

FUJIFILM Europe DIS (Direct Injection System)

Operation Manual

1. Description

Noritsu and Gretag minilabs which are designed for Kodak SM chemicals do not have conventional replenishing tanks. Conventional replenishing tanks contain (a) concentrate(s) diluted with the proper amount of water.

The Kodak SM chemical kits for film and paper are used as disposable replenishment tanks containing concentrates only. These concentrates are dosed directly into the working tanks. The necessary amount of water is dosed separately and is injected directly to the working tanks.

The FUJIFILM Europe DIS chemical system consists of external replenishing tanks that can be refilled with the corresponding Fuji Hunt concentrates/ready-to-use chemicals. Only four external replenishing tanks are needed for each process (film and paper).

When converting from Kodak SM chemicals to the FUJIFILM Europe DIS chemical system, a few simple manipulations in the minilab hard- and software need to be performed (for more details see section on installation) :

- Rearrange the tubing for the connection with the Fuji Hunt external replenishing tanks
- Modify the replenishing rate settings both for the chemical concentrates as for the water additions

2. Process Conditions

Film processing

Film processors designed for the Kodak SM chemistry use the standard C41-RA process. Following table contains the process specifications for Fuji Hunt C41 DIS:

Solution	Time	Temperature °C	Rep rate Concentrate/RTU ml/m 35 mm	Rep rate Water ml/m 35 mm	Rep rate Total ml/m 35 mm
DIS Film N1 Developer Replenisher	3'15"	37,8±0,2	13,64	-	13,64
DIS Film N2 Bleach Replenisher	1'	38±3	3,51	-	3,51
DIS Film N3 Fixer & Replenisher	2'	38±3	7,73	7,73	15,46
DIS Film N4 Superflo Stabilizer & Replenisher	1'	38±3	0,30	27,0	27,27

The Fuji Hunt C41 DIS Developer Replenisher is a ready-to-use solution, therefore no additional water needs to be replenished.

Paper processing

The paper processors designed for Kodak SM chemistry use the RA-2 process. Following table contains the process specifications for Fuji Hunt RA-2 DIS :

Solution	Time	Temperature °C	Rep rate Concentrate/RTU ml/m ²	Rep rate Water ml/m ²	Rep rate Total ml/m ²
DIS Paper P1 Developer Replenisher	25"	38,0±0,3	60,0	-	60
DIS Paper P2A Bleach-Fix & Replenisher Part A	25"	38±3	13,3	13,4	40
DIS Paper P2B Bleach-Fix & Replenisher Part B			13,3		
DIS Paper P3 Super Stabilizer & Replenisher	1'30"	38±3	2	198	200

Note :

The mentioned replenishing rates are to be used as a starting point. Replenishment rates can vary depending on factors such as : paper/film type, exposure level, agitation, carry-over, production volume etc....
Adjust the replenishment rate of the developer according to the results of the control strip readings.

3. Working tank chemical mixing

Film processing

C41 DIS		Catalogue #	To make 1L	Density 20°C	pH 25°C
Developer	Water DIS Film N1 Developer Replenisher Negacolor Universal Dev. Starter AC	979666 972497	235ml 720ml 45ml	1,032±0,003	10,07±0,05
Bleach	Water DIS Film N2 Bleach Replenisher Negacolor Ultra Bleach III Starter	979674 951350	265ml 700ml 35ml	1,151±0,003	4,38±0,10
Fixer	Water DIS Film N3 Fixer & Replenisher	979682	500ml 500ml	1,097±0,010	7,50±0,20
Stabilizer	Water DIS Film N4 Superflo Stabilizer & Repl.	979690	990ml 10ml	0,999	N.A.

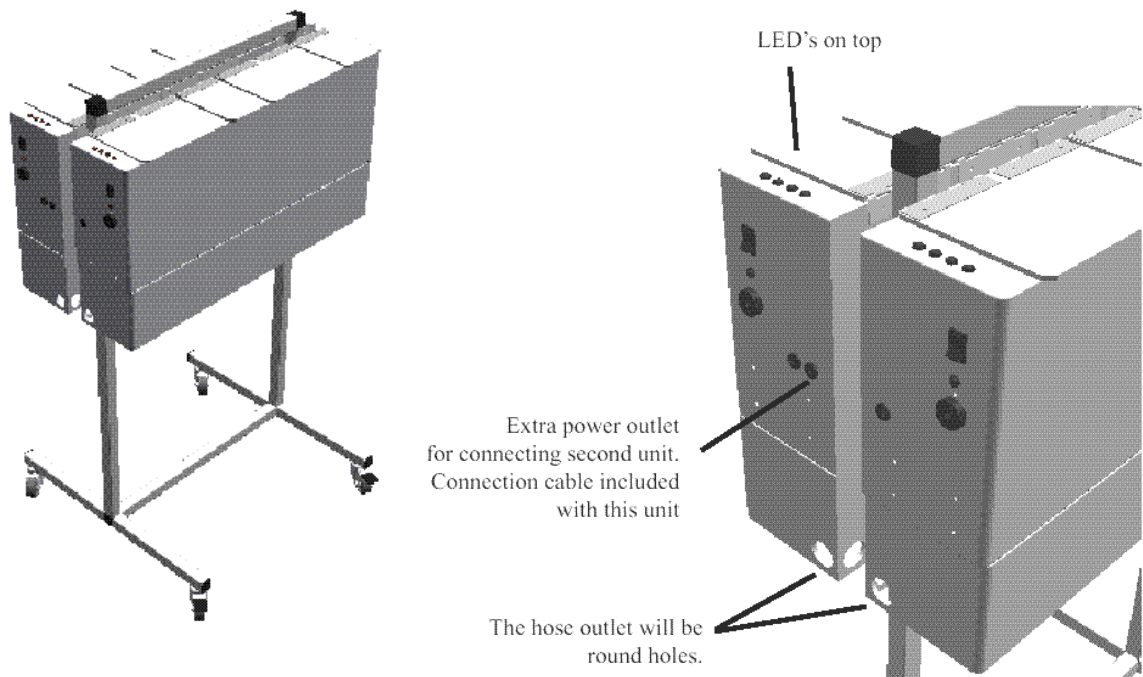
Paper processing

RA-2 DIS		Catalogue #	To make 1L	Density 20°C	pH 25°C
Developer	Water		560ml	1.031±0,003	10,20±0,05
	DIS Paper P1 Developer Replenisher	990168 (1L) 979708 (2L)	390ml		
	RA4 Quick Starter	961904	50ml		
Bleach Fix	Water		666ml	1,085±0,005	6,20±0,20
	DIS Paper P2A Bleach-Fix part A	979716	167ml		
	DIS Paper P2B Bleach-Fix Part B	979724	167ml		
Stabilizer	Water		990ml	0,999	N.A.
	DIS Paper P3 Super Stabilizer & Repl.	979732	10ml		

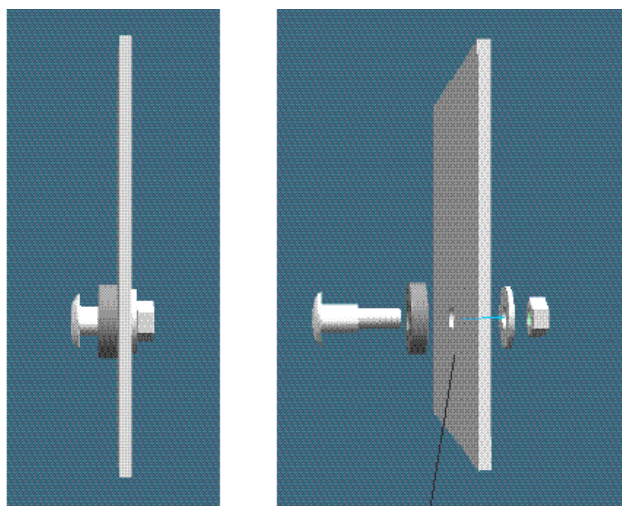
4. Fuji Hunt external replenishing tanks

Two systems are available :

Stand-alone unit (see picture below) :The replenishing tanks for both the film and the paper chemicals are attached on a stand. The stand is equipped with mounting hooks for easy attaching and detaching of the replenisher tank holders. Only one external power supply is needed for all units. The stand-alone unit is used when there is not enough available space on the processor to attach the individual units, e.g. Noritsu 2511



Individual units : when sufficient space on the processors is available e.g. Noritsu 2611 and V100, the film and paper rep tank units can be attached directly on the outside frame of the minilab. Holes need to be drilled to attach the mounting hooks (see picture below)



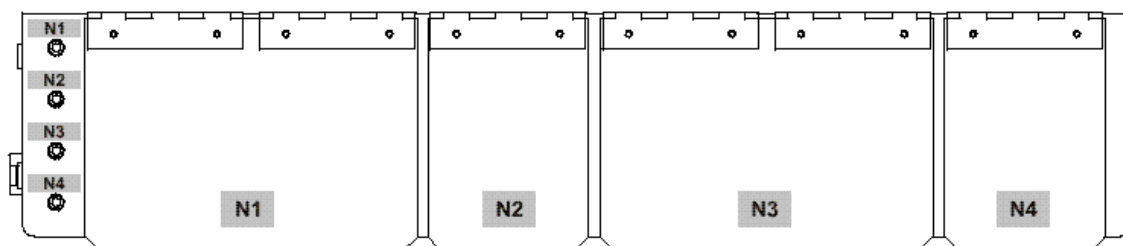
Drill 2 x 6,5 mm hole in the processor's coverplate.
Screw on the hook.
The two key-holes on the Buster fits into the hooks.

Film rep tank unit (see picture below) :

Catalogue numbers

990184 Film DIS C41 Tank 2121

990176 Stand for DIS



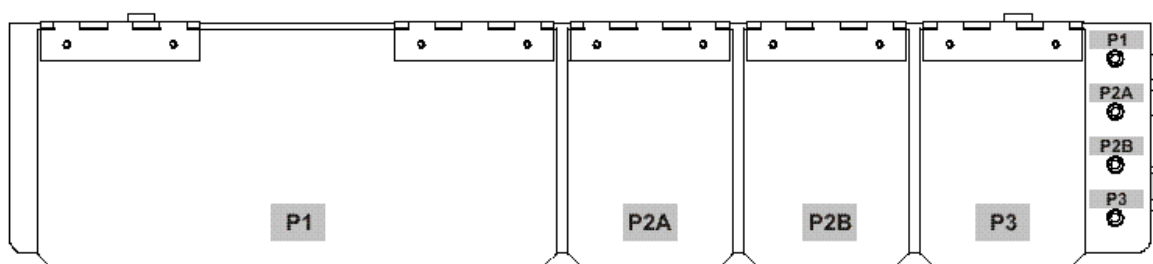
Paper rep tank unit (see picture below) :

Catalogue numbers

990200 DIS RA4 Tank 2111

990192 DIS RA4 Tank 1111

990176 Stand for DIS



All replenishing tanks (N1, N2, N3, N4, P1, P2A, P2B & P3) are equipped with level sensor and a LED indicator. When a replenishing tank runs empty, an alarm signal sounds and the corresponding LED indicator turns on.

5. Available DIS chemical packaging sizes

C41 DIS	Label	Tank sizes Liter	chemical pack size Liter
Developer	N1	2	4 x 2 L
Bleach	N2	1	6 x 1 L
Fixer	N3	2	4 x 2 L
Stabilizer	N4	1	6 x 1 L

RA-2 DIS	Label	Tank sizes Liter	chemical pack size Liter
Developer	P1	2	6 x 1 L & 4 x 2 L
Bleach Fix part A	P2A	1	6 x 1 L
Bleach Fix part B	P2B	1	6 x 1 L
Stabilizer	P3	1	6 x 1 L

6. Installation procedure

As the Kodak SM chemical packs are removed, following alarms need to be switched off through the program menu : REPLENISHER ERROR and REPLENISHER PACKAGE. A service diskette is needed to enter this program menu. For the Noritsu 2511 & 2611 a service diskette is available at STS, FUJIFILM Europe NV.

To connect the outlets from the DIS holding tanks to the corresponding replenishing pumps, PVC tubing with an ID 4mm /OD 6mm is required.

One can connect the tubes (PET 4 mm ID / 6 mm OD) directly to the pump inlet or to the filter inlet, which is located before the pump inlet. The second option is to be preferred.

For the Noritsu 2511 only one of the 3 available developer replenishing pumps is needed.

Set the replenisher volumes to the recommended values. For the developer pumps, which are not used, the corresponding setting is 0,01. (The program doesn't accept 0,00)

In order to prevent oxidation/evaporation/crystallisation, floating 'lids' must be installed in all DIS holding tanks. Floating lids in RA4 DIS holding tank must have a round shape (ball-type) with a minimum diameter of maximum 20 mm.

After filling the holding tanks with the appropriate concentrate, bleed the lines free from air. Check the pump output.

7. Spare part list

8. Chemical Handling

All photographic processing solutions when brought into contact with human tissue can be harmful depending on the nature of the solution and concentration. All users of such solutions should therefore exercise the greatest care to avoid the chemicals contacting the skin, eyes or other parts of the body. Always wear solution resistant gloves and goggles. Since some photographic solutions produce irritating vapours, adequate ventilation is necessary.

Always read the hazard information provided on the packs of all products before attempting to handle the solutions. Material safety data sheets are available in several languages for all photographic products.

In case of accidental contact with processing solutions, wash the affected part with plenty of clean cold running water. Wash with an acidic soap and rinse thoroughly with water. Consult a medical doctor.