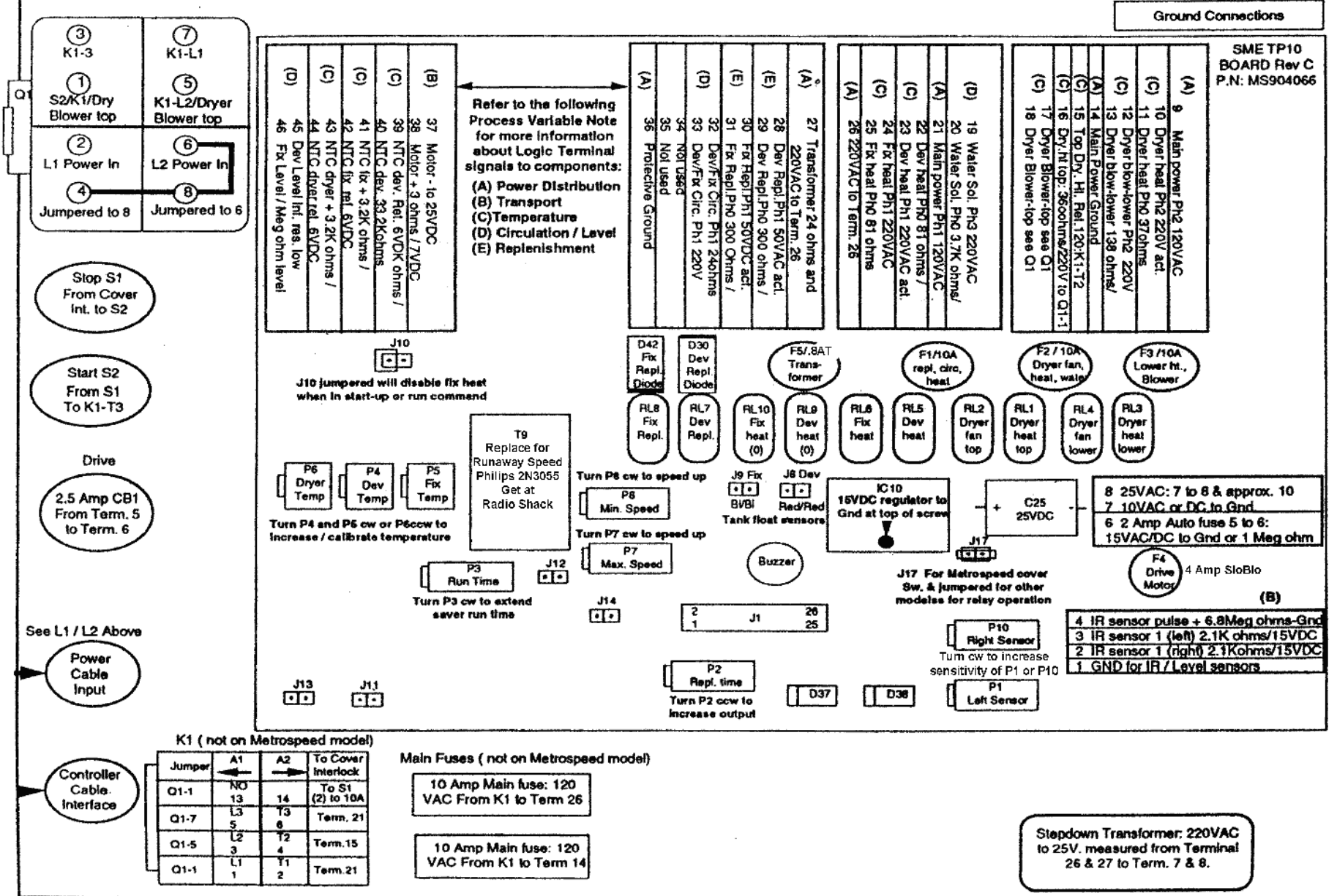


MS Processor Logic PC Roadmap: Inside Rear Electrical Compartment

WARNING: Incoming Power (Single Phase) requires Q1 jumpers from terminals 4 to 6 and 8 to 4. Do not install a high (wild) leg. Verify 110VAC from L1 to Gnd, L2 to Gnd & Gnd to a water pipe. Verify Tight electrical connections at PC, Terminals, K1 etc. before applying power. For 3 phase, attach L1 to Q1-4, L2 to Q1-6, L3 to Q1-8, Neutral to Q1-2 (If there is no Neutral, jumper Q1-2 to 8)



MS POWER DISTRIBUTION “A”

INCOMING POWER / CONVERSION.

The MS processor comes factory set for either three phase power with a 5 wire cord that connects to ground or single phase depending on model. Refer to the following setup conversion table when connecting power:

Single phase power only in U.S.

L1 (Black) to O1, Terminal 2
L2 (Brown) to O1, Terminal 4
Jumper Q1 Terminal 6 to 8
Jumper Q1 Terminal 8 to 4

Before connecting power, verify tight electrical connections at PC Board terminals, plug-jacks etc. Also verify power in at L1, L2, L3 to Gnd and L1 to L2, L2 to L3 and Gnd to a cold water pipe if available. Best operation will occur if power phases are matched. If a high leg exists, connect to L3. **Never turn on power without connecting Drain, water and filling the Developer and Fix tanks.**

Q1 CONTROL SWITCH

When this switch is OFF, power is removed from the logic PC and all processor functions stop (except for the power vent system, which is wired directly to the incoming power on most models. If the customers local electrical code does not allow power to the processor when not in use, open the top cover at the end of the day for evaporation, O1 switches power to one side of the K1 relay when on, If this does not occur, verify the above power connections, jumpers and tight terminal connections of all wires to and from O1.

START SWITCH (GREEN) / STOP SWITCH (RED)

When the start switch is off, Power into the logic PC is not allowed. When turned on, the signal voltage is sent through the cover interlock switch to the K1 coil. Any interruption by the Stop Switch, top cover opened or if the CB1 drive motor circuit breaker opens, K1 coil opens.

When the Start Switch is activated, the display/controller is activated, developer and fix circulation and heat starts and a saver cycle begins including drive, dryer, heat, circulation and water. **Never turn on the start switch without solution in the tank or damage will result to the circulation pumps.** This is because if the low level sensor (top) or the solution float sensor (bottom) is open, heat is not allowed but circulation exists. After activating the start switch, verify that good circulation exists in the developer, fix tanks and that water is entering the wash tank. If not, refer to the circulation variable flowchart notes.

K1 CONTACTOR

When the Start switch is activated and the coil of K1 activates, power is sent to the two main fuses (10amp) and into the Logic PC at Terminals 14 and 26.

Any of the following may not allow or may interrupt K1 operation: Loose wire at Q1, CB1 open, top cover interlock switch open or a problem exists with Q1 or K1.

LOGIC PC BOARD

When the logic PC (SME TP10 Rev. C), has 25VAC power from the step-down transformer at terminals 7 to 8, it sends power to the controller and other processor components. Measure for 25VDC at the C25 capacitor. and 15VDC at the IC10 Regulator screw in the center of the heat sink. Logic relay operation (RL1-RL10) is not allowed if J17 is not connected on Logic PC Rev. C or higher. Power is also sent to the controller via J1 for temperature, replenishment, speed, and other switch / LED operations.

CONTROLLER

The controller comes factory calibrated and may be mounted directly to the processor for convenience but is better suited when mounted to a wall nearby. When the Logic PC sends power to the controller at J1 pin 17, the 5VDC regulator IC1 sends power to all controller components, LEDS and switches. Any calibration required to the transport, temperature or replenishment variables are made on the Logic PC. Refer to the respective note if calibration is not correct or if problems occur in Transport, Temperature, Circulation or Replenishment.

COVER INTERLOCK SWITCH

The processor will not operate if the cover interlock switch is not closed (magnetic on some models, micro-style switch on others). When open, K1 will open and all processor activities stop except for power venting.

CB1 CIRCUIT BREAKER

In addition to the cover interlock and start-stop switches, the drive motor circuit breaker C81 will also interrupt all processor operation. If this occurs, reset the circuit breaker and refer to the transport flowchart for additional information, amperage draw measurements and service checks for troubleshooting.

POWER DISTRIBUTION TROUBLESHOOTING

If the processor does not operate properly, or at all, Verify that correct power plus ground exists into the processor and that D1, K1, Start / Stop and cover interlock switches operate properly as described above and that all PJ wire connections at fuses, PC boards and other components are connected tightly. Refer also to the Sequence of Operation / Amperage draw chart and the Logic PC Board layout for additional information and guidance when troubleshooting.

MS TRANSPORT NOTES "B"

LOGIC PC BOARD CONTROLS DRIVE MOTOR SPEED

The logic PC internally controls the drive motor speed and saver run time. The customer must verify that the processor is up to temperature (the developer and fix temperature LED's are flashing) and that all tanks are full before entering film. Activating the green start or the Daylight start switch will begin one saver cycle including drive, dryer, blower, and heat if 01, CB1 and the cover interlock switches are closed. The 2.5amp fuse F4 on the Logic PC also stops drive if open. When the processor is ready, and film enters under both sensors, both "No Input LED's light. Replenishment cycles during film sensing and turns off along with the No input leds when film leaves the sensors. Verify that film transports smoothly through the racks, crossovers, exits clean and dry plus the processor shuts down shortly after clearing the dryer. When the processor is in the idle mode, the Logic PC activates the drive jog command for approximately 5 seconds every 13 minutes to keep the top rollers free of chemical buildup. If a tank low level exists, the alarm sounds but film sensing is not affected.

The display indicates seconds in developer (including crossover time) and is factory calibrated. However, the service technician should verify that the actual speed matches the display setting at the customers operating speed for optimum accuracy. Refer to U. following calibration procedure if the processor shuts down before film exits the dryer or continues to run after film exits the dryer or if the speed setting does not match the actual speed:

FAST | SLOW | SAVER RUN TIME CALIBRATION

1. Verify that the No Film led's are lit the entire time that film is under either/or both sensors and that the leds stay off with no film.
2. With a stop watch, verify that the seconds from solution to solution match the speed display at a slow speed such as 40 seconds. Turn P8 on the Logic PC ccw to speed up the motor for Min. speed adjustments (slow speeds).
3. With a stopwatch, verify that the seconds from solution to solution match the display at a high speed such as 20 seconds. Turn P7 ccw to speed up motor.

1. Verify that film drives smoothly without hesitation through the processor. If the processor shuts down before exiting the dryer, Turn P3 cw to extend the saver run time. If the processor runs too long after film exits the dryer, Turn P3 ccw to shorten the saver run time.

FILM SENSORS/ CALIBRATION

1 MS processors use pulsed IR (gallium arsenide) emitting diode and a NPN silicon photo-transistor sensors that is in a spectral range outside the graphic arts sensitized goods but they may require calibration for different films. Verify sensors are clean periodically and that the right and left "No film" sensor LED's stay lit the entire time that film is under the sensor. To access the sensors, remove the front cassette box assembly and developer rack. Remove the sensor assembly from the front. It may be required to pull wire cable from opening the plate under the developer tank on the left side. Calibration procedure:

1. Without film under the sensor, Turn P10 (Right sensor) cw until the No Input indicator lights on the right. Then turn P10 approximately one full turn ccw. Next, insert the customers film/paper into the sensor and verify that the no input indicator is lit the entire time that film / paper activates the sensor and goes out when film exits the sensor. Fine tune adjust P10 as required.
2. Without film, Turn P1 (Left sensor) cw until the film indicator on the left lights. Turn P1 ccw approximately one turn and verify film paper activation, deactivation.

CB1 CIRCUIT BREAKER

The 2.5amp circuit breaker protects the drive motor and rack gears from damage. The normal operating current should be approximately 1.2 to 1.4 amps. Processors that have not been maintained properly or processors that have a problem with the motor circuit, will cause this amperage draw will go up. If this occurs, check racks, shaft etc. for binds and damage. Do not continue to operate the processor by continually resetting CB1. If no drive exists and CB1 is not open, check logic F4.

DRIVE MOTOR

The MS Drive motor voltage will vary from 7VDC to 25VDC and has approximately 3 ohms measured at the motor or at the logic PC terminals 37 to 38. Motor voltage at 30 seconds is approximately 15VDC and 28VDC at 15 seconds. The motor is protected By CB1 and F4 which stops all processor operation when open. Access to the motor is possible by removing the upper and lower dryer blower assemblies and removing the appropriate screws for access to the motor and gear assemblies.

DAYLIGHT START SWITCH

When this switch is activated, one saver cycle of drive and dryer begins (But not water) plus four replenishment cycles occur. The "No Input" indicator will also light for approximately 42 seconds after the Daylight Start switch is released. There is no provision for continual Daylight Start operation. If the film entered into the Daylight slot does not clear before the "No Input led turns off, activate the Daylight Start switch a second time.

RACK /CROSSOVER /DRYER TRANSPORT

The developer, fix and wash racks have a 1:1:1 path length ratio on all MS models. This makes it easy to time-calibrate seconds in any solution including crossover time. All models use a staggered roller entrance and exit roller pair that drives by the spring tension near the top of the rack. The rest of the rollers are opposed or slightly staggered to transport film away from guides and into crossover areas. All racks use sealed rollers and have two styles of press-on gears: one large drive shaft gear and a number of smaller roller gears. The gears can be removed using a pulley puller effect such as two screw drivers applying even pressure to both sides of the gear. All processors are shipped with a few replacement gears. The rackdrive engaging gear does not require lubrication but all drive shaft bearings including the dryer and drive motor require lubrication every 3 months with 20-30Wt. oil. The solutions should be systems cleaned on a regular schedule that varies with production hours and type of film /paper / chemistry used. When inserting a rack, lift slightly on the left as you slide the rack drive engaging gear from under the drive shaft gear. This procedure also applies to the dryer assembly if removed although simply lifting the top dryer cover is usually all that is required to inspect, clean or access the roller/ guide area. Do not start drive without the crossover in place or ware may result to the drive gears. When a crossover is inserted, verify that it press fits securely into the slot on the right side including the dryer crossover.

MS DEVELOPER, FIX AND DRYER TEMPERATURE NOTES "C"

DEVELOPER HEAT ENABLE.

The Logic PC Board activates the dual developer heat relays RL5 and RL9 (if J17 is connected, the processor is on and a solution or float sensor is not open. The controller potentiometer input at P1-18 provides the temperature desired reference that is compared by the logic to the input sensor (NTC) resistance at terminals 39 to 40 of approximately 3.2K ohms (with sensor connected) at room temperature. A low level condition (top sensor) in either the developer or the fix tank will stop developer and fix heat and sound a continuous alarm plus light the developer low level indicator until the problem is corrected. A developer low tank condition (bottom float) will deactivate only developer heat. Access to the solution heaters is on the bottom of the tank on the left side. If the potentiometer setting does not match the actual temperature, recalibrate the Logic PC P4 ccw to increase as required.

FIX HEAT ENABLE.

Fix heat enable of 220VAC is identical to developer when 9L6 and RL10 activates measured at terminals 41 to 42. The control pot. is at P1 -12, the sensor is at terminals 41,42. If J10 on the Logic PC is connected, Fix heat is turned off when in the Start-up or the run cycle and is allowed to operate when in idle.

DRYER HEAT ENABLE.

The Logic PC Board activates the dual dryer heat relays RL1 (top) and RL3 (lower) if J17 is connected, the processor is on and a film entrance, Daylight Start, or a Start-up cycle begins. The logic PC internally disallows dryer heat if the blowers are not activated also. The controller potentiometer input at P1-22 provides the temperature desired reference that is compared by the logic to the input sensor (NTC) resistance at terminals 43 to 44 of approximately 2.3K ohms at room temperature. If the potentiometer setting does not match the actual temperature, recalibrate the Logic PC P6 cw to increase as required.

DEVELOPER SENSOR

The resistance of the developer temperature probe is inversely proportional to the temperature of the solution in the developer tank. For troubleshooting, Terminals 39 to 40 varies in resistance and voltage as the tank temperature changes. If the sensor is shorted to simulate minimum probe resistance, the developer heater will turn off. Maximum probe resistance can be simulated by removing one of the sensor leads at Terminals 39 or 40 which will turn on the developer heater if the potentiometer input and logic PC is good.

FIX SENSOR

The Fix sensor works identical to the developer and inputs at terminals 41 to 42.

DRYER SENSOR

The dryer temperature sensor works identical to the developer and inputs at terminals 43 to 44.

DEV, FIX, DRYER POTENTIOMETER / LED INDICATOR The Developer potentiometer P3 is 0-4K ohm and inputs to the logic PC at the controller from the black J1 connector pin 18 to 23 (disconnected) and varies with the dial setting. The logic lights the 15VDC indicator at pin 16. The Fix P4 is 0-4K and inputs at pin 12 to 23 with its LED at pin 14. The Dryer P5 is 0-4K and inputs at pin 22 to 23 with its LED at pin 20.

DEVELOPER HEATER

The 600 Watt, 80 Ohm /220VAC solution heater connects at the Logic PC on Terminals 22 to 23 and draws approximately 2.5Amps at 208VAC with a warm-up time of approximately 30 minutes from room temperature to 95F that varies with processor model. Refer to the Amperage draw Chart on page 5 for additional information.

FIX HEATER

The 600 Watt 80 Ohm 220VAC solution heater connects at the Logic PC on Terminals 24 and 25 draws approximately 2.5 Amps at 208VAC with a warm-up time of approximately 30 minutes from room temperature to 95F.

DRYER HEATERS AND BLOWERS

The Dryer heaters are either 1000 or 1600 Watt /220VAC depending upon model and connects at the Logic PC on Terminals 15 to 16 (top) and 10 to 11 (bottom). Both heaters are protected by self resetting dual safety thermostats mounted near the element with a cutout temperature of 70C./158F. The logic automatically activates the Top blower at Term. 17 to 18 when Q1 is turned on at Q1-1 to 5. The bottom blower is on if the Anti-Condense switch on the controller is on or when the green Start, Daylight Start or a Film Detect switch is activated at the Logic PC Terminals 12 to 13 (220VAC/138ohm). When on, the dryer heaters activate simultaneously and draw approximately 10.5 Amps (MS25) combined at 208VAC with a warm-up time of approximately 1 minute, 45 seconds from room temperature to 112F.

MS CIRCULATION, WATER, LOW LEVEL NOTES "D"

DEVELOPER P3 AND FIX P4 CIRCULATION PUMPS

When the Logic PC Board is powered, both the developer and fix circulation pumps are activated at the Logic PC Terminals 32 and 33 (220VAC.24 ohms). **Caution; pumps do not turn off if a low solution level (top sensor) or low tank level (bottom float switch) condition exists** Therefore, never turn on the processor without solution in the tanks. To access the pumps, remove the top dryer assembly by unplugging the electrical harness then lifting up on the left side and removing. Then remove 4 Phillips screws that secure the lower dryer assembly and set it out of the way (these wires remain attached). Each pump should be checked periodically for leaks etc. and can be removed from its mounting bracket by pressing down and towards the rear of the processor. Each processor is sent with a U-Bend tool (gray PVC pipe) for priming the pump free of air locks etc which may occur if the pump is activated without solution, if incoming VAC is below 208VAC which can affect pump operation (this will require a step-up transformer), or if chemical crystallization /film / paper deposits / hose kinks etc. obstruct the output. If this occurs, insert the U tube firmly into both the circulation and replenishment inlets on right side with tanks full and activate manual replenishment to purge air.

For high quality applications or operation with hybrid chemistry where a lot of residue is left in the developer, a developer filter kit is now available P/N L975-00-938.

WATER SOLENOID

When the Logic PC Board is powered up and the switch pressed, the water solenoid (220VAC, 3.7Kohms) activates at the Logic PC Terminals 19 and 20 for one start-up cycle. Customers that drain the tank daily as recommended, should activate the start switch from 1-3 times (depending on model) or until the wash tank is full before beginning production. The solenoid has a regulator rated for approximately 1 GPM and is active, after a film feed, for the entire run cycle but is not active when the daylight start button is pressed. Do not operate the solenoid (located near the circulation pumps) for long

periods of time without being connected to a water source or damage to the solenoid or feedback to the Logic PC will result. Disconnect the solenoid from the PC board if no water source is available. Customers should drain the wash tank daily for best results and should use a filtered water source.

DEVELOPER / FIX LOW LEVEL TANK SENSORS (TOP)

When a low level condition exists for either the developer or fix tank, a continuous alarm sounds, the low level indicator lights and developer/ fix heat is turned off. Verify that the sensor is clean and that the input resistance is approximately 1 Meg ohm to Gnd. at the Logic PC Terminal 45 (dev) or 46 (fix) when closed and is infinite resistance when low, disconnected, open or damaged.

DEV. / FIX LOW LEVEL FLOAT SENSORS (BOTTOM)

When the developer float switch (that is connected to the logic PC Board JS) is low, not connected or bad, the developer heater is turned off but film sensing, circulation is not affected. Summarily, if the Fix Float switch at J9 is low etc., the fix heater will turn off until the problem is corrected.

TOP BLOWER FAN

When the Q1 switch is turned on, the top blower fan is activated continuously at Q1-1 and 5 of 220VAC to provide air flow or power venting of the chemical fumes.

VENTING THE PROCESSOR

The processors are fitted with a 3" hose fitting on the rear of the top cover. **DO NOT OPERATE THE PROCESSOR WITHOUT SUFFICIENT AND CONSTANT VENTILLATION or damage to the circuit board will result.** Photographic developer is designed to dissolve metal. The fumes from the developer will corrode any unprotected metal they come in contact with including the solder on circuit boards. These chemical fumes, moisture etc. from the wet section must be properly ventilated from the darkroom or process area.

MS REPLENISHMENT NOTES "E"

DEVELOPER REPLENISHMENT PUMP P1

When the Logic PC Board activates relay RL7, the developer replenishment pump (50-70VDC/ 120VAC, 300 ohms) is activated at Terminals 28 and 29 on the Logic PC. The pump oscillating frequency is determined by the customers incoming VAC and the D30 load affect diode (1.7M ohms) that is mounted on the TP-10 board. The pump start command and run time is determined by the developer potentiometer setting, the Anti-Oxidation switch (activates developer replenishment only once every 30 minutes when on), the Developer Replenishment switch setting (Automatic, On or Manual position), whether film is activating one or two film sensors, and the factory calibrated Run time potentiometer P2 on the TP-10 board. If any of these controls change, pump output will be affected. To access the pump, remove the top dryer assembly by lifting up on the left side and away, then remove 4 Phillips screws that secure the lower dryer assembly. The pump should be periodically checked for leaks etc. If the pump is replaced due to spillage, shorting, binds etc., the D30 Diode should also be checked because its operation is directly affected by the mechanical operation of the pump. normal output in 30 seconds with repl. Dial set at #9 is 1200CC.

FIX PUMP P2 ENABLE.

The Fix pump works identical to developer and is activated by logic RL8 at terminals 30 and 31 with diode D42 according to potentiometer P2.

LOGIC PC BOARD CYCLING

The length of pump run time will vary according to the replenishment dial setting, whether one or two sensors are active and PC Board calibration. A processor with a 208VAC /60 Hertz single phase incoming power will cycle replenishment every 8 seconds as long as one sensor is active and every 4 seconds if both sensors are active. The amount of run and dwell time is determined by the combination setting of the individual developer/fix Replenishment Potentiometers on the controller and the P2 run time Potentiometer on the TP-10 board which affects both pumps. As this pot is turned cw, the run time per cycle is shortened. It is factory calibrated for an industry average setting of 40 seconds development time and .4cc replenishment base rate with the repl. dials set on 9 and both sensors active. For each deviation from .4 base rate, turn the pot two numbers. This output is based upon a 50% exposure and it is up to the customer to determine during operation that the dial setting needs to be set slightly higher or lower. To calibrate and or verify pump output, acquire the customers average film size, a beaker and determine the average exposure % and speed setting.

FILM CALIBRATION EXAMPLES:

Example A: The customers average film is 50% exposed, 24" x 30" and will require a base rate of .4cc for the type of film used at a speed of 40.

FILM EXAMPLES:

1. Place the processor at 40 sec. with the dev/fix rep. pots. at 9.
2. Remove the replenishment suction hose from the replenishment tank for the pump to be tested and place into a large graduated beaker. Insert the film under both sensors and determine the amount displaced from the beaker. Verify both sensors are active and film is fed the same way.
3. Calculate whether the amount collected matches the replenishment requirement. Adjust the replenishment dial slightly if a small change is needed or the Logic PC replenishment time pot P2 if a large change is required. To determine how much replenishment is required for a specific film size, use the following formula: Output Required= (Film width x length) x (repl. base rate) x (% exposed)
For a 24"x30" sheet, 144cc required because: (24"x 30"=720) x (.4 = 288) x (50% or .50 = 144cc)
4. If the output collected is 145cc, it matches the amount required and calibration is complete. The customer should run at a replenishment setting of 9 and monitor production and adjust the replenishment pots as needed Caution: These settings should be considered average values only. Any changes may require recalibration or a second dial setting for another film, base rate or speed.

Example B: The customers average film is 40% exposed, 20 x 24 and requires a base rate of .3cc at a speed of 30. 1. Place the speed dial at 30 & the dev/fix rep. pots. at 9. 2. The amount collected for the 20 x 24 is 80cc.

3. 57cc required: (20"x 24"=480) x (.3 =144) x (40% or .40) 4. The output is more than the required by 22cc. and the replenishment dials are changed to 8. The next test results in 55cc and calibration is done.

Example C: The customers average film is 85% exposed, 24 x 32 and requires a base rate of .4cc at a speed of 25. 1. Place the processor at 25 and the dev/fix rep. pots. at 9. 2. Amount collected for the 24 x 32 is 60cc fed the 24" way. 3. 261 cc req.: (24"x 32"=768) x (.4 = 460) x (85% or .85) 4. The output was only 60cc at this fast speed and is 201 cc below the requirement. The rate dial for developer was increased to 12 and the fix was increased to 10 because the customers average exposure is 85%, less fix was used.

DEVELOPER/FIX POTENTIOMETER AND SWITCH

The developer replenishment pot control (100K) is at J1-24. With the replenishment rate dials at the recommended setting of 9, and the speed set at 40, the pump output (fix also) will change by approximately 20cc to 200cc when changed from 3-12 with 1 sensor active for one minute and 40cc to 400cc with 2 sensors active. The three position switch should be in the left position for automatic replenishment, middle position to turn off and spring held right for continuous manual fill. Automatic replenishment does not occur if a low level condition exists. The fix pot at J1-19 works the same as developer. The Daylight start switch activates 4 cycles of replenishment and one saver cycle plus the No Input led for 42 seconds after release. If film is still entering, activate the Daylight Start once more.

MS Sequence of Operation and Amperage Draw Chart for 208VAC Single Phase Power
WARNING: Do not activate start switch (Green) without solution in the tanks
or damage will result to the circulation pumps.

MS 1716	MS 2516	MS 3316	MS 3916	Processor Sequence Step, Components Active.
.0	.0	.0	.0	Main Power Switch off, all fans are off.
.1	.1	.23	.23	Main Power Switch on, Top Dryer fan (s) on.
10.1	16.0	19.6	19.6	Start Switch (Green) activated, one saver cycle starts including: Circulation, Solution and Dryer heat, Dryer Blower, Water and drive for approx. 2 min.
3.1	5.4	6.0	6.0	Save Cycle continues, Dryer temperature satisfied, Dryer Heat off, DIF heat on.
1.9	3.0	3.5	3.5	Saver Cycle active, Dev. & Dryer temp. satisfied, Dryer & Dev heat is off.
.60	.53	1.0	1.0	Saver Cycle active, Dev, Fix, Dryer temp. satisfied, all heat is off.
.39	.45	.95	.95	Saver Cycle ends, Processor at Idle, Circulation On, Dev & Fix heat is cycling periodically. Anti-Condense fan (s) on
.17	.21	.48	.48	Processor is Idle as in step above except the Anti-Condense fan is turned off.
.35	.58	.60	.60	Processor Idle, Ant-Ox (Dev) is on and cycling once every hour (adjustable).
10.4	16.0	20.0	20.0	Maximum Amperage Draw: Film is Inserted, with Drive On, Replenishment Circles once every 4 or 8 sec. according to dial settings and sensors active. All heaters plus the blower is On. Anti Condense fan is On.
10.0	15.	19.6	19.6	Film leaves sensors, Replenishment stops, all heaters active, anti-condense on.
3.2	5.4	6.0	6.0	Film in processor, Dryer Heat satisfied, Solution heat active.
1.9	3.0	3.5	3.5	Film in processor, Dryer and Developer heat satisfied, fix heat on.
.56	.55	.98	.98	Film in processor, no heaters active, circulation, drive, blowers active.
.50	.47	.93	.93	Film exits processor, Drive stops, processor idle, Anti Condense fan is on.
.17	.22	.48	.48	Soon after drive stops the lower blower stops (If Anti-Condense is off).
X	16.0	20	20	Daylight Start switch activated, One saver cycle begins, all heaters on Blower, water On, Replenishment occurs for dev and fix for four cycles.
.47	.47	.96	.96	Processor returns to Idle mode, Circulation, Anti Condense On.
X	.2	.2	.2	Stop Switch (Red) activated, Circulation and Heat is off. Anti Condense is on. The Anti-Ox circuit is active if the Control switch Q1 is on.
.17	X	X	X	For the Metrospeed 17 model only, remove the top cover: Circulation only