

# StudioRIP Droplet to Plate 24/36 USER MANUAL

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## WHAT IS DROPLET TO PLATE?

StudioRIP DTP 24/36 is CTP (Computer to Plate) system that uses an inkjet printer for producing offset plates. Unlike most inkjet CTP systems, plates produced by the DTP system are conventional positive PS plates that look and behave in the same way as any conventional plate made with film, but on much lower production costs (similar to thermal CTP systems). Also, the price of the new DTP system is a fraction of the price of a laser CTP system.

Although the produced plates are truly conventional, the system uses special plates: conventional plates with an extra inkjet coating (similar to the coating that photo papers have), applied by the factory over the photosensitive layer. The plates can be bought through the StudioRIP distribution chain.

The plates are made in the following way:

- Buy the conventional PS plates with inkjet coating through the StudioRIP distribution chain. The plates come in sealed boxes with the inkjet coating applied in the factory.
- The plate is accurately positioned using the 3 pins activated automatically by the optical sensors when the plate is in the positioning area, then loaded into the printer.
- The image is printed with black ink in about 7 minutes for a 510 × 40 mm plate (larger plates print in proportionally longer time).
- The printed plate is exposed under the UV LEDs in the upper drawer, the exposure time being controlled by the system.
- The ink and the inkjet coating are washed off in the washing tank using the stainless steel frame. During the prewash stage clean water flows in through the open valve. This can be also done with a water jet.
- The washed plate is then processed with conventional plate developer in the developing tank, the controller agitating the developer, and then pumping in fresh replenishment.
- The plate is washed again in the washing tank. All processes are timed by the controller.
- The plate is finally dried in the drying slot.
- The plate can be used on the offset press, it will look and behaving like any conventional plate.

## ESSENTIAL INFORMATION REGARDING THE USE OF THE SYSTEM

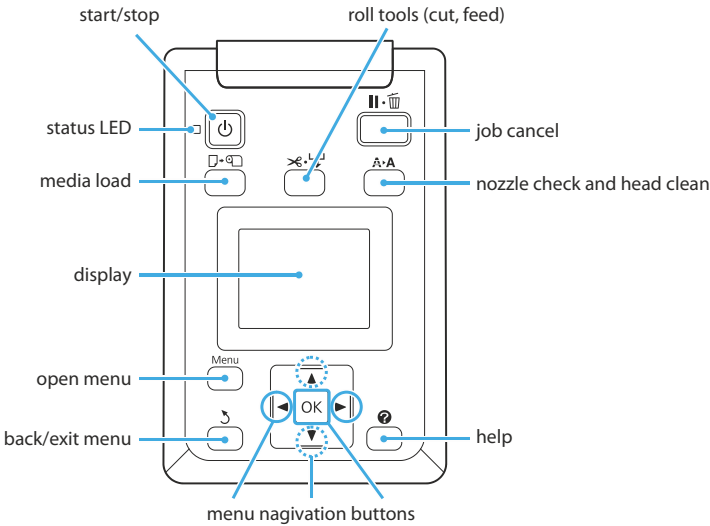
- The print head is at just 0.50-0.65 mm from the plate, so a slightly bent plate risks to touch the head. Given their rigidity and sharpness, about 25-50% of media jams caused by aluminum plates result in permanent head damage. Changing the head is extremely expensive (50-80% of the printer price), and **EPSON will almost certainly refuse warranty replacement of mechanically damaged heads. Carefully instruct your operators to use only perfectly flat plates to avoid this.**
- The ink can dry in the print head. **At least once a month the printer must be started up and the head needs to be cleaned, otherwise the head can be permanently damaged.**
- Clogged nozzles produce banding (horizontal lines) on the plate. **Perform a nozzle check in the morning, before starting the plate production, and continue only after the nozzle check is perfect (no missing lines).**
- If the plate hits an obstacle during the printing process (e.g. an object on the input tray, a faulty positioning solenoid etc.), the plate can get curved, blocking and potentially damaging the head. **If you observe any fault regarding the plate transport that may obstruct the plate, stop using the system until the problem is solved.**
- The printer stops working if a cartridge is empty or the maintenance tank is full. The printer displays the state of the cartridges and maintenance tanks, and displays a yellow warning triangle when any of the consumables are close to get empty/full. **Buy the necessary consumables in time, the printer will refuse to work with full maintenance tank or empty cartridges (even if an unused color one gets empty).**
- The inkjet (gelatin) coating has to be properly washed off after the exposure. The washing time can vary depending on the plate batch, water temperature etc. Not washing off the gelatin coating properly may cause faulty processing (spots on the plate). **Check whether the gelatin coating has been removed completely: the plate should not be slippery after the prewash stage (and visually the whiteness has to disappear).**
- Various plate batches may need different exposure or developing time. Also, the power of LEDs may decrease in time. **Therefore it is highly recommended that an exposure control strip is printed with each job (it can be applied automatically).** Read the *Exposure control strip* chapter for further information.
- **The registration accuracy is the best when the plate punching happens on the same edge that the CTP positioning is done with.** To achieve this, the job may need to be turned upside down. Use the *Orientation* controls of the Job style's *Positioning* task for this.
- The DTP system uses special job styles with fine-tuned settings. **Changing the parameters within the *Screening, Post-processing* or *Engine setup* tasks may lead to bad quality.**
- The StudioRIP DTP plates are photosensitive. Having low sensitivity, **it doesn't necessarily need dark room, but strong and direct light must be avoided around the system.** If the machine is installed beside windows, use proper curtains. Don't install the system under powerful light sources.
- The ink can attack the photosensitive coating on long term. It is highly recommended that the printed plate is exposed and processed in short time after printing. **Don't leave a plate unexposed/processed more than 30 minutes.**
- In some cases the image (green) areas may not take ink, or the non-image (white) areas may take ink (toning). **Use the right type of plate cleaner in such cases, cleaning the plate gently. We achieved the best results with the Actival brand (pink).**

# EQUIPMENT COMPONENTS

## The CTP module



## The printer control panel



# INSTALLATION AND STARTUP

## Working conditions

- Although theoretically the ideal place for the CTP system is a darkroom with yellow protection light, in practice it can be used in places without strong and direct light (curtains on windows, ambient light) – that's because the plates have much lower sensitivity than CTP plates.
- It is recommended that the PC has network connection (to allow StudioRIP client applications on the workstations to access the server application), as well as internet access to allow remote service connections.
- The plate processor unit needs water inlet from 3/4" external thread, and drain outlet for 20 mm pipe, on a maximum height of 40 cm from the floor level.
- If the processor unit will be installed in a separate location than the main CTP unit, it will need a separate controller and LCD display.

## Connecting up

- The printer and the PC (located in the electronics compartment and accessible from the back of the machine) have to be powered from the 110/220V mains. Note that while the Epson printer accepts both 110/220V, the PC power supply has a manual 110/220V switch.
- The printer is connected to the right-side Ethernet connector of the PC (also indicated by the label).
- The LAN/internet is connected to the left-sided Ethernet connector of the PC (also indicated by the label).

In case of systems with plate processing units:

- If the plate processor doesn't have its own controller, its control wire is plugged into the round 5-pin connector of the main CTP unit.
- Connect the power cable of the plate processor unit into the 110/220V mains. Note that the 110V and 220V models have different electric wiring, use only models that are compatible with your mains voltage!
- Connect the system to the water inlet (regular 3/4" washing machine hose).
- Plug the overflow hose into the drains, ideally on floor level.
- Fill the developer tank (on the opposite side of the drying slot) with 1:10 diluted developer (pour 2.6 liters of concentrated developer into it, then fill it up with water, until it reaches the overflow outlet).
- Put the replenishment hose into the recipient containing the 1:4 diluted replenishment developer.
- Full the water tank (the middle one, beside the drying slot) with water.

## Powering and starting up the system

- Start the printer from its power button.
- Turn on the CTP power supply from the power switch, the controller will display the system information, then will go into power saving mode.
- Press the power button of the DTP control panel, this will start up the PC and the controller unit.
- Do a nozzle check (and a head cleaning too, if necessary).
- For the best result do the skew, feed and exposure adjustments.

## Installing StudioRIP Client applications on workstations

The PC that is located in the electronics compartment comes with a pre-installed StudioRIP system. Connecting a monitor, keyboard and mouse to this PC makes it immediately possible to use the system.

However, the built-in PC of the system is imagined to work only as a server (with peripherals only connected in case of severe service interventions), controlled through the StudioRIP Client applications from within the network, or by TeamViewer in case of non-severe service interventions. Note that TeamViewer is pre-installed and its ID and password are listed on the label stuck at the back of the PC.

Installing the StudioRIP Client application on the network workstations can be done as follows:

- Download the StudioRIP install kit to the given workstation. Normally you can find it on the desktop of the built-in PC (which is also shared over the network). In case this is not possible, download it from the [www.studiorip.com](http://www.studiorip.com) website, making sure that the downloaded kit has the same version and build number as the installed one (update StudioRIP on the built-in PC too if necessary).
- Launch the installer, and choose *StudioRIP XF Client* instead of *Full install* when prompted.
- After the installation is done, launch the Client application. It is supposed to automatically find the Server on the network, and connect to it.
- If the Client application is unable to connect to the Server, check whether the built-in PC is running, the Server application is properly started up and running on it, there is a network connection between them, no firewall is blocking TCP port 4024.
- If all the above are OK, but the Client application is unable to connect automatically, it may be caused by the UDP broadcasts being blocked within the local network, in which case it may help entering the IP address of the Server PC directly into the Client.

## Printing the first job

Follow the steps below in order to print the first job:

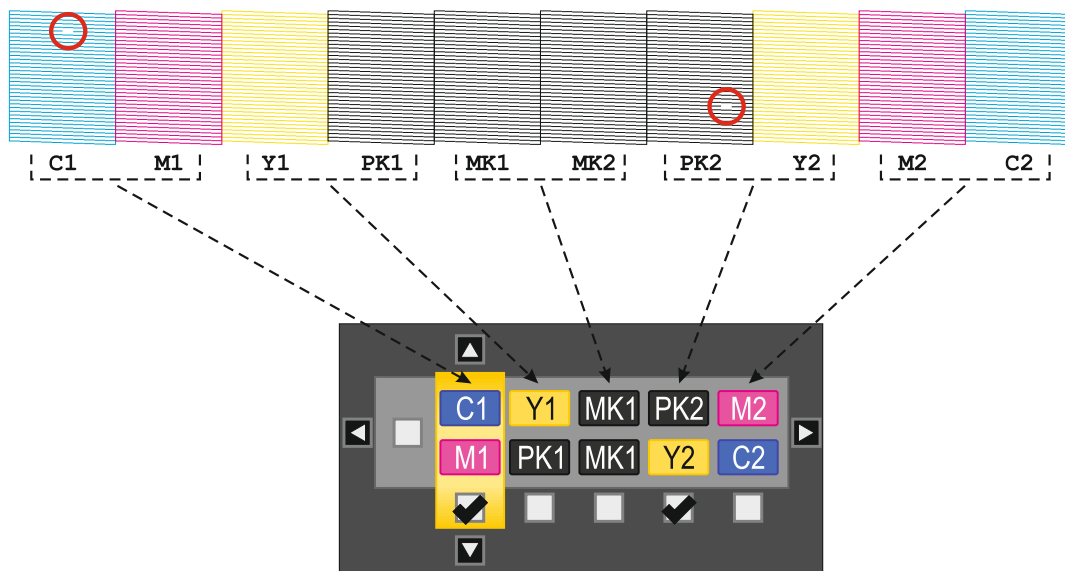
- Start up a Client application either on the built-in PC or on a workstation (note that on the built-in PC only the Server and Print manager applications are started up automatically, so the Client application has to be started manually).
- Set up the plate sizes if necessary as described in the *Plate size setup in StudioRIP* chapter.
- For the beginning the safest is to prepare a composite (color) PDF file of the size of the plate (e.g. 510 × 400 mm), later you can fine tune this as described in the mentioned chapter.
- Open the PDF file using the *Open* command of the Client application. Specify the needed job style (our recommendation is the *DTP 175* job style, producing the best results on most presses).
- Check out whether the job looks OK in the Composite, Imposition and Media tabs.
- Load the first plate into the system, see the *Loading and removing the plate* section.
- Tick the check box in the front of the job's item in the *Job browser* docker of the Client, this will send the job down to the *Print manager* docker.
- If the printer is ready and connected, the job will start to be printed on the printer.
- Follow the instructions of the *Loading and removing the plate*, *Exposing the plate* and *Processing the plate* chapters.

## CLEANING THE PRINT HEAD

It is essential that the nozzle check is performed regularly (daily or once a week), and the head is cleaned if necessary. Jobs printed with clogged nozzles will have banding, and on long term clogged nozzles that aren't cleaned can remain permanently clogged.

For cleaning the head, perform the following steps:

- Place a simple copy paper (A4 or letter) into the upper paper feed slot of the printer in a way that the right edge of the paper is aligned with the mark on the printer, and the bottom edge of the printer hits and stays on the pressure rollers. Make sure that the paper is straight.
- Press the *media load* button.
- Select *cut sheet*, then press *OK*.
- The printer will load the paper. If the paper wasn't in the right position, the load may fail, in which case try the load procedure again. It may help to gently press the paper into the printer when it starts loading it, ensuring a straight loading angle.
- Press *OK* when the printer asks about the paper type.
- Press the *Nozzle check* button, select the *Nozzle check* command, and press *OK*.
- A nozzle check page will be printed, press *OK* to remove the paper from the printer.
- Check the nozzle check page carefully against missing (fully clogged nozzle) or distorted (partially clogged nozzle) lines. The image below shows a clogged nozzle in the C1 channel, and another one in the PK2 channel.



- If the nozzle check page looks perfect, exit the menu, otherwise select *Head cleaning*, and check the channel pairs in which there is at least one clogged nozzle (in our case, C1-M1 and PK2-YK2). Move the selection with the left-right buttons, and check/uncheck the channel pairs with the up-down buttons. Selecting all channel pairs can be done by checking the leftmost checkbox.
- Having the right channel pairs selected, press the *OK* button. The printer starts the head cleaning procedure, which may take 5-15 minutes.
- Repeat the nozzle check and cleaning procedure until you get a perfect nozzle check page.
- If you don't reach a perfect nozzle check page after 2-3 head cleaning procedures, you may try the power cleaning procedure (*Setup > Administrator menu > Power clean*), although using good quality inks and cleaning the head regularly this should never happen.
- If the situation gets even worse after cleaning (entire areas missing), then either the cartridges or the printer has a problem. If you use non-genuine cartridges, the very likely cause of the problem is the cartridge (which got empty, has air, or at valve isn't tightly connected to the printer, and false air gets in).

## LOADING AND REMOVING THE PLATE

The StudioRIP DTP system uses exclusively StudioRIP DTP inkjet plates. On other plate types almost certainly the results will not be good.

The plates should be stored in the bottom drawer (under the printer). It is recommended that the plates are stored with the emulsion (green side) down, that way the operator's finger will touch the aluminum back of the plate when taking off a plate. It is recommended that the black cover of the plate is left on, and is cut just to the extent of allowing plates to be taken off easily. Be very careful to not bend the plate.

It is strictly prohibited to load plates that are not perfectly flat, otherwise you risk to damage the print head. It is strongly recommended that a nozzle check is printed at the beginning of the day, before starting the plate production.

Follow the steps below for loading the plate:

- Press the *media load* button on the control panel of the printer.
- Select *Poster board*, then press *OK*. You can hear that the pressure rollers are raised, opening the way of the plate to get through the printer.
- Take a plate from the storage drawer, place it with the emulsion (green) side up on the input tray, and then push it into the printer. The controller display will show *Tray > Loading*.
- When the plate passes the first optical sensor, the three positioning pins will pop up, the controller will show *Tray > Positioning*.
- Pull back the plate towards the three positioning pins, make sure that the plate touches all three pins. For maximum accuracy it is recommended that at this point you don't touch the input tray with your body (which could slightly move/twist it, causing inconsistent registration), and only your left hand is in contact with the tray.
- When the plate is properly positioned, press the *OK* button on the printer control panel with your right hand, while keeping the plate in position with your left hand. You can hear that the pressure roller grip the plate, after which you can release your left hand from the plate.
- The printer will load the plate now. If the plate is refused by the printer, a positioning procedure will be necessary.

If the plate has been properly loaded, the printer will display a message regarding the plate type. Press *OK* to accept the suggested plate type (which is overridden by the RIP anyway).

At this point the printer is ready to receive data from the RIP, and will start printing the image in about 10-15 seconds after the RIP starts to output image data. Printing takes about 6-7 minutes for an A3 plate, or proportionally longer for larger plates.

When the image is printed, the printer will display a message about pressing the *OK* button. Pressing the *OK* button the pressure rollers will raise, and the plate can be removed from the printer.

At this stage the next plate can be loaded bypassing the load media menu – just insert the new plate, press the *OK* button, and the next plate will be loaded.

If no new plate is loaded for a while, the printer will return into the *Ready* state, in which case a plate can be loaded only by the regular procedure.

The printed plate should be exposed immediately (it is recommended to not leave the plate unexposed more than 10 minutes in order to avoid the ink attacking the PS emulsion).



## EXPOSING THE PLATE

Although the UV light used by the StudioRIP DTP system has a wavelength of about 395–400 nm, which is the less harmful UV range (sunbeds use lower wavelengths), it is recommended that long and direct contact with the skin or eye is avoided. Short and accidental contacts are absolutely inoffensive though, and have no health risks.

Place the plate into the middle of upper drawer (both in the left-right and front-back direction), close the drawer, then press the exposure button (the left metal button behind the CTP control panel). The UV light will turn on, and will stay on for approximately 3-7 minutes (depending on the control panel setting). The control panel will display the progress of the exposure.

While the plate is being exposed, the next plate can be printed, so the relatively long exposure time doesn't affect the productivity of the system.

If you want to stop the exposure before the end of the normal exposure process, press the exposure button again.

The exposed plate has to be processed. It is recommended that the plate is processed in maximum 10 minutes after the exposure in order to avoid the ink attacking the PS emulsion.

It is highly recommended that the exposure is verified by the exposure control strip, see the *Exposure control strip* chapter.

## PROCESSING THE PLATE

The plate is processed in the semi-automatic StudioRIP DTP plate processor as follows:

- The plate is placed on the stainless steel frame. The plate will stick on the wet frame, there is no risk that it falls off.
- The frame is immersed into the washing tank (the middle one), then the processor button (the right metal button behind the CTP control panel) is pressed. The CTP control panel will display *Processor > Prewash*, will count the prewash time, and will open the water valve.
- Pay attention to the gelatin coating: if it isn't washed off properly (the plate remains slippery or whitish), it will affect the developing process. In this case increase the prewash time or increase the incoming water temperature. Also, lifting the frame about 5-10 times during the prewash process will increase the efficiency of the process. Washing the plate with a sponge can dramatically speed up the process (in about 30-60 seconds the plate can be cleaned), but this is obviously less comfortable.
- After the prewash process is done, the control panel will beep and display the *Move plate* message. Take off the frame from the washing tank.
- Immerse the frame into the developer tank, then press the processor button. The control panel will display *Processor > Develop*, will count the process, and will beep when it's done.
- Pay attention to avoid long delays between immersing the frame and pressing the processor button, and between beeps and removing the frame, especially during the developing process, in order to have consistent results.
- Move the frame into the washing tank again, and press the processor button. The control panel will show *Processor > Wash*, will count the process, and will beep when it's done. Lift the frame, remove the plate (by putting your finger into the hole/channel), and put the frame back into the washing tank.
- Place the plate into the drying slot in a 'sandwich' style (the plate between the two air guides), then press the processor button. The system will beep after the plate is dried.
- Remove the plate. It is ready to be used on the press.
- If you want to stop the procedure at any phase, just press and hold the processor button for 3 seconds – this will reset the processor state and stop the current operation.

Note that conventional plate processors can also be used. In this case the plates need to be washed before being fed into the plate processor (otherwise the ink and the gelatin will make the plate processor very dirty). The plate can be cleaned easily with jet of water and/or a sponge.

## SKEW ADJUSTMENT

The alignment system ensures that the image position is consistent on the plate, and therefore the registration is accurate on the press. However, the image position should not just be consistent, but also correct – that is, the image should be parallel with the plate edge. The DTP system has a skew adjustment to avoid this problem.

Before performing the skew alignment, make sure that the printer is positioned properly:

- Both the left and the right front plastic panels of the printer must touch the front tray.
- The tray must fit into the horizontal channel on the front of the printer, so about 4 mm of the front tray is covered by the printer's plastic parts.
- The printer has to be positioned in the left-right direction in a way that a positioned plate covers about  $\frac{1}{4}$  of the rightmost ink absorption pad. The printer may refuse the plates if the position of the plate in left-right direction is out of its tolerance.



If the printer is positioned properly, proceed to the coarse skew adjustment:

- Load a plate into the printer.
- Open the top cover of the printer, and check the position of the plate against the air suction holes (normally there is a row of air suction holes that is 90% covered by the plate, so you should see the uncovered 10% of those whole across the plate width).
- If the plate isn't straight (that is, the holes aren't covered in the same way across the plate edge), adjust the middle solenoid in the right direction by the adjustment screw.



- Turning the solenoid adjustment screw clockwise will pull the solenoid away from the printer, turning it anticlockwise will push the solenoid towards the printer.
- Unload the plate, reload it with the adjusted solenoid, and repeat the procedure above until there is no visible error against the air suction holes.

Once the coarse skew adjustment shows no visible error, proceed to the fine skew adjustment:

- Open *Inkjet skew.pdf* from the *Proof charts* folder of the install kit (normally on the desktop), in the *Sheet placement* section of the *Positioning* task select *Left* and *Top* alignments, then print it to a plate (a thin line at 3 mm distance from the plate top edge will be printed).
- Check the distance between the line and the plate edge with an accurate ruler.
- If there is a visible difference between the left and right sides, do a last fine adjustment.
- Unload the plate, reload it with the adjusted solenoid, reprint the job, and repeat the procedure above until the printed line is perfectly parallel with the plate edge.

## EXPOSURE CONTROL STRIP

Various plate batches may need different exposure or developing time. Also, the power of LEDs may decrease in time. Therefore it is highly recommended that an exposure control strip is printed with each job.

If the screen dots are too big screen (resulting in darker colors), the causes may be as follows:

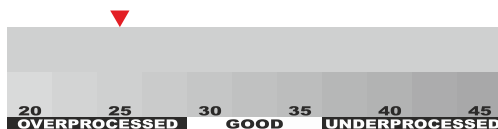
- Weak chemicals,
- Low exposure time,
- Harder photosensitive coating on the given plate batch (needing longer exposure),
- Other faults such as weak LEDs, inkjet coating not washed off properly etc.

Similarly, too small (or disappearing) screen dots (resulting in lighter colors) may be caused by:

- Too strong chemicals,
- Too high exposure time,
- Softer photosensitive coating on the given plate batch (needing lower exposure).

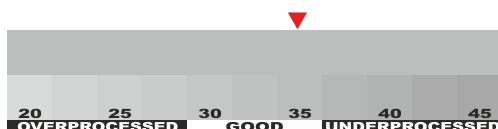
The exposure strip shows whether the exposing and developing processes *together* produce the right result. The control strip can be applied from the imposition toolbar (select the ripped job, select the imposition view, then click on the buttons of the *DTP test plate* or *DTP test sheet* marks on the context toolbars). Choose the *DTP test plate* mark if the incoming PDF file has the size of the plate (e.g. 510x400 mm), and the *DTP test sheet* mark if the incoming PDF file has the size of the sheet (e.g. A3) or the imposition has been made from StudioRIP.

After processing, compare visually the upper strip with the bottom patches (from a distance where the low LPI patches look as continuous tone), and find the patch that has the closest shade to the upper strip. The label of the matching patch will indicate the size of the single droplets in microns:



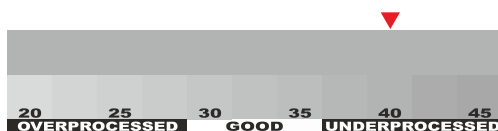
### Overprocessed/overexposed plate

The single droplet dots are of 25 microns, which is too small



### Well exposed/processed plate

The single droplet dots are of 35 microns, which is good



### Underexposed/underprocessed plate

The single droplet dots are of 40 microns, which is too big

In case of wrong results the immediate solution is to adjust the exposure time (increase the exposure time for underprocessed and decrease it for overprocessed plates), but on longer term the cause of the phenomenon needs to be investigated:

- In case of a new batch of plates, small differences ( $\pm 1$  minute of exposure) are normal.
- Weak chemicals are the most likely cause. Refill the processor with fresh chemicals, and if indeed this was the problem, adjust the replenishment accordingly: if the problem happened after a time of not using the machine, adjust the idle (ml/day) replenishment amount; if the problem happened after a large amount of processed plates, adjust the normal (ml/sqm) replenishment amount.

## FEED ADJUSTMENT

Although the feed adjustment is a critical setting of the DTP system, in most cases this doesn't need to be performed on new equipment because it is fairly accurate out of the box. However, in case of extreme plate sizes, older machines or different media type (e.g. film) it is recommended to be performed.

The wrong feed adjustment has two effects:

- The length (in media feed direction) of the job is inaccurate (generally shorter than expected),
- The quality of the halftone is worse (unsharp dots or banding, especially on 1440 dpi). This effect is caused by the improper alignment of the nozzles: if the printer prints 299 mm instead of 300 (that is, a  $-0.33\%$  error), the misalignment of a droplet printed by the first nozzle in the 1 inch row when it arrives under the last nozzle will be of 85 microns (that is, droplets misplaced by up to 85 microns may be seen on the print).

In order to check the feed adjustment, print on the given media the *Inkjet feed alignment.pdf* job from the *Proof charts* folder of the install kit, and measure it with an accurate ruler. Then open the job style(s) you work with on the given media type, select the *Engine setup* task, click the *Edit values* button, then the *Adjust* button of the *Mechanical settings* tab. Enter the expected length (e.g. 300) to the *Printed length* box, and the physically measured length (e.g. 299.2) to the *Measured length* box, then click OK.

Repeat the procedure until the printed chart will match the ruler (note that the feed adjustment value will be calculated taking in account the old value, so subsequent measurement will fine tune the result).

Enter the calculated value to all job styles using the given media type and size. Note that plates of different size may need slightly different feed adjustment values.

Certain printers have a bug in the firmware, and refuse receiving the feed adjustment value from the printer. If you find that changing the feed adjustment from the RIP doesn't have any effect, do it from the printer control panel until you get a firmware update with the bug fix.

## PLATE SIZE SETUP IN STUDIO RIP

DTP equipment normally comes with default plate setup (400 × 510 mm). In case you use any other file sizes, and assuming no one else did it for you, the size(s) of your plate type(s) must be defined in StudioRIP.

To do this:

- Go to the *Job styles* docker of StudioRIP,
- Open the job style you want to set up,
- Select the *Positioning* task,
- Enter the size of the plate edge parallel to the head movement (e.g. 745) to the *Width* box,
- Enter the size of the plate edge parallel to the media feed (e.g. 605) to the *Length* box,
- Click OK to save the changes.

In case you use several plate sizes, use the *Create copy* button of the *Job styles* docker toolbar to create copies of the job styles you want to use with plates of different sizes, then change the media size of the newly created copy accordingly.

The default setup centers the ripped image on the plate. Most customers prefer to work with PDF files that match the plate size (e.g. the generated PDF is of 510 × 400 mm size), in which case centering will work just fine. In some cases PDF files having the size of the sheet will also work fine if they're centered.

However, there are cases when a more sophisticated plate positioning is needed. If the incoming PDF is either of the size of the sheet (e.g. A3), or it is imposed within the RIP, simply centering the sheet on the plate may not be adequate. Press operators will generally require a given distance of the sheet from the grip edge of the plate. In this case you will need to keep the horizontal centering, but to choose either *Top* or *Bottom* vertical alignment, with the *Unused area* set accordingly (e.g. if the image has to be at 60 mm from the bottom of the plate, choose *Bottom* alignment with 60 mm set in the *Bottom* field of the *Unused area* group).

Also pay attention to the fact that the registration accuracy is the best when the plate punching happens on the same edge that the CTP positioning is done with. To achieve this, the job may need to be turned upside down. Use the Orientation controls of the Job style's *Positioning* task for this – keeping in mind that the top/bottom alignment may need to be updated accordingly.

## NON-PRINTABLE AREA VS. PRINTER MODELS

The printed image width is limited to 610 mm (DTP 24) and 914 mm (DTP 36). There is no limit in the image length. Depending on the printer model, the printer can accept 1-3 cm wider plates than the width limitation, leaving empty the area above the limit.

When choosing the right printer model, take in account that the printer leaves 3 mm unprinted on the left, right and top edges, and 14 mm on the bottom edge. Moreover, the first and last inch as a slightly worse quality compared to the rest of the plate (caused by the way the nozzle interlacing works), which may result in slightly different shades in these areas, especially for high LPI halftones. Therefore it is recommended that in these areas there is no image at all, or there is only non-critical image (registration mark etc.).



If the plate is loaded in landscape mode, these areas overlap with the grip margins of the plate and paper (which at their turn are normally loaded on the press drum in landscape mode), therefore they are not a problem.

However, if you want to use a DTP 24 machine for printing plates wider than 610 mm (such as 605 × 745 mm), the plate must be loaded in portrait mode, and therefore the non-printable (and lower quality) margins will be on the shorter edges of the plate (which, from the press operator's point of view, are the left and right sides of the plate). For many presses this will be a problem, as it will limit the capabilities of the press – while for other presses, printing only on smaller formats, it will not be a problem. Carefully check whether this scenario fits your needs.

Also, plates loaded in portrait modes have a slightly worse registration – although registration is generally accurate, and good enough even in portrait mode.

## THE EXPOSURE AND PROCESSOR CONTROLLER

The controller has a blue LCD display and 5 buttons under the display:

- The **↑** and **↓** buttons move the row selection (the **▶** sign at the beginning of the row), as well as changing the parameter value in editing mode.
- The **OK** button enters in editing mode, as well as saves the changed parameter if pressed in editing mode.
- The **←** button exists editing mode without saving the changed parameter (cancel).
- The **Stand-by** button turns the system on or off (when the system is off, it is actually in stand-by mode, taking care of the processor replenishment).

The controller menu is a list of the machine parameters:

- **Tray:** the state of the input tray:
  - *No plate:* there is no plate on the tray
  - *Loading:* a plate is detected as being loaded
  - *Positioning:* a plate is detected as being in the positioning area, the pins are raised
  - *Printing:* a plate is supposed to be printed
- **Exposer:** the state of exposing process.
- **Processor:** the state of the developing process:
  - *Ready:* the processor is in idle state
  - *Prewash:* the processor is washing off the ink and inkjet coating
  - *Develop:* the processor is developing the plate
  - *Wash:* the processor is washing the developed plate
  - *Dry:* the processor is drying the plate.
- **Progress:** the progress of the current action (exposure or processing)
- **Exposure:** the exposure time in seconds (default value: 360 seconds)
- **Plate width:** used for calculating the right replenishment amount
- **Plate height:** used for calculating the right replenishment amount
- **Repl rate:** the quantity of replenishment pumped in for 1 m<sup>2</sup> of plate
- **ReplIdle:** the quantity of replenishment pumped in after 24 hours of idle state (will be applied even if the controller is in power saving mode).
- **Prewashing:** the time necessary for washing off the inkjet coating (default value: 300 seconds)
- **Processing:** the time necessary for developing the plate (default value: 90 seconds)
- **Washing:** the time necessary for washing the plate after processing (default value: 60 seconds)
- **Positioning:** changing this parameter to *Manual* will disable the plate sensors, and will control the positioning pins by the long press (3 seconds) of the exposure button. Useful in the case when the sensors fail.

Some parameters are read only (e.g. the tray state), others can be edited as follows:

- Select the row of the given parameter using the **↑** and **↓** buttons.
- Press the **OK** button. The cursor will jump to the left of the edited parameter.
- Change the parameter using the **↑** and **↓** button. Keeping the buttons pressed the value change will speed up.
- Having the desired edited value, press the **OK** button. The value will be saved, and the cursor will jump back to the beginning of the row.
- In case you want to cancel the editing, press **←** instead of **OK**.



## THE STUDIO RIP AND EPSON USER MANUALS

The StudioRIP user manual can be downloaded from the download section of [www.studiorip.com](http://www.studiorip.com). Some important information regarding the use of StudioRIP with the DTP system:

- The StudioRIP DTP system uses special settings in order to achieve good quality (dynamic density modulation that controls the ink density according to the halftone percentage, special angles and screen frequencies that don't produce moiré, 2880 × 2880 dpi on high speed with 4 black channels, the MK and PK channels used selectively on inner/outer areas etc.). Not using original DTP job styles, or changing any of the settings in the *Screening, Post processing or Engine setup* may lead to serious quality problems. Use only original StudioRIP job styles.
- StudioRIP XF has a client-server architecture: the server application (running on the PC embedded into the DTP system) can be accessed from multiple client applications from the network. Install a client application to each workstation of your prepress office.
- StudioRIP XF controls the printer without a Windows driver, through the network interface. Install the Windows driver if you want to driver the printer bypassing StudioRIP.

The printer user manual can be downloaded from the Epson official sites, such as:

<ftp://download.epson-europe.com/pub/download/3785/epson378598eu.pdf>

Some important information regarding the use of the Epson printing with the DTP system:

- The printer is unmodified and works with original Epson inks. However, changing using StudioRIP PK ink in the PK channel (while keeping genuine Epson ink in the MK channel) will increase the quality (the better coverage of our PK ink will make it possible to use higher exposure power), while in the same time will reduce the ink costs.
- The DTP system uses approx. 30% Epson MK and 70% StudioRIP PK.
- The color cartridges are not used for making plates, but still some ink will be lost for keeping the head clean.
- When an ink cartridge gets empty, the printer refuses to work (even if the given color isn't used at all), until a new cartridge is loaded. The printer displays a warning when a cartridge is almost empty, at which time it is strongly recommended that a new cartridge is purchased.
- The ink used for cleaning the head is collected to the maintenance tank. When the maintenance tank gets full, the printer will refuse working until a new maintenance tank is inserted. The printer displays a warning on the display when the maintenance tank is almost full, at which time it is strongly recommended that a new maintenance box is purchased. On the T5200 models you can change the left and right maintenance boxes (the left one is only used for borderless jobs, so for DTP works it is always empty) in order to gain some extra lifetime.
- Stopping a job may be a challenge sometimes. First stop the job from StudioRIP, then use the *Cancel* button of the printer.

## **SERVICE AND WARRANTY**

The equipment comes with 12 months or warranty.

The warranty for the Epson printer is offered by the local Epson representative, while for the rest of the system the warranty is offered by the local StudioRIP representative.

If you bought the DTP system directly from StudioRIP, we can help you in the following ways in case of technical problems under the warranty period:

- Free Skype/phone/TeamViewer support,
- Free replacement parts,
- Free repair at our factory (transport is on customer side).

The address of our factory:

- Company name: StudioRIP SRL
- Company address: 407299 Viștea nr. 313, jud. Cluj, ROMANIA
- Phone: +40 722 998 542, +40 723 999 587, +40 729 180 105
- Email: support@studiorip.com

## SYSTEM SPECIFICATIONS

### Resolution:

- 2880 × 2880 dpi

### Line frequency:

- 85, 100, 133, 150 and 175 LPI (recommended: 175 LPI)

### Speed:

- Approx. 8–10 A3 plates/hour (the time is proportional with the size); 85 lpi newspaper quality can be achieved on about 4 times higher speed.

### Registration accuracy (alignment error between optimally positioned plates):

- Typically 0,025 mm, maximum 0,1 mm for plates under 430 × 550 mm
- Typically 0,05 mm, maximum 0,15 mm for plates of above 430 × 550 mm

### Positioning accuracy (the alignment error between the image and the plate edge touching the pins):

- Typically 0,1 mm, maximum 0,25 mm (assuming proper plate positioning)

### Color precision:

- Typically ±1.5% (e.g. 50% is measured between 48,5–51,5%), maximum ±3%

### Text and vector quality:

- Very difficult to distinguish with naked eye from laser plates, similar or even better quality compared to analog plates made with films.

### Halftone quality:

- Very difficult to distinguish with naked eye from laser plates, similar or even better quality compared to analog plates made with films.

### Other quality related issues:

- The minimum halftone dot size is 35 microns. This is on the limit of visibility, and if the size of the minimum dot increases due to wrong exposure/developing parameters, certain very light halftones may seem slightly grainier than laser plates.
- The halftone dots are less round than laser CTP dots, under microscope you can observe a slight variation in the shapes and sizes of the dots. This can produce slightly grainier tints than laser plates, although using most presses on the paper print the difference is almost impossible to perceive.
- Very rarely certain jobs on certain printers may show a slight banding. In such cases adjusting parameters (decreasing the LPI, decreasing the printing speed, performing a feed adjustment) will almost certainly solve the problem.