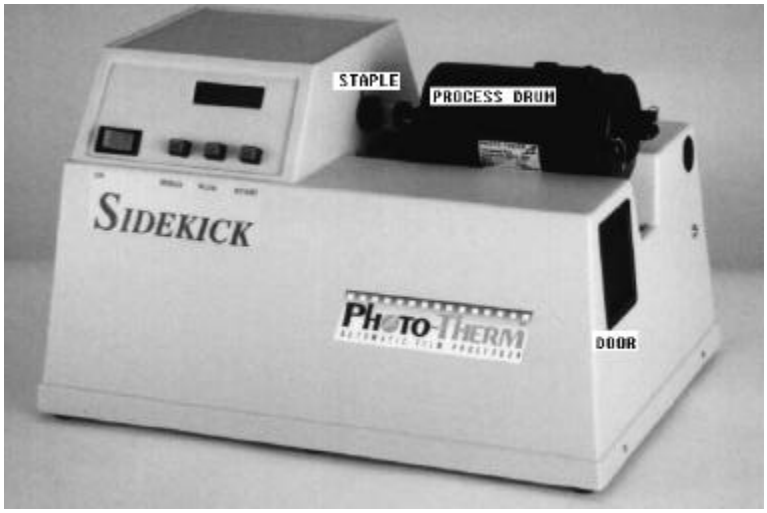
SIDEKICK

Automatic
Film Processor

Model *SK-4G*

Owner's Manual



US PATENT RE 34,188

Please record the Serial No. _____ and date of Purchase _____
Please mail in your warranty card.

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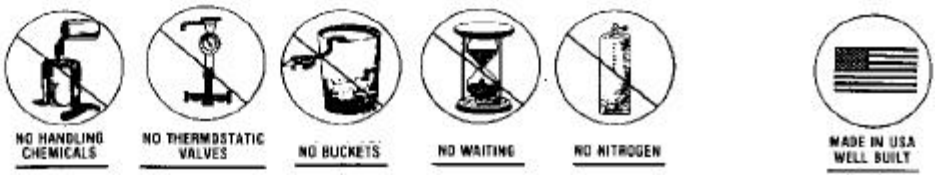
WARRANTY

Each Photo-Therm product is produced under rigid quality control standards. This unit is fully warranted for a period of one year from date of purchase. Photo-Therm 110 Sewell Ave Trenton NJ 08610 USA Tel 609 396-1456 Fax 609 396-9395.



DESCRIPTION

The SK-4G automatic processor accurately tempers each solution, one at a time. This design breakthrough allows B/W processing at 75 °F and then immediately afterwards slide processing 100 °F. Tempered water is not needed. Long warm-ups are not required.

All the solution bottles for processing color slides, color negatives and Black and White negatives are constantly connected. The operator just selects the process. The unit pumps the proper chemical from any of the 18 reservoir containers, quickly heats the small volume needed to the correct temperature and starts processing. As it processes one solution it prepares the next solution. At the end of the process cycle it automatically flushes itself clean, preparing itself for the next process.

The SK-4G is compact (22" wide by 14" high by 16" deep). The process drum is removable for loading in a dark box or bag. The SK-4G can process 4 rolls of 35, 2 rolls of 120/220, 4 sheets of 4x5 or 18 disc films at one time. One chemical, the bleach, blix or fix can be automatically saved from each process for silver recovery or reuse. Fresh developer is used for quality. The standard processes are pre-programmed, but the developer time can be easily changed when desired.

The SK-4G protects the film from possible operator errors. It has an interactive computerized display that prompts and informs the operator what it is doing. Possible operator errors are also minimized because, chemical lines do not have to be switched nor must volumes of solutions be measured.

SETTING UP THE UNIT

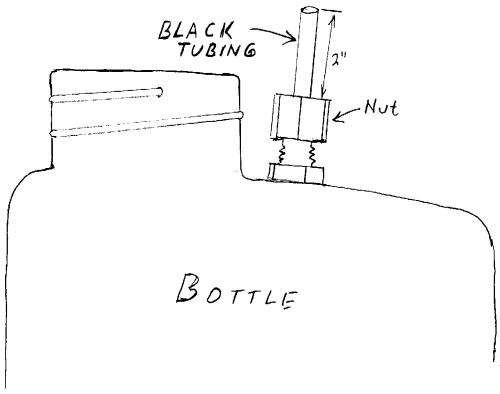
The unit comes packed in 2 boxes. Make sure you received the following:

... Main processor SK-4G
... 2-reel and a 4-reel black processing drum with lids
... 2-reel and a 4-reel spindle
... 6 plastic film reels
... Turbo dryer tube. (White plastic 4" diameter 11" long)
... Coil of ¼" flexible tubing
... Power cord
... 12 x ½ gal. (2 liter) solution bottles with fittings
... Water bottle (5 gal) with float valve
... "Ice Maker" kit to connect water bottle to water pipe
... Dump bottle (5 gal) with level sensor and cap with
3" gray plastic fitting to hold two dump tubes
... 4 Film Clamps for 120/220 film.(white curved plastic pieces)
... Plug to seal COUPLING when FLUSHING
... Syringe of silicone grease
... Allen wrench (1/16") for bushings
... Magnetic stirrer. A white "pill" (3/8" x 1")
... Permanent marker
... Piece of Scotch Brite™
... Set-up video
... This instruction book

<u>SETTING UP THE UNIT</u> Cont.

Place the unit on a flat level surface. Lift up the side and cut away and discard the two visible nylon straps from the bottom of the unit. These straps hold the pumps secure for shipping and must be removed for the pumps to work.

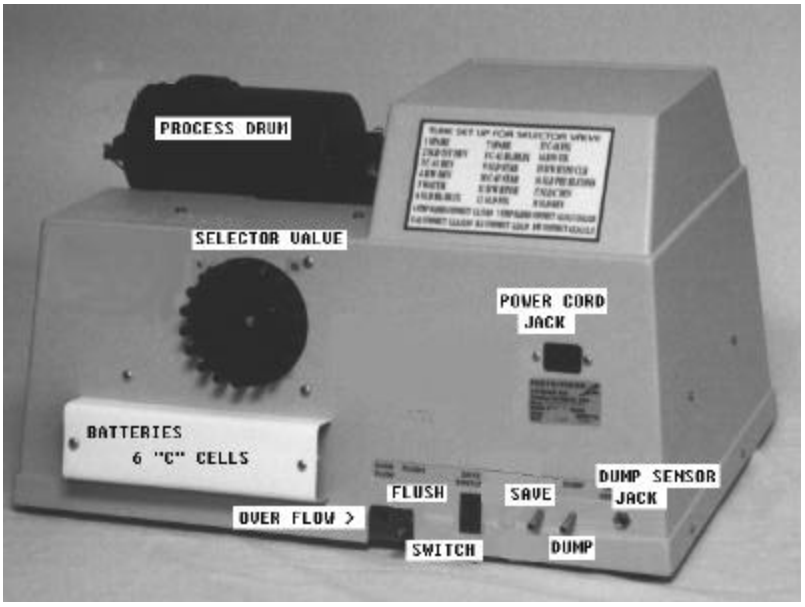
Prepare the solution bottles. a) Loosen NUT. b) push in notched end of the ¼ OD black tubing through fitting to bottom of bottle. Leave about 2 inches (5 cm) exposed. c) Hand tighten nut. d) Rinse out bottle.



Use the marker pen to label each bottle and lid with the chemical it contains. Cut a piece of clear flexible tubing long enough to run from the bottle to the back of the machine. RUN THE TUBING STRAIGHT DOWN from the back of the machine. After about a foot, the tubing can run in any direction. Allow about 2 feet (60 cm.) extra for slack. Label both ends of the tubing with the chemical name. Slip one end over the proper tube and the other end over the exposed black tubing of the solution bottle. The 5 gal. water bottle connects to the WATER (#5) tube.

IMPORTANT. The solution source bottles must be located <u>below</u> the processor.

The 5 gal. water bottle, which has a float valve near its lid, holds the water that will be used for processing and internal cleaning (FLUSHING) of the unit. You can manually fill the bottle. Use regular tap water, not de-ionized or distilled water. You can connect the bottle to a cold water pipe for automatic filling with the "ice maker" kit. TURN OFF THE WATER AT THE SOURCE WHEN THE MACHINE IS NOT IN USE.



The DUMP bottle comes with a level sensor that should be plugged into the DUMP SENSOR jack on the back of the unit. If a plumbed-in drain is available, use it.

SETTING UP THE UNIT Cont.

There are four drain outlets in the back of the unit:

1. **DUMP - For spent chemistry. Connect to DUMP bottle or plumbed-in drain.**
2. **FLUSH - Disposes of spent FLUSH water. Connect to DUMP bottle or drain.**
3. **SAVE - Recovers the solution to be saved. Active only when SAVE switch is on (red is showing). Connect to separate bottle.**
4. **OVERFLOW - DO NOT CONNECT. If solution comes out of this outlet, check your FLUSH tubing for proper installation.**

Push the flexible tubing onto the stainless tubes of these outlets (no more than 3/4").

VERY,

VERY,

IMPORTANT!

Position DUMP bottle close to unit. (Fig. 1)

Run tubing directly to DUMP bottle. (Fig. 1)

Cut off unneeded length of dump tubing. (Fig. 1)

Run the DUMP and the FLUSH tubing separately into the 3" gray fitting on the DUMP bottle. Do not put a third tubing into the same fitting.

Do NOT run tubing inside DUMP bottle. (Fig. 2)

Allow at least 12" drop between unit and DUMP bottle.

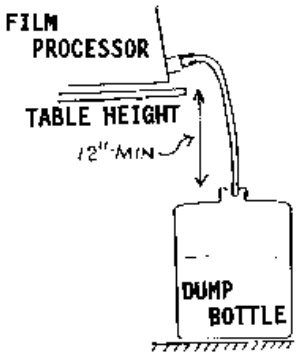


Fig. 1

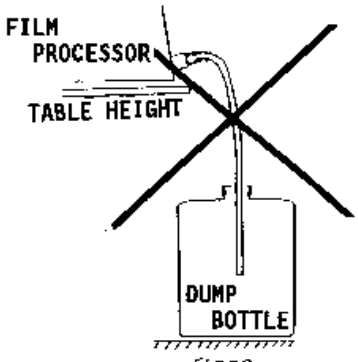


Fig. 2

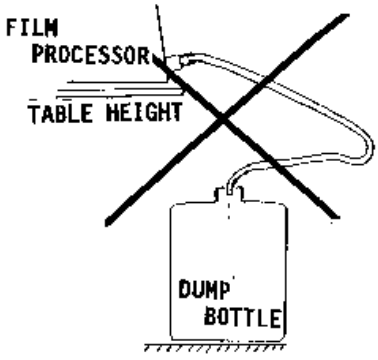


Fig. 3

Open the DOOR by lifting up from the bottom and pulling out. Place the magnetic stirrer (white pill) in the exposed heat tank. Carefully push the stirrer with a pencil until it is magnetically caught near the back right corner of the tank. Turn SIDEKICK on and check if the stirrer is turning. Put in six Alkaline "C" Cells in the battery holder. This will allow the unit to continue after a power failure and protect it against power surges. Plug the power cord into a 120 Volt AC 15 Amp. (regular domestic) outlet.

PROCESSING

In a dark box, load the film on the reel (see REEL LOADING). Slide the reel on the spindle. Cover the spindle with the lid (one side is shaped to go over the spindle). Clip the tank together. You are now light tight.

PROCESSING Cont.

Push the PROCESS TANK to the left in the TROUGH till the SNOUT seats itself inside the COUPLING. The two stainless pins of the spindle should go on opposite sides of the STAPLE on the rotate motor.

Look to make sure you have enough solution in the chemical bottles. Empty the DUMP bottle. Turn the unit ON. Use PLUS to select the type of film you are processing. Push START to begin the process.

Sidekick magnetically detects the size of the film DRUM you are using and will pump up the proper amount of solution needed for the processing.

The unit uses about 3 ½ oz (105 ml) of each solution per 35mm roll.

If you want to change the developing times see PUSH PROCESSING.

The unit will load the first solution into the internal heating tank, heat it to the proper temperature, warm the processing drum with warm air and then start the process automatically. As the unit is processing one solution it prepares the next solution.

When one solution is finished it is drained out and the prepared solution in the heating tank is pumped into the DRUM. The same procedure is repeated for all the necessary solutions. The unit will signal at the end of the wet processing. Remove the PROCESS DRUM. Insert the PLUG in the COUPLING and wipe out the TROUGH with a paper towel.

DRYING

Up to 4 rolls of 35 mm film can be dried in the included TURBO DRYER on reels. The film can also be dried any other way. The base of 120 film is too thin for drying on a reel, and must be dried by other means. Disc drying requires an accessory dryer (Part AF-DD).

Place the TURBO DRYER vertically in the TROUGH so that the cut away portion of the TURBO DRYER covers the air vent in the side of the TROUGH. Shake out each reel 4 times over a sink with a vigorous snap of the wrist to remove excess solution. Replace the reels on the spindle and put the spindle in the TURBO DRYER

Push START to begin drying. The unit will FLUSH itself as it is drying. The unit MUST BE ALLOWED TO FLUSH itself after every processing run. The required drying time will vary with the amount of film and the relative humidity of the room. If the film is not fully dry when the dryer stops (15 min.), dry again. Rinse all reels, spindle and drum with COLD water. Room air dry - hot air may distort the parts.

If you get drying marks, try the following: a) use distilled water for the last step. b) dilute the wetting agent or stabilizer. c) use softened water. d) external rinse in distilled water. e) squeegee and hang up to dry.

Film with drying marks can be re-rinsed in wetting agent and dried again.

REEL LOADING

The plastic ratcheting reels can be adjusted to hold different sizes of film. Simply hold the reel in both hands, making sure that the outer spiral groove (near the ball bearings) is on top and facing you.

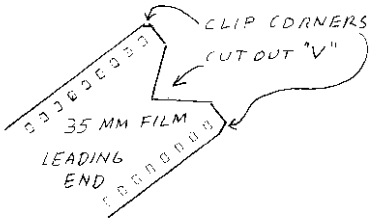
Twist the right half of the reel clockwise until you hear a click. The two halves can then be pulled apart. There are 3 "keyed" positions on the reel hub. The narrowest position is for 35mm or 126, the second for 127, and the widest for 120/220.

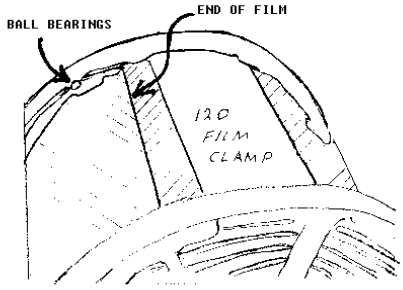
Insert the leading end of the film, emulsion down, into the outer spiral groove of the reel and a few inches past the ball bearings. With both hands on the reel twist the right half and the left half in opposite directions. You may have to assist the film feeding by placing the thumb, of your forward moving hand, on the outside of the film.

Keep feeding the film until the end clears the ball bearings.

Any Paterson [tm] reels will work. They are available at most photo stores. Contact Photo-Therm if you prefer to use different style reels.

35 MM FILM Cut off the film leader. Clip the corners of the leading end to make feeding easier. Cut a "V" into the leading end as shown in sketch. 35 mm film can be started in the light, but must be fed into the reel in the dark. When you reach the end of the film use scissors to cut it away from the film cassette. Do not tear the film. An uneven tear may cause the film to come off the reel.





120/220 FILM. Separate the tape from the backing paper and fold it back over the film. This will stiffen the end of the film. Load the taped end into the reel. Feed until the back end is passes the ball bearings.

Bend the 120 Film Clamp and place it over the end of the film into the grooves of the reel, close to the ball bearings, as shown above. Add a second film clamp on top of the first one. For extra assurance use a 1 in. piece of leader tape to bond the end of the film to the film clamp.

Mount the 120 reels in the center of the spindle.

SPECIAL FUNCTIONS

Selected with PLUS when machine is turned ON.

DRY will turn on drier for 15 minutes.

DRAIN will empty the internal HEAT TANK and the PROCESS DRUM.

FLUSH cleans out the system.

CLEAN LINES is a major cleaning. It draws solution through each of the chemical tubes, one at a time, starting with tube #18 through #1 and then does a FLUSH using #5 as a water source.

All solution tubing should be removed and the water tubing moved manually from position to position, as the unit draws water through each tube to clean itself.

TEMP CALIBRATE will load water into the heat tank, heat it and hold the temperature at 37.8 ^{o}C (100 ^{o}F). The unit will emit a beep every time it reaches the proper temperature. Allow 15 minutes after the first beep before reading temperatures. Check the temperature with a digital thermometer (an electronic fever thermometer works great) with the probe near the stir rod but not touching the bottom of the heat tank. A glass or dial thermometer will not work.

The temperature can be adjusted with a small screwdriver through a hole on the left side of the unit. Clockwise to decrease temperature*. All units are calibrated at the factory and should not need adjustment in the field.*

MAINTENANCE

Wipe off all spills when they occur.

Use silicone grease to lubricate the "O" ring on the SNOUT of the processing DRUM as needed.

Inspect the plastic sleeve on the STAPLE that turns the spindle - replace if worn.

MAINTENANCE Cont.

Clean the reels as needed by soaking in a 50% solution of household bleach for 5 minutes. Rinse well with hot water.

ONCE A YEAR, open the unit (see SERVICE), unplug it first, and:

1. **Protect the PC board from getting wet. Cover it with paper towels and a plastic sheet.**
2. **Examine for any signs of wetness.**
3. **Clean the heat tank and the area above the heat tank with a cloth dampened with a toilet bowl cleaner.**
4. **Replace the air filter on the dryer with a 3" square of air conditioner filter.**
5. **Remove the protection for the PC board and push down on all the connectors.**
6. **Close up the unit.**

ALARMS & MESSAGES DO NOT TURN UNIT OFF until you check why.

A continuous series of short buzzes signals that the unit requires attention. Read the message in the display to find out what needs to be done.

"Check Dev, etc." means that there is not enough solution for the processing to continue. Push START to turn off the alarm. Fill the solution bottle and then push START. The process will continue.

"Flush" means that the unit was not flushed after the last processing run. Push START to allow unit to flush itself.

***"No AC"* means the unit is not plugged in. Plug the unit into a live wall outlet.**

***"Dump tank full".* Empty the DUMP bottle.**

***"Please turn off".* Turn unit off when not in use. There is nothing that needs warming up.**

***"Machine failure".* Self-diagnostic. See CORRECTING PROBLEMS.**

HINTS

Test a new batch of chemistry on your own film or run a test strip.

CHEMICALS

BLACK AND WHITE

Use: 1. Kodak T-Max^{tm} developer (B/W DEV) 2. Rapid B/W FIX 3. Hypo clearing agent (B/W P WASH) such as Heico Perma-Wash^{tm} 4. B/W RINSE Photo-Flo (Kodak) or Rexton's Hyperwet^{tm}. Mix T-Max developer 1 part concentrate to 5 parts water. It works better in a Sidekick than Kodak's recommendation of 1:4.

COLOR NEGATIVES C-41

Use working strength solutions of any C-41 chemistry. Overflow solutions work well. If you use replenishers remember to add starter to the developer to get a working strength solution.

RA C-41 chemistry works well with the standard set-up. If you would like to shorten the bleach and fix times, please let us know.

SLIDES 7 STEP E-6

Blue shift can be corrected by adding sodium hydroxide (see chem. manufacturers instructions) to the color developer or by diluting the reversal step. When reversal is too dilute, the slides will have a green cast.

Bleach should be aerated (have air pumped through it). Use a fish tank type air pump and run the tubing to the bottom of the bleach bottle. Do not use an airstone. Run for at least 2 hours a day. The bleach is SAVED in this process because of its cost. If you wish to save a different chemical let us know. Check reversal for scum growth - discard, clean bottle, remix. Check color developer for separation - restir with mixing rod.

SLIDES 4 STEP E-6

Unicolor, Photo-Technology, Tetanol or Beseler chemistry will work. (Some manufacturers call their chemistry 3 step - they don't include a wetting/stabilizing step. Use C-41 stabilizer or a wetting agent (Hyper-wet or Photo-Flo) for this step.

PROCESSES OTHER

MOTION PICTURE FILM (black layer on base). Process ECN-2. Process like normal C-41 film. Since SIDEKICK can use fresh solutions for each step, the black residue does not gum up the unit. Turn SAVE switch OFF. After the last step, rinse under warm water and gently rub the remaining residue from the film base. Do not touch the emulsion. Hang film to dry. Wash reels with a soft brush in dish detergent.

We have program modules to do B/W SLIDES, LITHO and C-22 (old color negative film). Call us if you need these or any other special process. Remember the only process Sidekick can not do is Kodak's Kodachrome.

Mix color chemistries in water that is at least 85 ^{o}F (29 ^{o}C). Stir well. Wait one hour before using.

PUSH PROCESSING.

If you want to change the developer time, hold MINUS as you push START. The display will show the developer time. Change to desired time using the PLUS and MINUS. When the proper time is displayed push START to begin. The next time you process the unit will return to the normal time.

As a rough guide, 1 stop is about:

a) + 2 min. for Slides E-6.
b) + 30 sec for color negs C-41.
c) + 20% of normal dev time for B/W

Call film manufacturer for more complete information.

DISC PROCESSING (Optional)

Process disc with the normal COLOR NEG cycle. Use the Short Processing Drum.

Load the disc spindle with up to 18 discs. Push the retainer (round black plate with stainless steel clip) on the end of the spindle to hold the discs together.

DISC DRYING

When the processor says INSERT PLUG push the disc dryer assembly into the coupling as if it was a normal processing DRUM. Insert the cord from the dryer into the fitting on the right side of the processor.

Place the spindle in the dryer. The spindle end with a groove in it pushes into the dryer motor coupling. Put the lid on the dryer. Push START and the discs will dry as the unit flushes itself.

B/W PROCESSING TIMES with TMAX Developer at 75°F (23.9°C). Select "Tri X / Plus X" and PUSH.

FILM	Time	Push 1 Stop
Agfa 201 440-2500		
APX 25	4:15	5:15
APX 100	4:15	5:15
AP 400	4:50	5:45
Fuji 800 788-3854		
Neopan SS	4:15	5:30
Neopan 400	4:40	5:50
Neopan 1600	3:30	4:40
Ilford 201 265-6000		
HP5 PLUS	4:30	5:30
100 DELTA	4:30	5:30
400 DELTA	5:00	6:00
FP4 PLUS	3:30	4:10
PANF	Not recommended	
Kodak 800 242-2424		
PAN-X	4:40	5:40
PLUS-X	4:40	5:40
TRI-X	4:40	5:40
TMAX 100	5:30	6:35
TMAX 400	5:30	6:35
Select TMAX	3200	@85°F
TMAX 3200 @85°F	5:45	6:55

4 X 5 INSTRUCTIONS (optional)

Practice loading the 4x5 HOLDER with the lights on. The HOLDER will process 4 sheets at a time.

The 2 stainless clips are on the TOP of HOLDER. Rotate both clips toward the center core.

Insert the sheets with the emulsion towards the center. 4x5 sheet film has notches in one corner. Hold the sheet facing you with the longer side vertical. When the notches are at the top right corner, the emulsion is facing you.

Load the 2 inside sheets first. Load from the TOP of the HOLDER. Squeeze the film so that it can fit inside the ring of the HOLDER. Push the sheet into the groove. Use your other hand to help guide the sheets.

After all the sheets have been loaded, rotate the stainless clips toward the outside ring to hold in the sheets.

The spindle should then be inserted from the bottom of the HOLDER. Place the spindle with the HOLDER(S) in the Processing DRUM and process normally.

After processing:

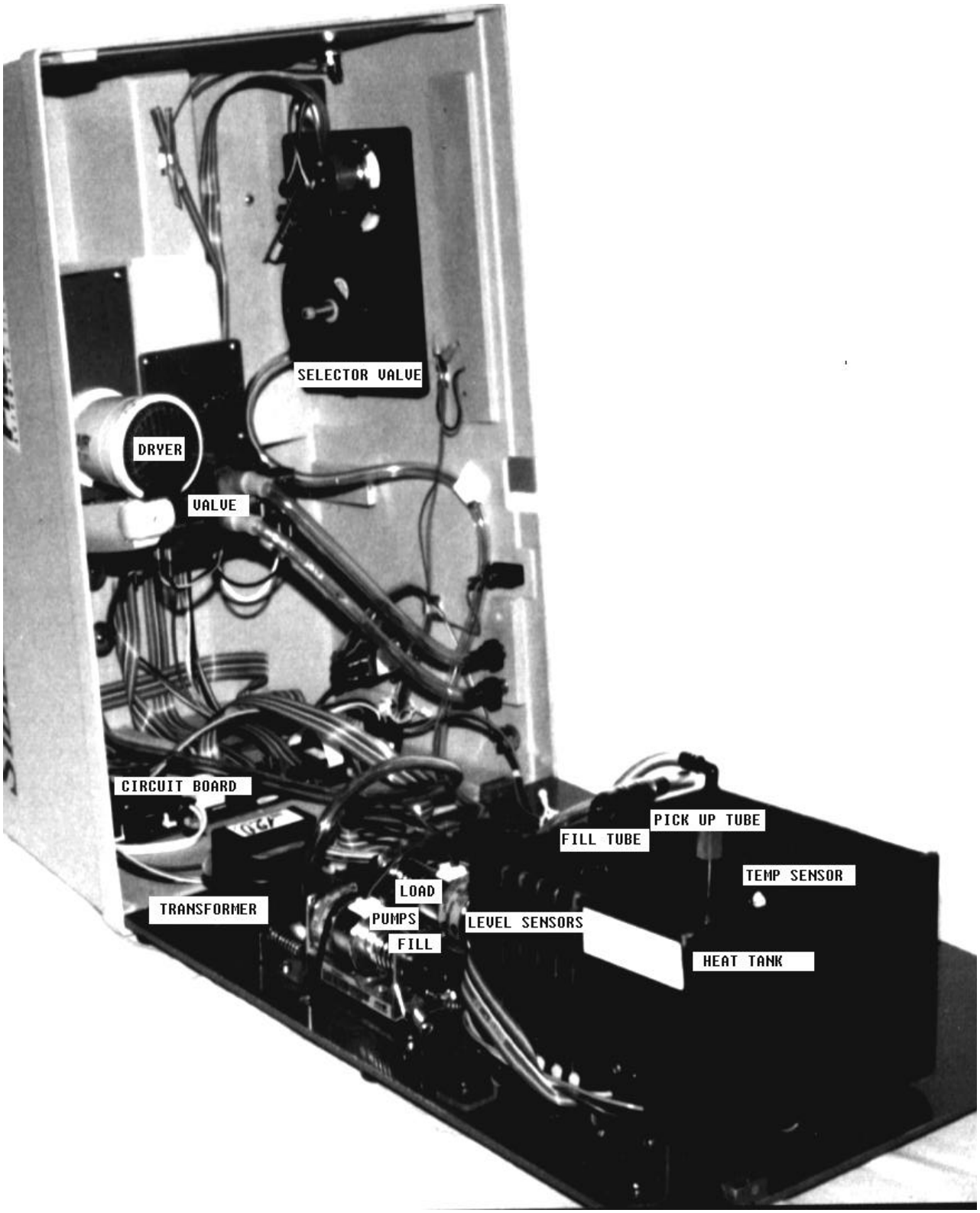
1. **Remove the HOLDER(S) from the spindle.**
2. **Rotate the stainless clips toward the center core of the HOLDER**
3. **Push the sheet up slightly from the bottom.**
4. **Pull the sheet from the TOP. Use your other hand to help guide the sheet.**
5. **Use your own method to dry the sheets.**
6. **Rinse the HOLDER(S), spindle and DRUM. AIR DRY. DO NOT USE HOT AIR.**

Very thin base 4x5 film like Kodalith will not mount in the holder.

CORRECTING PROBLEMS

Will not start up or gets stuck in process step. Alarm does not sound	**Selector Valve jammed. Record display messages. Remove DRUM, drain solution and put DRUM in bucket of water to protect the film. Unplug & open unit and check ribbon connector and tubing to Selector (Rotary) Valve.**
Excessive leakage from front of DRUM, where spindle passes through	**1.Improper draining. Reread how to run DUMP lines. Do a dummy run with the lid off the DRUM. Make sure solutions drain completely before the next solution is pumped up.** **2.The STAPLE is touching the spindle bushing while the spindle is being pulled in. Adjust by mounting the STAPLE closer to the motor.**
"Machine failure" message	**Temperature sensor problem. Check ribbon connector from heat tank. Make sure it is pushed down, properly aligned and pins are straight. Handle carefully. Lift up squarely. Do not just pull ribbon. If program module was just replaced check it for bent pins.**
Film too dark or light	**1.Temperature off. Run TEMP CALIBRATE. see Special functions.** **2.Chemical quality, mixing or age.**
Film color off	**Chemical quality, mixing or age.**
DRUM not recognized	**magnetic sensor problem. Replace magnetic sensor board.**
Leak from snout.	**Grease "O" ring on DRUM snout.**

Use a telephone near Sidekick when calling in for service.


SELECTOR VALVE
DRYER
VALVE
CIRCUIT BOARD
TRANSFORMER
LOAD
PUMPS
FILL
LEVEL SENSORS
FILL TUBE
PICK UP TUBE
TEMP SENSOR
HEAT TANK

<u>OPENING the UNIT</u>. Qualified Personnel only

The unit must be opened in order to reach the internal components.

1) Remove the power cord from the unit and pull at least one battery from the battery holder. Remove all the solution tubing from the tubes on the back of the unit.

2) Unscrew the 4 screws holding the BODY to the base (2 on the right side and 2 on the left side). Lift up on the right side of the BODY so that it hinges on the left side. Rest the BODY on its left side.

PROGRAM MODULE REPLACEMENT

Open the unit see OPENING. Locate the circuit board. The PROGRAM MODULE has a tape handle on it. Pull straight up with the tape handle - not one side at a time. The writing on the label should read from top to bottom. Illuminate the circuit board well to make sure the pins are lined up. Push in the new PROGRAM MODULE. Close up the unit.

SELECTOR VALVE REPLACEMENT

Open the unit (see OPENING). Cover the PC Board with paper towels and a plastic sheet to protect it from getting wet. The SELECTOR VALVE (SV) is now exposed. The tubing from the SV is held against the side of the case by a clamp. Open the clamp. With a paper towel in hand, remove the SV tubing from the pump fitting.

Remove the ribbon connector of the SV from the PC board. Carefully lift the connector straight up. Do not bend the pins. The SV is held with 4 screws. Unscrew and remove SV.

Install the new SV. Fasten with the 4 screws. Clamp the tubing to the case. The black mark on the tubing should line up with the bottom of the clamp block. Push the end of the tubing onto the pump.

Remove the protective socket from the connector of the new SV and place it on the old SV connector. Replace the electrical connector in the socket marked FLUTE on the PC board. The mark on the connector should be on the lower left corner.

Close up the unit. Do a test processing run.

PRINTED CIRCUIT (PC) BOARD REPLACEMENT

Open the unit (see OPENING). Locate the circuit board. Carefully note how each connector is mounted before you pull it from the board. Pull away squarely from the board, be careful not to bend the pins. Do not just yank the ribbon cables. Rotate the 2 clamps holding the PC board and remove it.

Push the new PC against the stop on the right side of the track and then twist the clamps.. Carefully replace all the connectors. Use the wiring diagram (p.16) as a guide for positioning. Close the unit and do TEMP CALIBRATE (see SPECIAL FUNCTIONS).

TEMPERATURE SENSOR REPLACEMENT

Open the unit (see OPENING). Locate the heating tank. The temperature sensor screws into the side of the heating tank. There are 2 wires connecting the sensor. One goes to a solder lug, and the other is soldered to a black wire. Cut away both wires (the wires are interchangeable). Use a coin (quarter) to unscrew the old sensor (DO NOT USE a screwdriver. it may slip into and break the sensor).

Wrap the new sensor with 4 wraps of teflon tape and screw into the heat tank with a coin (quarter). Solder the 2 wires where you cut the old wires. Close the unit and do TEMP CALIBRATE (see SPECIAL FUNCTIONS) to match the sensor to the PC board.

SOLUTION LEVEL SETTING

Open the unit (see OPENING). Locate the 3 level sensors on the heat tank. The sensor closest to the left corner is low level (3 oz -90 ml) followed by: 7 oz and 14 oz. Pour the proper amount of water (start with 3 oz then add 4 oz etc.) into the heat tank. Hold the sensor where it passes over the tank wall with one hand and bend the end of the sensor with the other hand so that the sensor just touches the water. Empty the heat tank by closing the unit and running DRAIN (see SPECIAL FUNCTIONS).

SHIPPING the UNIT

Prepare the unit by running CLEAN LINES (see SPECIAL FUNCTIONS). Open the unit (see OPENING) and wipe up any loose solutions. Tie down the 2 pumps (through the holes in the base) with strong twine. Remove the magnetic stirrer (white pill) from inside the heat chamber. Close the unit. Remove and keep stir bar, plug and power cord.

Place the unit in a plastic bag. Use as much packing (balled newspapers, bubble wrap etc. <please do not use small styrofoam chunks>) as possible to cushion the unit from the walls of the box.

PARTS LIST SK-4G Always specify model and serial number.

AF-SVG	Selector Valve Rotary	450.-	AF-SPS	Spindle 2-roll	60.-
AF-HT	Heat tank	350.-	AF-SPL	Spindle 4-roll	90.-
AF-TS	Temperature sensor	50.-	AF-DD	Disc dryer	150.-
AF-PC	Printed circuit brd	250.-	AF-SPD	Disc spindle	60.-
AF-PM	Program module	50.-	DP-RET	Retainer for discs	20.-
AD-DISP	Display	90.-			
AF-TR	Transformer	75.-	AF-BOT5	Bottle 5 Gal	20.-
AD-P	Pump	120.-	ADC-LEV	Sensor for dump btl	50.-
AF-DRT	Dryer internal	50.-	AF-FV	Float valve	15.-
AF-DR8	Wall dryer 8 roll	280.-	AF-ICE	Water connect kit	10.-
AF-V2	Valve dual dump/save	100.-	AF-BOT2L	Bottle 2 liter	5.-
AF-VCL	Valve coil 120V	25.-	AF-REEL	Film reels Paterson	10.-
AF-VST	Valve seat	5.-	AF-LNCRD	Power cord	10.-
AF-ROT	Rotate motor	75.-	DP-SW	Switch power. 2 pole	7.-
AF-STAP	Staple bushing	10.-	DP-PSW	Push switch	5.-
AF-STSL	Staple sleeve (2)	1.-	AF-SW	Switch save	3.-
AF-4X5	4x5 holder	90.-	AF-BOT1G	Bottle 1 gal (4 l)	7.-
AF-PTS	Process drum 2-roll	90.-	AF-C120	120 film clamps (4)	2.-
AF-PTL	Process drum 4-roll	90.-	AF-OR	”O” ring (3)	2.-

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SUPPLIER PHONES

609 396-1456	**Our help line. First check CORRECTING PROBLEMS**
800 221 1555	**Russell. 7-step Slide Chemistry. Very helpful**
800 243-2776	**Agfa**
800 788-3854	**Fuji**
201 265-6000	**Ilford**
800 242-2424	**Kodak**
800 999-4042	**PSI. Makes Unicolor 4-step slide chemistry**
800 525-2821	**Jobo. Imports Tetanol (Germany) 4-step slide chemistry**
800 621-5488	**Brandess Kalt. Sell Heico Perma Wash fix (hypo) remover**
800 553-2001	**Porters. Get catalog. Has Rexton Hyperwet #35-0597, a B/W rinse**
708 833-0300	**McMasters. Ask for catalog. Has silicone grease #1418K4**
800 537-9724	**United Plastics. Ask for catalog. Good source for bottles, tubing etc.**
800 537-9724	**Good stand for unit. Rubbermaid 4505. United Plastics #06998**
202 223-6906	**Interclone. Profit-making slide copier**
800 255-1522	**Pic-Mount. Slide Mounters, mounts and boxes**
612 936-9500	**Pakon. Slide mounters and mounts.**
716 377-6375	**Gepe. Snappy slide mounter. Slide mounts for Snappy mounter**

SERVICE LOG

Date	**Action**
	ATTACH MORE SHEETS AS NEEDED for LOG