METRONIC 5200BF ELECTROLYTIC RECOVERY SYSTEM FOR COLOR PHOTO PROCESSING

BULLETIN
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SAFETY PRECAUTIONS BEORE STARTING PUMP

1. Read operating instructions and instructions supplied with chemicals to be used.
2. Refer to Chemical Resistance Data Chart for compatibility of materials in pump with solutions to be used.
3. Note temperature and pressure limitations.
4. Personnel operating pump should always wear suitable protective clothing: face mask or goggles, apron and gloves.
5. All piping must be supported and aligned independently of the pump.
6. Always close valves slowly to avoid hydraulic shock.
7. Ensure that all fittings and connections are properly tightened.

BEFORE CHANGING APPLICATION OR PERFORMING MAINTENANCE

1. Wear protective clothing as described in item 4 above.
2. Flush pump thoroughly with a neutralizing solution to prevent possible harm to personnel.
3. Verify compatibility of materials as stated in item 2 above.

STATEMENT OF WARRANTY AND LIABILITY

SERFILCO warranties its equipment against defects in material and workmanship for six months from the date of installation. Any claimed defects must be reported, and the material or equipment returned, freight prepaid, to our plant within the warranty period. Our liability is limited to replacing or repairing, at our option, any material or equipment, at no cost to the purchaser, Damages or loss during shipment are not covered by this warranty, but are the responsibility of the carrier(s). Please report all shipping damage to the carrier(s) immediately.

All material and /or equipment supplied by vendors other than SERFILCO, shall carry no warranty except said supplier's warranty as to materials and workmanship. Transportation handling damage, wear and tear, and other causes of damage outside the control of SERFILCO are not covered by this warranty. Under no circumstances shall SERFILCO be responsible for any damage, loss or liability of any nature arising out of the installation or use of the materials or equipment furnished.

No other warranties, expressed or implied, except as stated above, shall apply. This warranty becomes null and void if any device or accessories other than those distributed or officially recommended by SERFILCO is installed, or attached to this equipment.

INTRODUCTION

The Metronic 5200 BF is an electrolytic recovery system intended to recover silver from fixer and bleach fix. This is a closed loop recirculating recovery system that continuously passes the spent fixer and bleach fix solution from the 10 gallon desilvering tank through the plating chamber. The silver is deposited on a cathode inside the electrolytic chamber. The unit turns on automatically when the 10 gallon desilvering tank reaches the 3.5 gallon level.

The unit will run in the recirculating mode until the maximum amount of silver has been recovered.

At the end of the recirculating cycle, which varies with silver concentration, the unit will go into a drain mode until all the chemistry is out of the holding tank and plating chamber. It will then automatically turn off and wait for the next batch of chemistry.

The Metronic 5200 BF consists of:

1. Electrolytic Chamber (SPU) (See Fig. B)
   This chamber is equipped with one (1) round 5" anode, one (1) 8" cathode, one(1) circulation pump, and one(1) discharge pump.
2. Rectifier (EMP) (See Fig. H)
   The rectifier is equipped with digital current readout, level control, and power switch.
3. Desilvering Tank (See Fig. F)
   The desivlering tank is a 10 gallon holding tank with High/Low level controls set to start at about 3.5 gallons.

SPECIFICATIONS

Dimensions:	22"x9-1/2"x21-3/4" (55.9 cm x 21.1cm x 55.2 cm)
Recovery Rate:	1.25 troy ounces per hour (40 grams per hour)
Silver Capacity:	394 troy ounces (12 kg)
Cathode Dimensions:	8" diameter (20.3 cm) 6" height (15.2 cm)
Drain Systems:	Pump - 2-4 liters per minute
Power Requirements:	110/120 VAC (US) 220 V (Europe)

INSTALLATION

Install the Metronic 5200BF near the processor drain line.

A. NEW LAB INSTALLATION

1. There are two fittings to be installed on tank (see Fig. F) One for Fix, Bleach Fix "IN" and one for overflow to drain. These may be interchanged.
   a. The Fix, Bleach Fix hose from the processor and printer is connected to the desilvering tank.(see Fig. F)
   b. The overflow drain fitting which goes to drain. (see Fig. F) This allows some protection in case of equipment failure.
2. Put system on top of black base.
3. Attach (3) 3/4" hoses to tank with hose clamps on each fitting. (see Fig.C)
4. Install rectifier (EMP) in shelf with black connector "D" to SPU chamber, gray cable "C" to the float switch cable on the desilvering tank, and AC power cord "A" to wall receptacle. (see Fig. B) Be sure to check and insure that the retaining strap on the rear of the unit is set to hold the EMP inside the cabinet. (see Fig. G)
5. Connect the Metronic 5200BF 1/2" I.D . drain hose to the nearest drain. (see Fig. C)
6. Turn on AC power. (AC power should be left on at all times, as system will be in stand-by mode until tank is filled).
7. Check system for leaks by filling tank with water until system turns on. The system will run for approximately 7 minutes, then go to drain mode.

B. EXISTING LABS

1 Connect hoses as indicated on the previous page.

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OPERATING PROCEDURES

1. After completion of installation, turn on power.
2. The "IN" hose to the desilvering tank will only allow fix and bleach fix into the tank.
3. When changing chemistry, Bleach Fix and Fixer will drain to tank. When tank is filled to level of high float, unit will turn on and run until the maximum amount of silver has been recovered.
4. When cleaning out your processors, avoid getting any water or cleaners in the desilvering tank. This will cause the 5200 BF to not plate.

For Labs where Fix and Bleach are automatically replenished, the 5200 BF will be on stand-by until upper float switch is activated to turn recirculating pump and desilvering cycle on. This is automatic. Always keep the unit in the "ON" mode.

BILL OF MATERIALS

Major Component Listing
A. Cabinet C. SPU
b. EMP D. Desilvering tank

EMP

DESCRIPTION	QUANTITY/UNIT
Transistor 2N6057	2
Lug, ring #6 (22-18)	1
Lug, ring #10 (16-14)	2
Tie, cable 7-1/4"	3
Tie, cable 3-3/4"	12"
Transformer 24-12	1
Rectifier, bridge 25A	1
Capacitor, 1900 UF 25V	1
Terminal, block 2 pos.	1
Cabinet, EMP	1
Clamp, capacitor	1
Fan, cooling	1
Washer, #6 lock SS	14
Washer, #8 lock SS	1
Washer, #6 flat SS	14
Washer, #8 flat SS	1
Nut, 6-32 SS	14
Nut, 8-32 SS	1
Screw. 6-32 x 5/8 P.H. SS	2
Screw, 6-32 x 1/2 P.H. SS	4
Screw, 6-32 x 3.8 SS	3
Heatsink 4"	1
Spacer, Hex 1-1/4"	3
Cord, Power 3 cond. 6	1
Cable, 5 cond. (SPU)	1
Assy, PCB w/harness	1
Assy, front panel	1
Relay, 8 pin octal	1
Relay, FRP 104 (alco)	1
Socket, relay octal	2
Socket, transistor	2
Molex, connector (male)	5
Molex, connector (female)	3
Wire, 20awg 3 cond	6
Pin, female	24

SPU

DESCRIPTION	QUANTITY/UNIT
Nut, 1/2 12 UNC	2
Washer, 1/2"	2
SPU cover	1
Barb	1
"O" ring, B-1203	1
Anode, 5"	1
Stud Assy	4
Nut, B-1205	4
Seal	4
"O" ring B-1205	1
Cathode, 8" SS	1
"O" ring C-1202	1
Anode Rod PVC	1
SPU Chamber	1
Barb	1
Plate	1
Bracket, Mtg. Chamber	1
Pump G/R	1
Connector assy	1
SPU cabinet	1
Cabinet base	1
Cover	1
Jack, banana red	1
Jack, banana black	1
Block, mounting	1
Wire #14 black	12"
Wire #14 red	12"
Lug, ring #10 18/14	2
Gasket, plating chamber	1
Lug ring, 14 AWG wire	2

HOLDING TANK

Tank 12 x 12 x 18	1
Fitting, bulkhead 3/4"	3
Switch, float	2
Tee, 1/4"	2
Elbow, 1/4"	2
3-way Ball valves	1
3/4" MPT x barb	3
3/4" MPT x barb elbow 90	2
3/4" Tee FPT	1
3/4" Nipple, long 3"	1

TROUBLE SHOOTING GUIDE

SYMPTON	PROBABLE CAUSE	CORRECTIVE ACTION
Power light ON, desilvering light ON, no amp reading on digital meter	1. Defective EMP	1. Call for service
No apparent silver plating on cathode	1. Desilvering time too short 2. No amps on digital meter 3. Developer mixed with Fix and Bleach Fix	1. Call for service 2. Call for service 3. Reroute developer to drain and clean out the desilvering tank and plating chamber with water.
Leaking from tank fittings	1. Fittings either too tight or not tight enough 2. Flashing around fitting hole.	1. Check if fitting is loose, If so, tighten. 2. If fitting is too tight, loosen slightly so as not to distort gasket. If leak persists, disconnect fitting and check gasket for damage.
Switch "ON" light will not light	1. Blown fuse 2. Unit not plugged in 3. Faulty EMP	1. Replace fuse 2. Plug in unit 3. Call for service if (1) or (2) does not correct symptom
Desilvering cycle will not start, Switch "ON" light is lit	1. Tank not filled to top float switch 2. Float switch stuck open	1. Insure tank is filled to top float switch 2. a. Lift switch up to close position, to start desilvering cycle. b. Clean and unclog switch with water. c. If (b) does not work, call for service.
Unit goes into main mode after seven minutes	1. No silver in the solution 2. Faulty EMP	1. Add solution with silver 2. Call for service

SILVER STRIPPING PROCEDURES

Check for silver after one month. Refer to A-1486 for plating chamber components.
Before starting the stripping of the Metronic 5200 BF unit, it is advisable to perform a quick operational check and visual inspection. The operational check will tell you if there is a reason, other than adjustments, for the metal not to plate properly. The visual inspection will help identify the source of any leaks.

STRIPPING - SCHEMATIC 1

1 Turn the power switch OFF on the Metronic 5200 BF unit.
. Disconnect the S.P.U. power cable and float cable.
2. Remove the top cover with the rectifier.
   Loosen the clamp that holds the hose at the chamber
3. outlet (top) and slide the connecting hose off fitting (4) (see A1486)
   Disconnect the Red & Black wires from the chamber top.
4. (see Dwg # A-1445)
   Remove the chamber top retaining nut (1) and washer (2).
5. Remove the chamber top and cathode assembly up and out of the chamber. (Items 4, 5, 6, & 8) Remove cathode nuts and "O" rings. Remove the cathode item 8 (see A-1486)
   NOTE: On occasion, due to unusual plating conditions, you may find that the cathode is stuck in the chamber. If you encounter this, Proceed as follows:

   a. Remove the two cathode retaining nuts, black wire, spacers, and "O" rings located on the chamber top. Remove the chamber top leaving the cathode in
   b. place
      Pushing in on the cathode studs, pull the cathode up
   c. and out of the chamber.

NEVER TRY TO PRY THE CATHODE OUT WITH A SCREW-DRIVER OR OTHER TOOL. THIS WILL RESULT IN BREAK-AGE OF THE CHAMBER.

6. Remove the silver from the cathode by gently flexing the cathode. It would be best to leave the silver on until you have accumulated about 1/8" thickness, which will make it easier to remove.
7. Clean the anode (Item 6) of any build up of residue on the surface by washing it with a wet sponge and warm water. If the anode is damaged or does not go back to a fine grey color, it will have to be replaced.
   DO NOT USE ABRASIVES ON THE ANODE!
8. Clean the metal that may be present from the bottom of the chamber. Dry it out and send out with the silver flake for refining.
9. Inspect the anode "O" ring and chamber gasket for cracks from the chamber wall. Replace if necessary.
10. Reassemble the cathode and chamber top. (see Dwg #A-1445) Make sure that the long end of the cathode is on the inside. Clean the inside of the cathode with alcohol or acetone to remove any oil left by your hands. Gently slide the cathode and chamber top into the chamber.
    Clean the bottom of the SPU case to remove any solution
11. that may have been spilled.
    Check all the clamps on the unit to ensure they are tight.
12. Occasionally check the cathode and anode nuts for leakage. Replace "O" rings and /or spacers if required.

13. Occasionally check the cathode and anode nuts for leakage. Replace "O" ring and /or spacers if required.
14. When re-assembling the chamber top put on two or three turns of teflon pipe tape on all the threads of the studs to prevent leaking.

SILVER FLAKE REFINING

There are numerous silver flake buyers and refiners in your area. In the event that you would like a listing of available refiners, call our service department and an updated listing will be make available to you.