'TORAY'

Toray Waterless Plate

Negative working type

USER'S MANUAL

●

< Advantages of the Waterless Plate >

Less Dot Gain

Better Color Saturation

More Consistent Color

Faster Make-ready

More Paper Choice

Environmentally Friendly

Table of Contents

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 "WH-3" (1 ℓ /can)
- Pre-treatment solution "PTS-1" (1 ℓ /can)
- Pre-treatment sponge with handle
- Hand development with handle

➤**For machine development**
- Pre-treatment solution "NP-1"
- After-treatment solution "NA-1"

➤**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

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

❷Size
Please consult your local dealer for availability
maximum size :
1610x1240mm (63.3 x48.8inch)

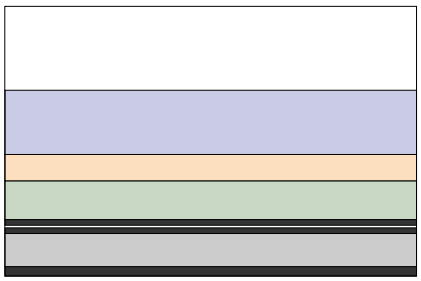
❸Shelf life
One year after production

❹Type and Property

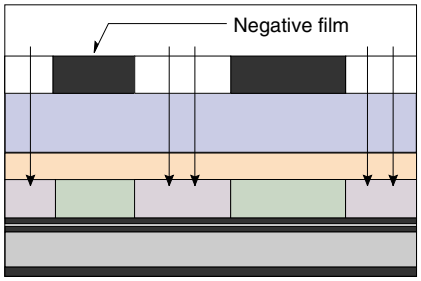
	Main Application	Durability (Coated paper)	Reproducibility
TAN-E	Sheet-fed / Web	300,000 - 500,000	1-99% at 175lpi

C Structure and Working principle

UNPROCESSED PLATE

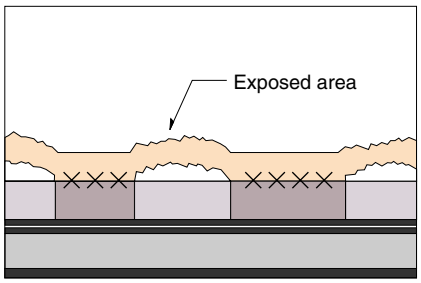


EXPOSURE



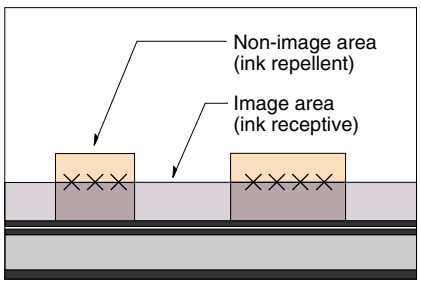
Exposure to light through the protecting film weakens the bond between the photosensitive layer and the silicone rubber layer in exposed areas.

PRE-TREATMENT AND DEVELOPMENT



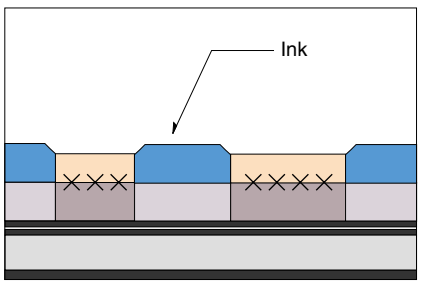
The protecting film is peeled off and Pre-treatment Sol. is applied to the plate to desensitize the plate and to strengthen the link between the silicone rubber and photosensitive layers in unexposed areas.
The silicone rubber is then brushed off the photosensitive layer in the exposed areas.

PROCESSED PLATE



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

PRINTING



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 enviromentally friendly, some chemicals may suffer you when misused.
Read Material Safety Data Sheet (MSDS) prior to use.

B Storing

❶Recommended Storage Condition

1. Temperature - 15 - 25℃ (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.

❷Safety Light

Handle under yellow safety lamp.

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

(Note) Once a plate is exposed unnecessarily, silicone layer peeling problem problem may occur. (The appearance is shown in the trouble shooting guide.)

C Exposure

❶Equipment

The peak wave length are 340nm and 420nm. Strong UV lamps such as Metal Halide, Pulsed Xenon or Super Mercury lamp are recommended.

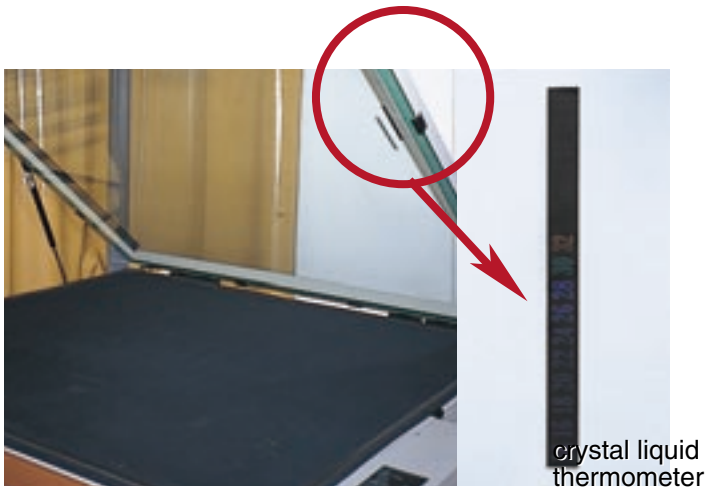
Note) It is possible to expose a plate after removing the protection film.

❷Preparation

a)Clean the film negative 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℃ or 77°F)
(For first job in the morning and winter time only)

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



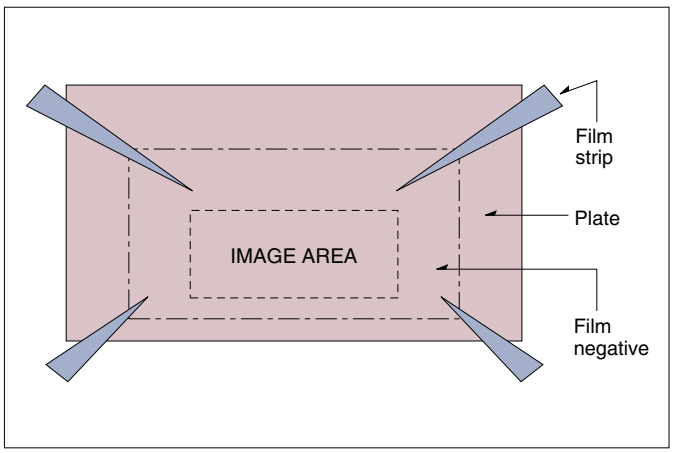
c)You can use a fine ballpoint pen to add register marks on the cover film

d)Mask Sheets
Use black or red color mask sheets.

e)Vacuum Contact
Place a film negative over the plate and vacuum the frame.

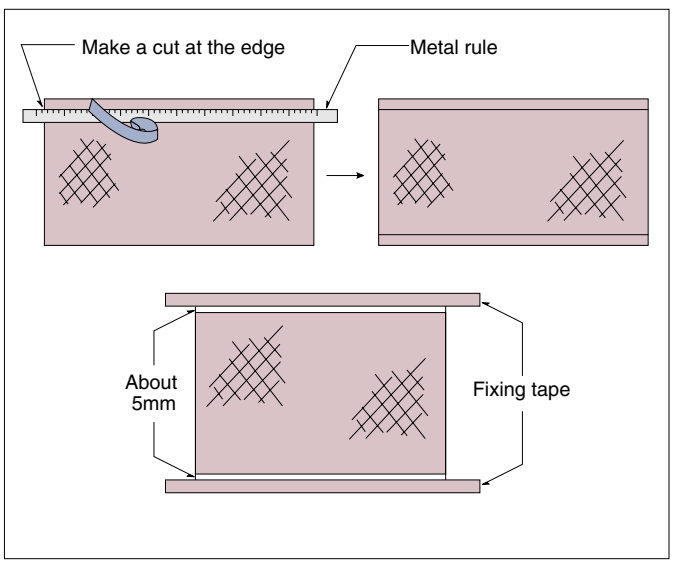
(Note) When the vacuum contact is not sufficient, fogging problem or dot loss in shadow area will happen. (The appearance is shown in the trouble shooting guide.)

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



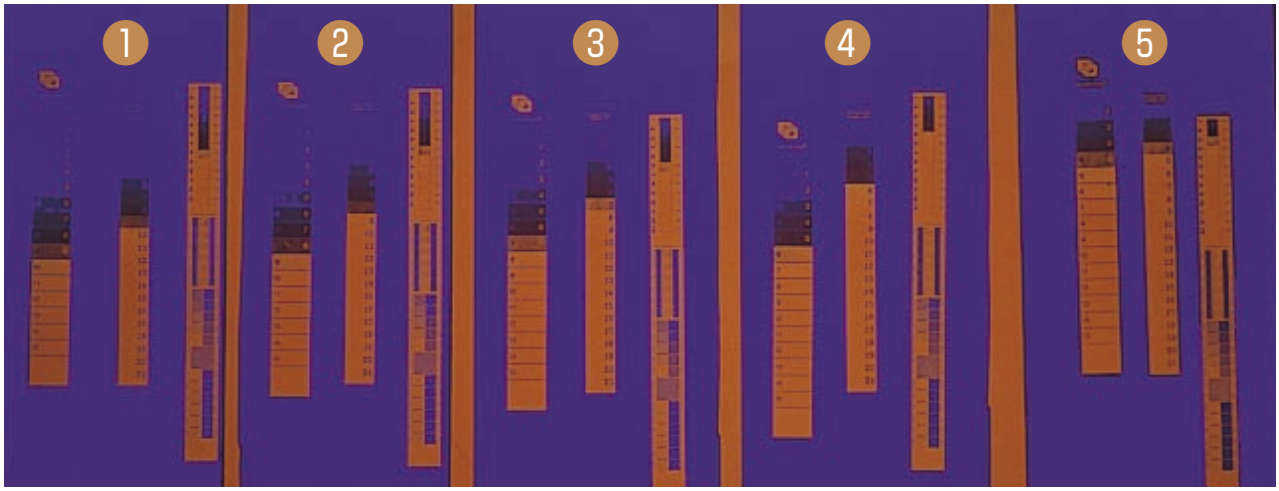
f)Step-and-repeat machine
a.Tear off the cover film about 25mm(1 inch) width along the metal rule.
b.Fix the plate with an adhesive tape.

(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.)



❸Exposure Time Setting

Check the appropriate exposure time with Gray Scale as follows:



・Double time　・Current standard time　・Half time

Our recommended exposure time is solid step 3-5 on Fuji's or stouffer's step guide and 2-4 on Ugra's guide. According to the above pictures, ❶ or ❷ is recommended.

When the exposure time is too short...

Less than Solid 2 (Stouffer)

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

When the exposure time is too long...

More than Solid 8 (Stouffer)

・Clogging problem happens in shadow area.

(Note) The above bad samples were made intentionally.

D Development

The next step is development. There are two ways-by hand and by machine.
We explain the hand development first.

❶Hand Development

a) Remove the cover film

b) Pour Pre-treatment solution PTS-1 into a special sponge.

(Note) Once PTS-1 absorbs water in air, it losts the effect.
The cap should be covered tightly when storage.

c) Apply PTS-1 to a plate and spread it out uniformly.
Leave one minute after the whole color changes.

(Note) When you leave more than 3 min. after color change, the plate can not be developed.

d) Pour Developer WH-3 onto a special developing pad and rub only image areas.

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

e) Wipe off silicone residues on plate with a soft cotton pad.

f) 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.

g) 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.

❷Machine 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.

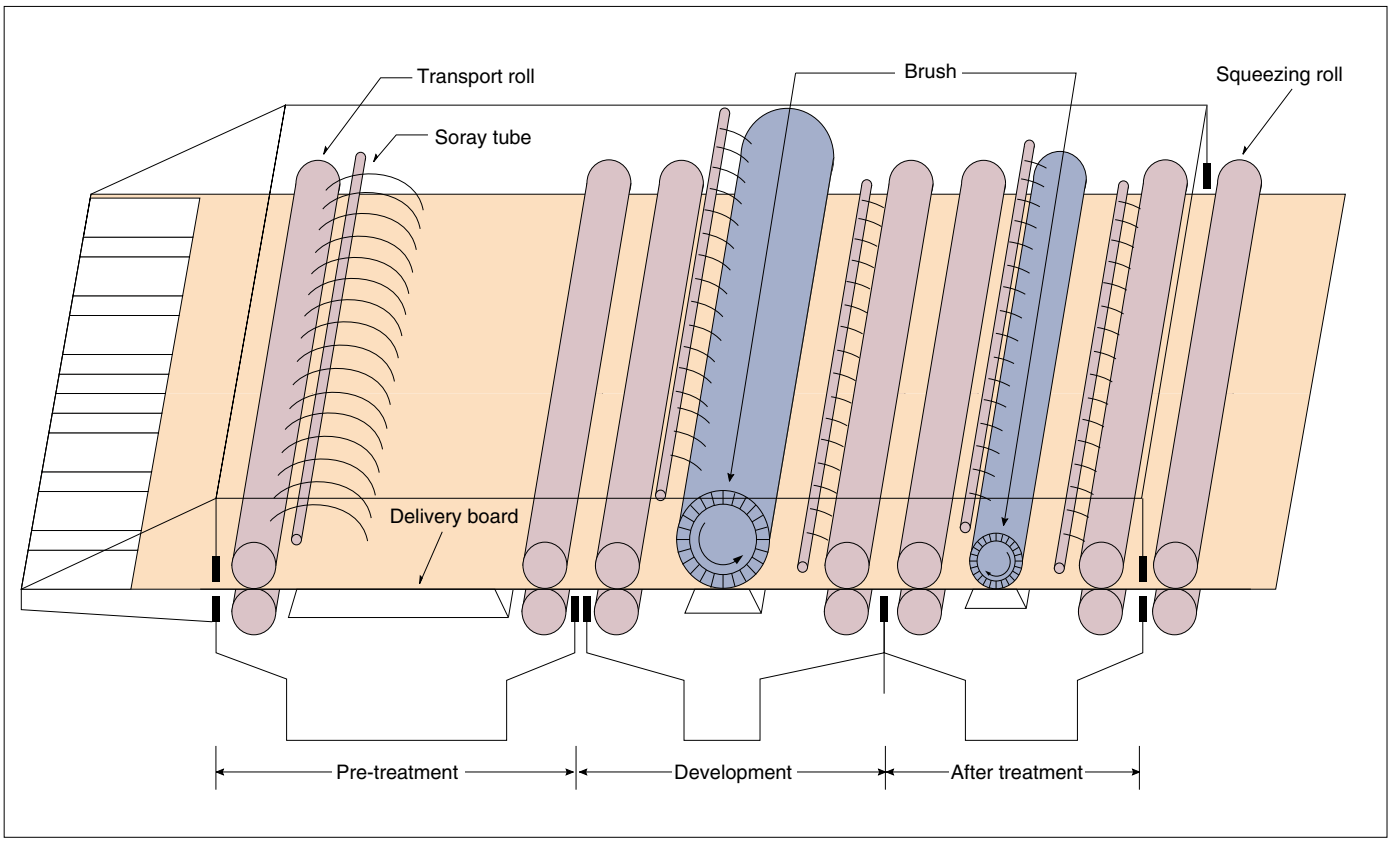
3) After-treatment section

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	NP-1	45-47 °C(113-117 °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	NA-1	Room Temperature	Replenish with NA-1.

(Note) NP-1 is easy to absorb water.
Once NP-1 absorbs much water, it losts the effect.
Work the machine everyday to evaporate water in NP-1.

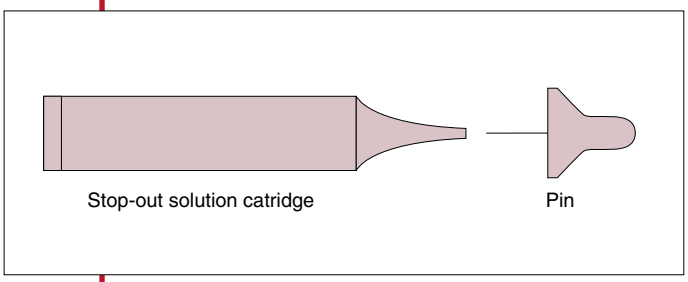
E Inspection

❶Deletion

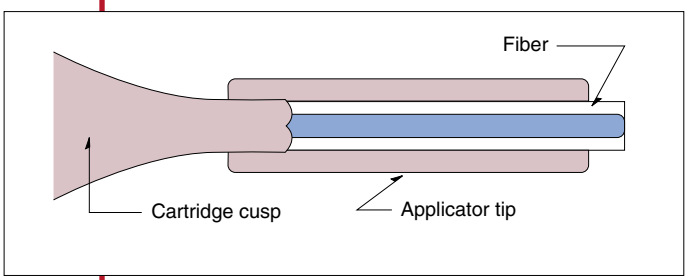
You can cover the unwanted images with the special deletion pen "Stop-out solution ST-1" in the following way. ST-1 forms ink-repelling silicone rubber coating at room temperature.

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".

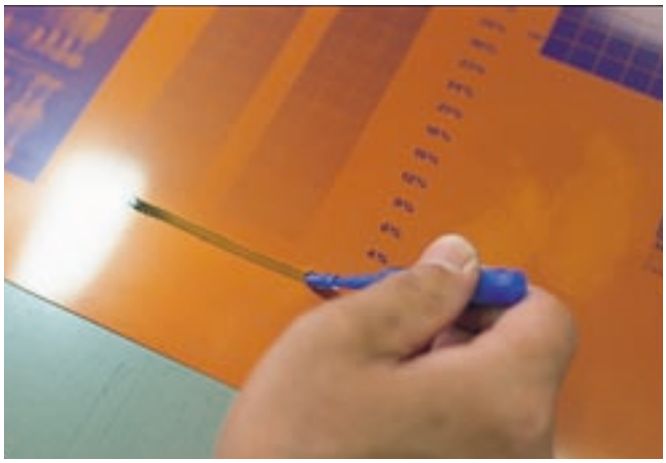


d)Apply ST-1 to the plate by gently squeezing the cartridge.
Leave it dry for 3 min. and the plate is ready to run.

(Note) If the ST-1 is applied to the image area accidentally, wipe it off withPlate 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.

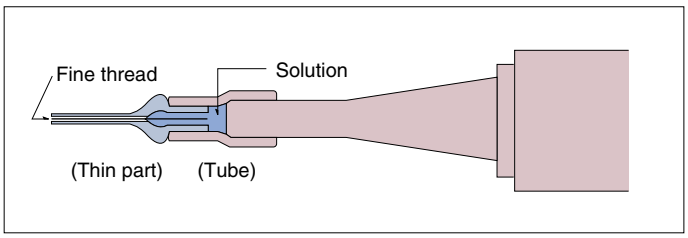
(Note) Too thick a coating may cause scumming at edges of coating.
In that case, rub off the coating with Plate Cleaner PC-1 and apply it again.



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.

❷Addition

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.

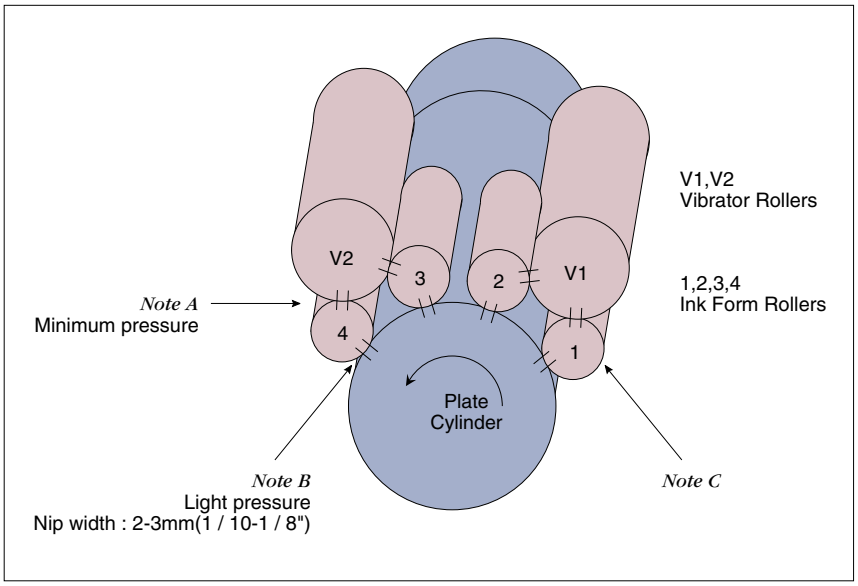
3. Let's run Waterless

A Preparation

❶Press 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*



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.

(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 hickeys 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.

❷Inks

Waterless inks are available from major ink makers. Compared with conventional inks, waterless inks have a higher viscosity and lower tack against heat. The temperature of a press running waterless can increase about 10℃ during running because the dampening system is removed.
Choose suitable inks according to the temperature condition. When an efficient press cooling system is equipped, you may not need to change inks. If not, prepare at least two types of inks.

The following is typical temperature tolerance of waterless inks.

	Temperature tolerance
Inks Type (Viscosity)	14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44 (C) 57 61 65 68 72 75 79 82 86 89 93 97 100 104 108 112 (F)
Extra-low type	Optimum / Toning problem
Low type	
Normal type	
High type	Less gloss, poor lay-down, picking problem

You can change the ink viscosity a little by adding a special reducer or an anti-toning additive into it.

●*HOW TO SOFTEN INKS*

Use reducer compound for conventional inks. It should be added less than for conventional inks in order to avoid toning problems.

●*HOW TO HARDEN INKS*

Use an anti-toning additive-AT-50 for normal oil inks, AT-100 for synthetic papers and UV inks. 0.5-1% can work. After adding, inks will be hard gradually.

Information - When you should change inks

Toning problem starts as follows.

	Blanket	*Paper*
Stage1)	*· Toning only in non-image areas*	*· No toning*
Stage2)	*· Quite dirty in non-image areas*	*· Toning near gripper areas*
Stage3)	*· Toning in all areas*	*· Toning in all areas*

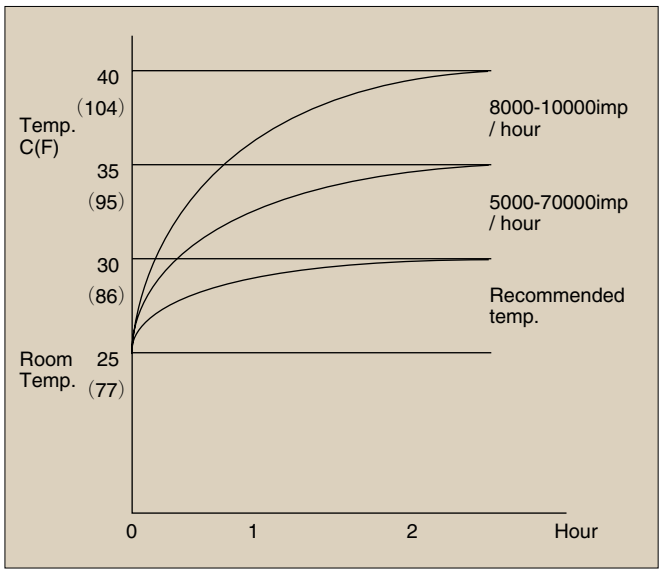
When you found the problem at stage the 2),start adding a harder type ink or AT-50/100 into ink fountain gradually. When you found the problem at the stage 3),change half of the ink into a harder type.

❸Cooling 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℃ (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℃ (80℉) 50%RH Leaving air : 12℃ (54℉) 90%RH	5㎥ / 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	· Pre-treatment solution 'PTS-1'	· Isoparaffine,Diethylene glycol Dimethyl Ether	53 °C (127 °F)
	· Developer 'WH-3'	· Water, Diethylene glycol Monobuthyl Ether	120 °C (248 °F)
2) For Machine development	· Pre-treatment solution 'NP-1'	· Diethylene glycol, 2-(2-Aminoethoy)Ethanol	149 °C (284 °F)
	· After-treatment solution 'NA-1'	· Water, Diethylene glycol Monoethyl Ether	NE
3) Other chemicals	· Plate Cleaner 'PC-1'	· Isoparaffin solvent	7 °C (45 °F)
	· Stop-out Solution 'ST-1'	· Isoparaffin, Ethyl Acetate	-4 °C (25 °F)
	· Anti-toning additive 'AT-50' and 'AT-100' for ink	· Polyamideamine	215 °C (419 °F)

2. Implements

1) For Hand development
   Developing pad with steel handle (spare pad and spare handle are available)
   Pre-treatment sponge with plastic handle (spare sponge and spare handle are available)

2) For Printing
   Addition tape 'ADT-2'
   Silicone rubber for hickey picker

5. Trouble Shooting Guide

A Plate making Process

❶Poor reproduction of high-light dots

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 negative and a plate to provide air channel.

b. Exposure time is too short

Solution :
Check the correct gray scale value. (Ugra:2-4, Stouffer:3-5)

c. Insufficient transparency of the film negative

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

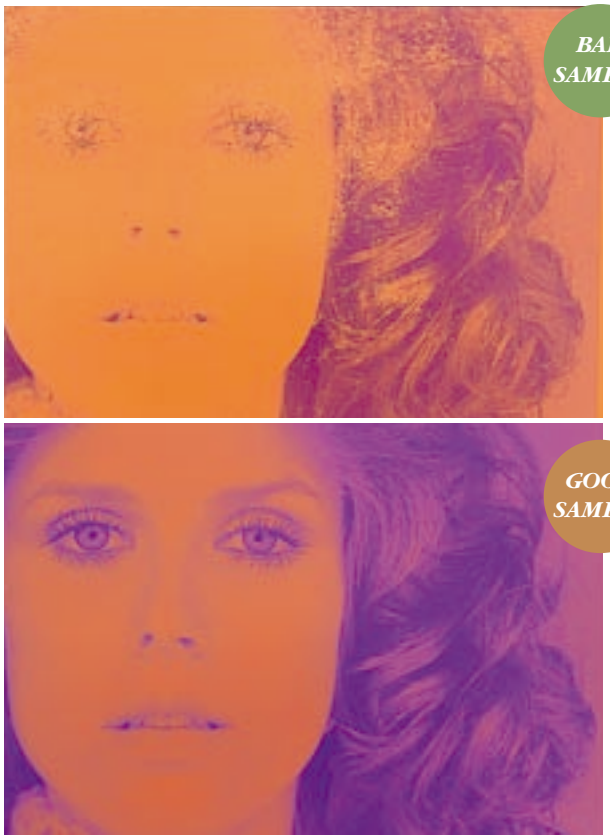
d. Temperature of vacuum frame is too low

Solution :
Warm up the frame at above 25˚C(77˚F) before exposure.

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.*
**NP-1 is full and fresh.*
**Brush is not old.(Limit:20,000pass)*
**Temperature of NP-1.*

●*APPEARANCE*



f. Plate is too old

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

g. Temperature and humidity is incorrect (Hand development)

Solution :
Develop a plate under normal room condition.
When the room temparature is too low or humidity is too low, it becomes difficult to develop.

❷Poor reproduction of Shadow dots + Silicone pealing

Possible Causes and Solutions

a. Fogging of unprocessed plate

Solution :
Use new plate, handle unprocessed plate under yellow safety lamps.

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 nagative and a plate to provide air channel.

c. Exposure time is too long

Solution :
Check the correct gray scale value. (Ugra:2-4, Stouffer:3-5)

d. Insufficient density the negative film

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

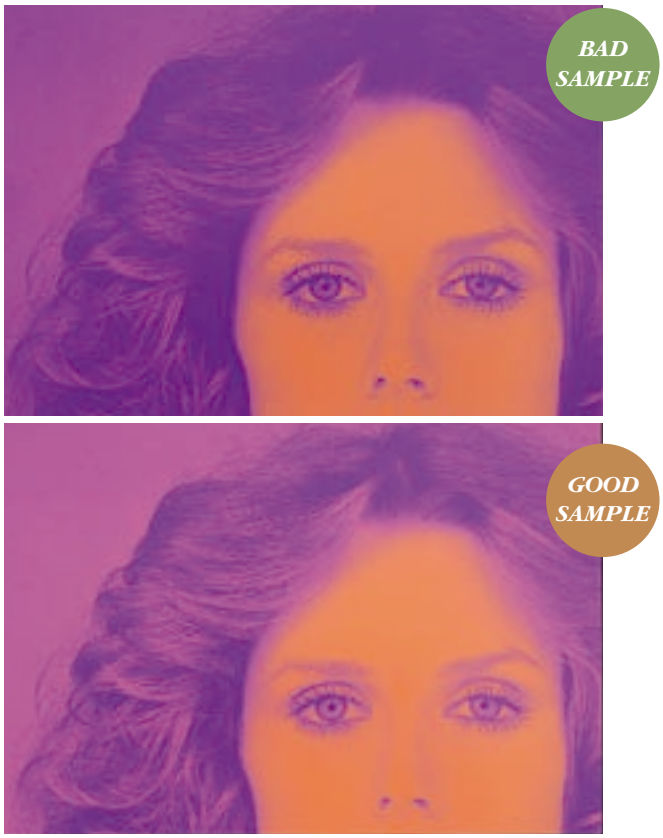
e. Too aggressive development

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. 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.

●***APPEARANCE***



❸Dirt and film edge reproduction on plate

Possible Causes and Solutions

a. Insufficient cleaning of frame grass and negative film

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

b. Exposure time is too long

Solution :
Check the correct gray scale value. (Ugra:2-4,Stouffer:3-5)

c. Others

Solution :
Expose-out the background areas using proper masks.

B Printing Process

❶Scratches 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.

❷Scratches 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.

❸Image 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.

❹Scumming at edges of deleted area

Possible Causes and Solutions

a. Rough surface of the ST-1coating

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

b. Too thick ST-1 coating

Solution :
Use fresh ST-1 with a new applicator tip. Dilute ST-1 with PC-1 and spread it using a small piece of wipe.

c. Short drying time after deletion

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

❺Background 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.

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.

c. Too much Ink on rollers

Solution :
Reduce amount of ink by sheeting off.

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

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

e. Incorrect roller adjustment

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

f. Plate flapping at gripping edge

Solution :
Check if the plate grip is tight.

g. Large image coverage

Solution :
Use ink of higher viscosity.

❻Poor 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 plae 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.

❼Hickeys

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.

❽Marking 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 had laydown by increasing ink film.
Improve laydown by following the solutions above and try to print with thinner ink film.

❾Poor 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.

❿Back 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.

⓫Plate 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.

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