletion pen "Stop-out solution ST-1" in the following way. ST-1 forms ink-repelling silicone rubber coating at room temperature.

- a) Make sure that the plate is completely dry.
- b) Take out ST-1 cartridge breaking the aluminum wrap. Make a hole on top of cartridge with enclosed pin.



- c) Insert the top of the cartridge into applicator tip C-1 pushing fibers out of the tip by about 1.5mm or 0.06".



d) Apply ST-1 to the plate by gently squeezing the cartridge.

Leave it dry for 3 min. and the plate is ready to run.

*(Note) If the ST-1 is applied to the image area accidentally, wipe it off with Plate Cleaner PC-1 immediately.*

*(Note) ST-1 dries easily by absorbing water from the air. When applicator tip is clogged, replace it with a new one.*

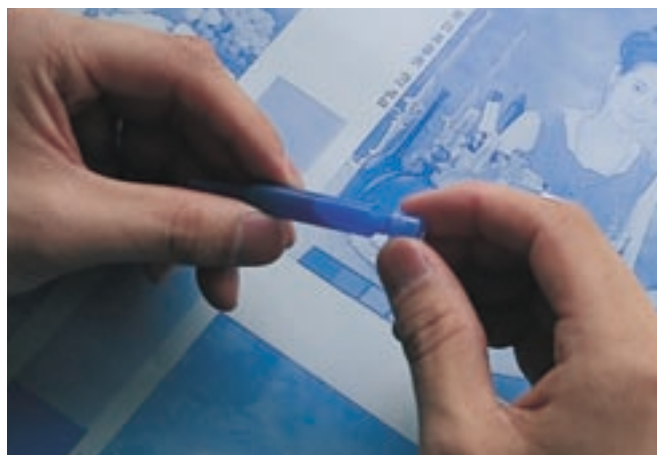
*(Note) Too thick a coating may cause scumming at edges of coating.*

*In that case, rub off the coating with Plate Cleaner PC-1 and apply it again.*

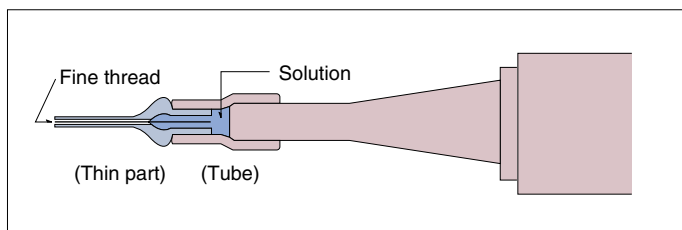


We have two other tips according to the size of the unwanted area.

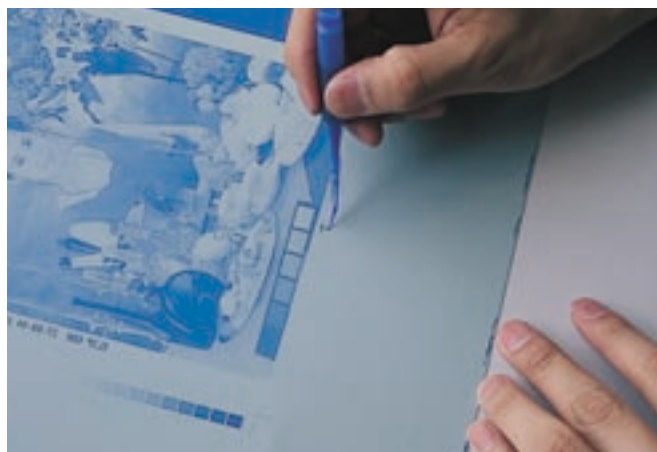
\*Middle correction tip MC-1 - for broader area (8 mm or 0.32" width)



\*Fine correction tip FC-1 - for finer area (1mm or 0.04" width)



e) After use, keep the cartridge flat with tip attached. The cartridge can be stored for several days.



## ② Addition

Lines or simple signs can be formed by scratching background area with a sharp point.

Solid bands can be formed on prints by applying Addition Tape ADT-2 on the plate surface.

# 3.

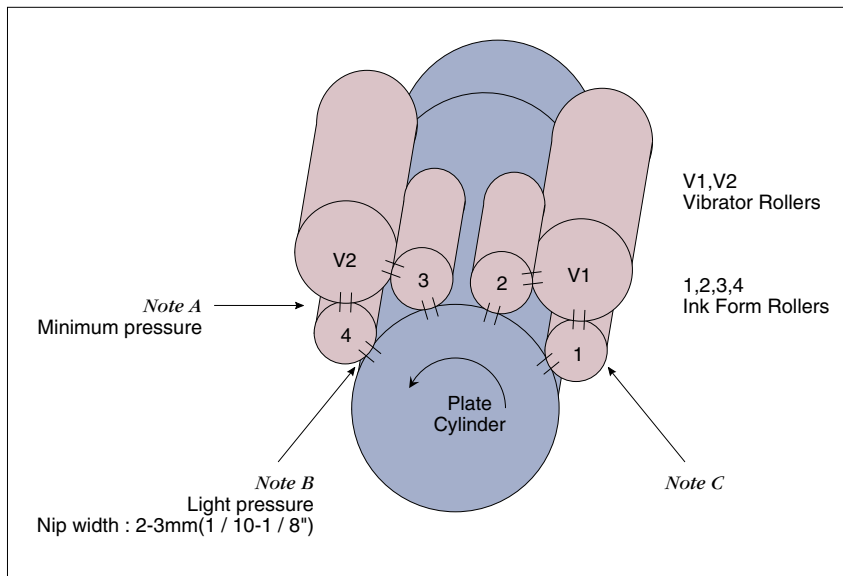
## Let's run Waterless

### A Preparation

#### 1 Press setting

1. Disengage or remove dampeners. (Non-exclusive waterless press only)
2. Check the ink form rollers.
  - Standard setting is applicable to waterless printing.
  - When toning problem occurs, you may need to adjust the last ink form rollers.

#### ● HOW TO ADJUST INK FORM ROLLERS



*(Note A) The very light pressures to plate and to vibrator rollers will minimize ink flow to the last form roller. This adjustment helps avoid excess pressure and eventual end-play of the form roller when the ink form roller swells with the heat during press-run.*

*(Note B) The last form roller should hold the least ink and run smoothly with no end-play or bouncing on plate, so that it cleans the background of plate effectively. Other form rollers should be adjusted as specified by the press manufacturer.*

*(Note C) A hickey picker roller is effective to remove hickies from plate. Replace the first ink form roller with it.*

*(Note D) Harder rubber roller (40-45 shore A) is recommended in order to achieve better ink transfer and better solid laydown of prints.*

3. Check the blanket cylinder.
  - Use semi-compressible harder blanket with a buffed surface for better release and underpack only with gauge paper. Over-packing will shorten the plate life.



### 3 Cooling System

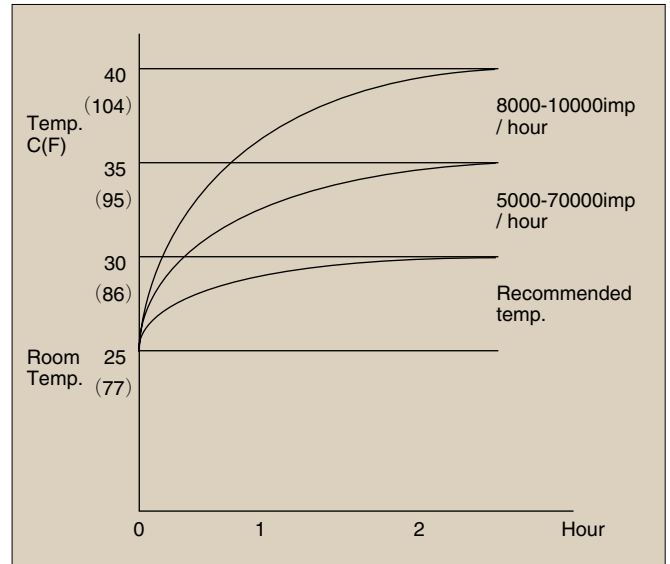
The offset press running with waterless becomes warmer than that with a conventional plate, since the cooling effect by dampening water is not available.

With the cooling system of proper capacity, you can control the press temperature at about 25 to 30°C (76 to 86°F) on plate cylinder.

Press cooling is of importance in achieving optimum results.

There are basically two cooling systems available. In order to equip the best-suited system, please consult a press manufacturer or our official dealer for details.

An example of the temperature profile is as follows.



#### 1) Cooling the vibrator rollers with chilled water

We recommend this system for high-speed printing.

A copper surface roller is about 50% better in cooling efficiency than a plastic (nylon or ebonite) covered roller.

*Fig.1)* Typical cooling capacity and water flow requirements for sheet-fed presses at the speed of 8,000-10,000 impression/hour.

Press Size	Cooling capacity per unit	Water flow per unit
26" press	2,000 kcal / h (8,000Btu)	15 litter / min (4gal / min)
40" press	2,000 kcal / h (12,000Btu)	20 litter / min (5gal / min)
50" press	5,000 kcal / h (20,000Btu)	30 litter / min (8gal / min)

*Fig.2)* Typical cooling capacity and water flow requirements for web presses at the speed of 800-1,500 fpm.

Press Size	Cooling capacity per unit	Water flow per unit
40" press 16pages, 4c / 4C	2,000 kcal / h (8tons)	25-30 litter / min (6.5-10gal / min)

## 2) Cooling the plate cylinder with chilled air

Forced air is supplied to the plate cylinder surface through an air knife.  
The air knife is installed in the dampener roller position.

*Fig.3)* Typical cooling capacity and air flow requirements for sheet-fed presses at the speed of 8,000-10,000 impression/hour.

Press Size	Cooling capacity per unit	Air flow rate	Air pressure
40" press	2,000 kcal / h (8,000Btu) Entering air : 27°C (80°F) 50%RH Leaving air : 12°C (54°F) 90%RH	5 m <sup>3</sup> / min per unit	1016mm (40") water colum

## **B** Start-up

1. Check the temperature of plate cylinder to decide suitable type inks to start with.
2. Remove the excess roller-wash solvent on the rollers in order to avoid toning by the contamination.
3. After washing rollers, check if there is any crack on each roller, especially an ink fountain roller. Cracks on the roller surface may cause hickeys.
4. Mill the inks well in the duct, when the inks have been kept cold in the can.

# 4. Chemicals and Implements

## 1. Chemicals

	Chemical Name	Main Ingredients	Flash Point
1) For Hand development	<ul style="list-style-type: none"> <li>· Developer 'HP-7N'</li> <li>· Dye Solution 'P'</li> </ul>	<ul style="list-style-type: none"> <li>· Isoparaffine solvent</li> <li>· Polypropylene glycol</li> <li>· Polypropylene glycol Dye</li> </ul>	51 °C (124 °F)  NE
2) For Machine development	<ul style="list-style-type: none"> <li>· Pre-treatment solution 'PP-1' and 'PP-F'</li> <li>· After-treatment solution 'PA-1' and 'PA-F'</li> </ul>	<ul style="list-style-type: none"> <li>· Polypropylene glycol</li> <li>· Water, Diethylene glycol</li> <li>· Monoethyl Ether</li> </ul>	147 °C (297 °F)  90 °C (194 °F)
3) Other chemicals	<ul style="list-style-type: none"> <li>· Plate Cleaner 'PC-1'</li> <li>· Stop-out Solution 'ST-1'</li> <li>· Anti-toning additive 'AT-50' and 'AT-100' for ink</li> </ul>	<ul style="list-style-type: none"> <li>· Isoparaffin solvent</li> <li>· Isoparaffin, Ethyl Acetate</li> <li>· Polyamideamine</li> </ul>	7 °C ( 45 °F) -4 °C ( 25 °F) 215 °C (419 °F)

## 2. Implements

### 1) For Hand development

Developing pad with steel handle (spare pads and spare handles are available)

### 2) For Printing

Addition tape 'ADT-2'

Silicone rubber for hickey picker

# 5.

# Trouble Shooting Guide

## A Plate making Process

### ① Poor reproduction of high-light dots

#### Possible Causes and Solutions

#### a. Fogging of unprocessed plate

**Solution :**

Use a new plate, handle a unprocessed an plate unde anr yellow safety lamp.

#### b. Poor vacuum contact

**Solution :**

Check the vacuum frame(drawdown, condition of rubber gaskets,etc.)

**Solution :**

Extend time of vacuum contact.

**Solution :**

Insert clear film strips between a film positive and a plate to provide air channel.

#### c. Too long Exposure time

**Solution :**

Check the correct gray scale value.  
(Ugra:6-8,Stouffer:7-9)

#### d. Insufficient density of the film positive

**Solution :**

Reduce the exposure time, make sure that the GS value is as usual.

#### e. Insufficient development

**Solution :**

Develop the plate again by processor or by hand.  
When using a processor, check the following points carefully.

\*Brush Pressure is even and not too weak.

\*Pre-treatment Shower comes correctly.

\*PP-1(PP-F) is full and fresh.

\*Brush is not old.(Limit:20,000pass)

\*Temperature of PP-1 (PP-F)

### ● APPEARANCE



BAD  
SAMPLE



GOOD  
SAMPLE

#### f. Insufficient opacity of the masking sheet

**Solution :**

Use a red or black color mask,check opacity of the orange or yellow color mask before use.

#### g. Plate age

**Solution :**

Use a new plate. Usually plates more than one year old become difficult to develop.  
(Toray can guarantee six months after delivery.)

#### h. Incorrect temperature and humidity (Hand development)

**Solution :**

Develop a plate under normal room condition.

When the room temperature is too low or humidity is too low, it becomes difficult to develop.

## ② Poor reproduction of Shadow dots + Silicone peeling

### Possible Causes and Solutions

#### a. Poor vacuum contact

**Solution :**

Check the vacuum frame(drawdown, condition of rubber gaskets,etc.)

**Solution :**

Extend time of vacuum contact.

**Solution :**

Insert clear film strips between a film positive and a plate to provide air channel.

#### b. Too short exposure time

**Solution :**

Check the correct gray scale value.  
(Ugra:6-8,Stouffer:7-9)

#### c. Insufficient transparency of the film positive

**Solution :**

Extend the exposure time, make sure that the GS value is as usual.

#### d. Too low temperature of vacuum frame

**Solution :**

Warm up the frame at above 25°C(77°F) before exposure.

#### e. Too aggressive development

**Solution :**

For hand development, don't rub a plate too aggressive.

For machine development, check if the brush pressure is even and not too strong.

#### f. Too high humidity (Hand development only)

**Solution :**

When the humidity is more than 80%, silicone peeling problem may occur.

## ● APPEARANCE



BAD  
SAMPLE



GOOD  
SAMPLE

## ③ Dirt and film edge reproduction on plate

### Possible Causes and Solutions

#### a. Insufficient cleaning of frame glass and film positive

**Solution :**

Remove dirt, wipe the glass with a damp sponge with a little kitchen soap in it for eliminating static build-up.

#### b. Too short exposure time

**Solution :**

Check the correct gray scale value.  
(Ugra:6-8,Stouffer:7-9)

#### c. Others

**Solution :**

Expose-out the background areas using proper masks.

## B Printing Process

### ① Scratches on plate (Vertical scratches)

#### Possible Causes and Solutions

#### a. Incorrect plate making

**Solution :**

*See the plate making manual.*

#### b. Incorrect way of mounting plate on press

**Solution :**

*Be careful not to touch a plate with the press safety bar.*

#### c. Hard particle on roller(s)

**Solution :**

*Check ink form rollers, remove hard particles, wash up rollers.*

#### d. Incorrect materials for hickey picker

**Solution :**

*Use soft (silicone) rubber for hickey picker. Hard rubber can scratch a silicone surface.*

#### e. Dirty automatic hickey picker roller

**Solution :**

*Clean the hickey picker roller.*

### ② Scratches on plate (Horizontal scratches)

#### Possible Causes and Solutions

#### a. Incorrect way of cleaning plate on press

**Solution :**

*Wash up plate using a clean soft wipe containing sufficient Plate Cleaner PC-1. Apply Stop-out Solution ST-1 when necessary. Incorrect materials for hickey picker also cause scratches.*

### ③ Image reappears after deletion

#### Possible Causes and Solutions

#### a. Deletion over oily surface

**Solution :**

*Clean image areas with PC-1 and dry the area before deletion.*

#### b. Old ST-1 solution

**Solution :**

*Use fresh ST-1. Renew applicator tip C-1 frequently.*

#### c. Inefficient ST-1 coating

**Solution :**

*Apply a coating of moderate thickness.*

#### d. Short drying time is too Short after deletion

**Solution :**

*Leave the coating to dry for 3 min. Use hot air, if necessary.*

e. Frequent plate cleaning over deleted areas

**Solution :**

*Avoid cleaning deleted areas excessively.*

f. Use of harsh solvents for plate wash

**Solution :**

*Use Plate Cleaner PC-1.*

#### ④ Scumming at edges of deleted area

##### *Possible Causes and Solutions*

a. Rough surface of the ST-1 coating

**Solution :**

*Rub off the coating gently with soft wipe wet with PC-1 and apply fresh ST-1.*

*Use fresh ST-1 with a new applicator tip.*

*Dilute ST-1 with PC-1 and spread it using a small piece of wipe.*

b. Too thick ST-1 coating

**Solution :**

c. Short drying time after deletion

**Solution :**

*Leave the coating to dry for 3 min. Use hot air; if necessary.*

#### ⑤ Background Toning

##### *Possible Causes and Solutions*

a. High press temperature

**Solution :**

*Air condition the pressroom or cool the press by chilled air or introduce chilled water to the rollers.*

**Solution :**

*Check for the residue of roller-wash. Wash finish roller with PC-1. Check for machine oil drips into rollers during press-run.*

b. Ink unsuited for the press temperature condition (Viscosity is too low)

**Solution :**

*Check press temperature and use ink of higher viscosity. Adjust reducer content of the ink. Add 0.5-1% of anti-toning additive, if necessary.*

e. Incorrect roller adjustment

**Solution :**

*Stop end-play of ink form rollers. Minimize the last ink form roller/vibrator roller pressure. Reduce the last form roller/plate pressure. Check for uneven roller pressure across the width of the press.*

c. Too much Ink on rollers

**Solution :**

*Reduce amount of ink by sheeting off.*

f. Plate flapping at gripping edge

**Solution :**

*Check if the plate grip is tight.*

d. Oily residue on rollers/Incorrect roller-wash (water miscible type) / Tacky roller after wash

g. Large image coverage

**Solution :**

*Use ink of higher viscosity.*

## ⑥ Poor ink laydown/Hollow dots /Ghosting / Poor gloss / Paper Picking / Edgepicking / Blanket piling / Paper curl

### Possible Causes and Solutions

#### a. Low press temperature

**Solution :**

*Warm up the press running fast with ink on rollers without feeding sheets.*

#### b. Ink unsuited for the press temperature (Ink viscosity and tack is too high)

**Solution :**

*Check press temperature and use most suited type of ink. Use appropriate amount of reducer.*

#### c. Cold ink can

**Solution :**

*Warm up ink cans up to 20°C(70°F) before taking ink out.*

#### d. Insufficient agitation of ink

**Solution :**

*Agitate ink well in the ink duct. Close down ink keys and increase ink duct roller stroke. Use ink rollers of harder type (40-45° shore A).*

#### e. Ink-setting or drying on rollers (very small ink consumption and hot ink rollers > 40°C or 104°F)

**Solution :**

*Wash-up rollers and additional reducer in the ink. Increase ink consumption by adding solid band image on plate with Addition Tape ADT-2.*

#### f. Insufficient leveling of ink on sheet

**Solution :**

*Print solid on proceeding unit in case of multicolor press.*

#### g. Unsuitable blanket and underpacking

**Solution :**

*Use quick release type semi-compressible blanket with hard underpacking (paper sheets).*

#### h. Low impression pressure

**Solution :**

*Set impression pressure a little harder than usual.*

#### i. Piling of paper dusts or spray powder on plate or on blanket

**Solution :**

*Don't use dusty waste sheets to start running. Don't use water soluble spray powder. Use a hickey picker roller such as Rodel Roller.*

#### j. Low humidity of pressroom (Paper Picking)

**Solution :**

*Use humidifier and keep humidity condition 60% RH at 25°C or 78°F*

#### k. Rough surface of ink form roller(s) (Poor laydown)

**Solution :**

*Use smooth new rollers.*

## 7 Hickeys

### Possible Causes and Solutions

#### a. Paper picking

**Solution :**

*Follow the solutions in 2).*

#### b. Poor laydown

**Solution :**

*Improve laydown following the solutions above.*

#### c. Ink skins from ink can.

**Solution :**

*Spray ink in the can.*

#### d. Hard ink particles loosely bound on both ends of rollers

**Solution :**

*Run fast with ink on rollers not feeding sheets, and wash up rollers. Repeat same way until rollers are cleaned of hickeys.*

## 9 Poor wet-on-wet trapping

### Possible Causes and Solutions

#### a. Poor laydown

**Solution :**

*Improve laydown following the solutions in 2).*

#### b. Incorrect tacks between colors

**Solution :**

*Adjust accordingly.*

#### c. Too heavy an ink film of the previous color

**Solution :**

*Check print density of the previous color and reduce ink level, if necessary.*

## 8 Marking and set-off

### Possible Causes and Solutions

#### a. Ink on printed sheets too much

**Solution :**

*Keep normal density in printing.*

*Do not try to match the conventional proof by printing with too much ink.*

*Do not try to overcome bad laydown by increasing ink film.*

*Improve laydown by following the solutions above and try to print with thinner ink film.*

## 10 Back trapping

### Possible Causes and Solutions

#### a. Incorrect tacks between colors

**Solution :**

*Adjust accordingly.*

#### b. Too heavy an ink film of the previous color

**Solution :**

*Check print density of the previous color and reduce ink level, if necessary.*

## 11 Plate wear is too fast.

### Possible Causes and Solutions

#### a. Pressure is too high.

**Solution :**

*Check plate and blanket packing and readjust them properly.*

#### b. Abrasive spray powder

**Solution :**

*Use spray powder made of coated starch. Avoid using too much spray powder.*

***Memo***

Toray  
waterless  
plate

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# *Memo*

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