Copymat Trouble Shooting Chart

Problem	Possible cause or symptom	Test Procedure	Remedy
Copymat Does not Turn On			
Main Power Contactor does not energized	No electrical power to equipment	Check power line fuses or circuit breakers.	
	Power is present but the main power contactor will not energize	1. Check for 220 VAC at terminals 8A11 & 25A11. If not present Check F1 & F6 2. Depress one of the power level selectors and Check for 220 VAC at terminals coil terminals of Contactor K5. IF there is no voltage present, a. check A11 PC Board If there is voltage b. check the K5	1. F1 P/N is 63311 F6 P/N is 72202 2. a. A11 P/N is 56900 b. K5 P/N is 63794
Main Power Contactor energized	Computer does not light up and main exposure lamp lights.	1. Check fuse f2 2. Check connector terminals 12A6 & 25A6, If present check A6 KR computer.	1. Fuse F2 P/N is 63307 2. KR Computer A6 P/N is 5509, 220 Volt
Main exposure lamp does not light but computer lights up.	Exposure Lamp is too hot to restart	Allow Exposure lamp to cool down for at least five minutes before attempting to restart.	
	Exposure Lamp, E1, is defective or has reached end of operating life.	Check Exposure Lamp for glass or electrode damage.	If Exposure Lamp is defective replace with a. 1KW Multi Spec. THS 417 b. 3KW Multi Spec. THS 3007; Diazo THS 3000 c. 5KW Multi Spec. THS 5007; Diazo THS 5000
	Defective starter	Check igniter , GZ 501, on starter circuit board for proper firing. Replace igniter if it does not glow at all or glows steadily when the lamp is not lit. If problem still exists replace Starter circuit board A2	1. GZ 501 is P/N 33309 2. Combination Circuit Board A2 is P/N a. 1 KW P/N 56800 b. 3 KW P/N 56870 c. 5 KW P/N 56789
	Main power transformer defective	On the main transformer (T1) 1. On 1 KW . Check voltage on the terminals marked 'R' and 220 V. The voltage should be between 200 VAC and 250 VAC 2. On 3 & 5 KW Check voltage between terminals 2 & 4 for 220 VAC (+/- 10 Volts) 3. Remove the wire on Lamp output terminal Check voltage between terminals 'R' and a. 1 KW "Terminal 250 for 250 VAC" b. 3 KW "Terminal #6 for 400 VAC" c. 5 KW "Terminal # 6, for 800 VAC"	If Main Transformer (T1) is defective replace with a. 1KW T1 is P/N 44070 b. 3KW T1 is P/N 44091 c. 5KW T1 is P/N 43747
	Reduced Power Choke defective	Check DC resistance of Choke Coils (L1), They should be approximately 1/4 W	If Choke (L1) is defective replace with a. 1KW L1 is P/N 44594 b. 3KW L1 is P/N 44597 c. 5KW L1 is P/N 44577

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	Poor connection in lamp circuit	Check the following wire connections 1. K1 Contactor 2. k2 Contactor 3. The Lamp Holder connections	
Copymat Draws Very high line current	Defective lamp	Check lamp Current Max Lamp current is 13 Amps.	If Exposure Lamp is defective replace with a. 1KW Multi Spec. THS 417 b. 3KW Multi Spec. THS 3007; Diazo THS 3000 c. 5KW Multi Spec. THS 5007; Diazo THS 5000
	Defective power compensation circuit	Check power compensation Capacitors C3, draws 12 Amps, (120 mf)	Compensation Capacitors C3, are P/N 20972 Quantity 4 Each
	Tap incorrectly set (3 & 5 KW Unit only)	Verify tap setting	
Lamp Does Not Switch To Proper Power Level	Power level push-button incorrectly set	Check Power Level pushbutton.	
	Defective Power Level Selector Circuit Board, A11	Check that 220 VAC is present during Expo a. High Power Read 9A11 & 25A11 b. Low Power Read 7A11 & 25A11(1 & 3 KW only)	Power Level Selector Circuit Board, A11, is P/N 56900
	Defective High or low power contactor	Check that 220 VAC is present at the contactor coil during Exposure. a. 1 & 3 KW, High Power K1; Low Power K2 b. 5 KW, High Power K2	Power Contactor K1 & K2 are P/N 63794
Light Problems			
Low Light Output	Lamp is near end of operating life	Check for blackening or distortion of Exposure Lamp. Does the lamp have more than 1000 hours? Replace lamp.	If Exposure Lamp is defective replace with a. 1KW Multi Spec. THS 417 b. 3KW Multi Spec. THS 3007; Diazo THS 3000 c. 5KW Multi Spec. THS 5007; Diazo THS 5000
	TAP improperly set	Check tap setting	
	Reflector or glass dirty.	Clean reflector and glass	Use a good Quality Graphic Arts Glass Cleaner such as Theimoclean. P/N 85164
Long Exposures do to Vacuum Frame Glass	Does your glass cleaner have a polymer wax or UV block in it?	Expose a step scale through a piece of 1/4" Plate glass on top of the Vacuum Frame Glass, Then expose the same scale through the Vacuum Frame Glass. The 2 exposures should be the same.	Clean glass with alcohol and than a Graphics Arts quality glass cleaner, such as Theimoclean. P/N 85164. If the the problem continues, replace the Vacuum Frame Glass with Select Quality 1/4" Polished Plate Glass.

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	Warning UV HAZARD When trouble shooting the shutter system or the cooling system the Exposure Lamp Should be disabled by removing the wire on terminal # 6 of the Main Transformer (T1)		
Shutter System			
Shutter does not open or close and curtains do not move.	Problem with DC supply	1. Check fuses F4 & F5 2. Check AC input to Bridge Rectifier Ter. 2A2 & 3A2 (22 VAC) 3. Check DC output of Bridge Rectifier, A2 Should be (+) 16 VDC ter. 4A2 & (-)16 VDC ter. 1A2 in reference to terminal 4X2	1. F4 or F 5 is P/N 63342 2. Combination Circuit Board A2 is P/N a. 1 KW P/N 56800 b. 3 KW P/N 56870 c. 5 KW P/N 56789
Shutter Does Not Open	Expose relay K4 not actuating or providing a output to open shutter	1. Check computer, A6, output, 220 VAC during exposure on terminals 11A6 & 25A6. 2. Check interrupt relay, K12, output, 'O' Vdc during exposure on terminals 19A3 & 20A3 on relay PC Board, A3. 3. Check operation of K4 relay and steering diodes for (+) 16 DC at terminals 6X2 & 4X2 .	1. KR computer, A6, is P/N 5509 220 VAC 2. Interrupt relay, K12, is on A3 Relay Board P/N is 56862 3. Exposure Relay and Steering Diodes are on A3, Relay Board , P/N is 56862
	Limit switch defective or Limit switch sticking	Check operation of "open" sensing limit switch S8.	Limit switch, S8 is P/N 72104
	Shutter motor defective	Check for 12 VDC at Shutter Motor, M3	Shutter Motor, M3, is P/N 43367
Shutter Does Not Close	Expose relay K4 not deactivating or providing a output to close shutter	1. Check computer, A6, output, 0 VAC when exposure ends, on terminals 11A6 & 25A6. 2. Check operation of K4 relay and steering diodes for (-) 16 DC at terminals 6X2 & 4X2 .	1. KR computer, A6, is P/N 5509 110 VAC 2. Exposure Relay and Steering Diodes are on A3, Relay Board , P/N is 56862
	Limit switch defective or Limit switch sticking	Check operation of "close" sensing limit switch S9	If Limit switch, S9, is defective, replace with P/N 72104
Shutter Opens Or Closes Noisily	Limit switches out of adjustment		Adjust limit switches
	Braking diodes defective	Check braking diodes. Located under heat shrink at terminal 4X2.	Breaking diodes are P/N 95516
Lamp House Cooling System			
Lamp swells	Lamp not cooled properly	1. Check for obstruction at blower exhaust. Remove obstruction, dust, dirt, paper ect. 2. Is air intake over 95 deg F at Copymat 3. Blower circuit defective	1. Remove Blower from Lamp House and clean thoroughly 2. Ventilate room properly

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Exposure Lamp Blower not functioning	Defective blower control Board, A5	1. Check lamp voltage at Blower Board, A2 Terminals #7&8. If there is over 180 VAC (5KW): 120 VAC (3KW); 80VAC (1 KW) the blower circuit should turn on. If the voltage is low check the Exposure Lamp for proper operation 2. Bypass blower control card by removing the wire from terminal #5 of the Blower control board and attaching it to terminal #7. If blower works normally, the A2 board is bad.	1. If the lamp voltage is low, check lamp circuit for proper operation and than replace the lamp. (See lamp section for Info) 2. Combination Circuit Board A2 is P/N a. 1 KW P/N 56800 b. 3 KW P/N 56870 c. 5 KW P/N 56789
	Defective Low and Medium speed capacitors	Bypass the Blower Control Board, A2. Check the Blower Voltage at Terminals 1 X3 & 3X3 1. 1KW & 3KW a. High Power 200VAC to 250 VAC b. Medium Power 100 VAC c. Low Power 'O' VAC 2. 5 KW a. High Power 220 VAC b. Low Power 110 VAC	If the voltages are wrong check the following 1) (3KW & 5KW) Voltage high or low on High Power Exposure Verify that the Tap is set Correctly, and Verify that the control circuit (F3) is on the 220 VAC terminal of T1 . 2) Voltage high or low on Medium Power Exposure. Medium speed Cap. is defective. Check Cap. and replace if defective, with a) 1 KW P/N 23306 b) 3 KW P/N 23736 C) 5 KW N/A
			3) Voltage high or low on Low Power Exposure. Low speed Cap. is defective. Check Cap. and replace if defective, with a) 1 KW N/A b) 3 KW N/A c) 5KW P/N 23739
	Defective Blower	With the Lamp disabled, the Blower Control card by passed, and the Copymat on High Power Exposure, check for 220 Volts at the Blower Motor. If present and blower does not run, the blower motor and or the starting cap are defective.	1. Exposure Lamp Blower Motor & Capacitor A) 1KW Motor P/N 43445, Cap. P/N 23306 B) 3KW Motor P/N 43457, Cap. P/N 23740 C) 5KW Motor P/N 43401, Cap. P/N 23737

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Problem	Possible cause or symptom	Test Procedure	Remedy
Copymat turns off and power indicator in "off" Push Button Extinguishes. After about 2 minutes it illuminates.	Lamp house safety is sensing over temperature situation.	1. Check for over heating of Lamp House	1. Check Cooling system for defect 2. Replace Safety Thermostat in Lamp House (After failure has been corrected the thermostat may continue to trip, because it has become sensitive) 3. F6, safety thermostat, P/N 72202
Vacuum Frame			
No Vacuum indication on gauge but Vacuum pump is running.	1. Clogged air filter in vacuum lines 2. Vacuum Leak in Vacuum system 3. Leak in the oil recovery circuit	1. Check for dirt in filter. 2. There are 3 Vacuum circuits in the Omni Vac vacuum system. a. The main vacuum chamber b. The secondary chamber below the blanket c. The oil recovery. 3. To isolate the the oil recovery circuit, disconnect the vacuum line going to the air filter and attach a vacuum gauge. The gauge should read full pressure when the vacuum pump is activated	1. Replace filter P/N 85015 3. If there is no vacuum or reduced vacuum pressure check the vacuum line between a. the pump and the gauge b. the pump and the solenoid on the oil collector c. check the solenoid Y1 for leaks. d. Solenoid P/N is 40601
	4. Leak in the main vacuum chamber circuit	4. To isolate the main vacuum chamber . a. Reconnect the air filter b. Locate the 'T' fitting which connects the solenoids Y3, Y4 & Y5 to the main vacuum line. c. Remove the line that goes to the solenoids and connect the vacuum gauge. The vacuum gauge should read full pressure when the vacuum pump is activated	4. If there is no vacuum or reduced vacuum check the following a. seal between the glass and the vacuum mat, adjust the frame hinges and locking rollers if necessary. b. Check all fittings that go to the corner ports on the vacuum mat for leaks. c. Check the tubing going to the reduced vacuum solenoid for leaks d. check the Y2 solenoid for leaks, e. Y2 P/N is 40601
	5. Leak in the secondary chamber below the blanket	5. Check the following a. Vacuum tub connections on the Y3, Y4, & Y5 solenoids. b. Check the solenoids for leaks c. Check the tubing going to the center port under the vacuum mat d. Check the regulator valves under the vacuum mat	5. Correct leaks. Replacement valves are a. Y5 is P/N 40601 b. Y3 &Y4 are P/N 40624

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Problem	Possible cause or symptom	Test Procedure	Remedy
Poor contact or uneven contact	1. Vacuum Leak 2. Defect in vacuum blanket 3. Improper stripping techniques	1. Leak test Vacuum Frame. Draw full vacuum and turn the Copymat off with disconnect Q1. The Vacuum gauge should remain in the green (above 70%) for at least 60 seconds. 2. Use tint screen to evaluate evenness of draw down. Make shore that the screen tint, your copy materials, vacuum mat and frame glass are clean. Dust or dirt will show ups as poor contact areas.	1. Isolate and repair vacuum leak 2. Replace Vacuum Mat if defective, a. C 64 P/N is 160667 b. C 70 P/N is 160668 c. C 80 P/N is 101080 3. Review stripping techniques with the operator
Vacuum Pump is not running	1. Defective Vacuum Pump	1. Start the vacuum draw down and check for 220 VAC at the terminal strip located on the vacuum pump.	1 Vacuum pump P/N is 75025
	2. Defective Vacuum Pump control circuit.	2. Start exposure cycle, check for 220 VAC at a. 17A3 on the A3 Relay board. 17X1 is AC Ref b. 18 A3 on the A3 Relay board. 17X1 is AC Ref c. 4A3 & 3A3 on the Relay board d. 8A6 on the KR Computer & 17X1 on the main terminal strip.	2. If 220 VAC is a. not at 17A3 than check wiring back to F3, b. not at 18 A3 and the K6 relay is operating replace the A8 Relay board P/N 56862 c. at 4A3 & 3A3 and the K6 Relay does not operate, replace the A3 Relay board P/N 56862 d. not at 8A6 on the KR Computer replace The KR Computer P/N 5509
Fuse F3 blows when the vacuum pump is turned on	1. Wrong size fuse 2. Vacuum pump is defective 3. Wiring short	1. Make shore that F3 is a 10 amp fuse 2. Disconnect the vacuum pump and see if fuse blows. If fuse does not blow replace pump. 3. Isolate short and repair	1. Fuse F3 is P/N 63312 2. Vacuum pump P/N is 75025
Vacuum Pump does not turn off	1. Defective Y1 or Y3 Solenoids 2. Defective KR computer 3. Defective Relay Board A8	1. Disconnect one side of the Y 1 and Y3 solenoids. If the pump now turns off replace the defective solenoid 2. Disconnect the wire on terminal 4A3. If the pump now turns off, check the KR Computer for constant output on pin 8 of the A6 KR Computer. 3. Disconnect the wire on terminal 118A3 of the A3 Relay board. If the pump now turns off the A3 relay board is defective	1. Solenoid Y1 is P/N 40601 & Y3 is P/N 40624 2 The KR Computer is P/N 5509 3. The A3 Relay board is P/N 56862
Door System			

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Problem	Possible cause or symptom	Test Procedure	Remedy
Doors do not open or close	1. Defective A2 Rectifier	1. Check the output from the Rectifier a. 4A2 & 6X1 for (+) 16 Vdc b. 1A2 & 6X1 for (-) 16Vdc	1. If either (+) or - (-) dc is missing check operation of A2 Rectifier and F4 & F5 fuses. Combination Circuit Board A2 is P/N a. 1 KW P/N 56800 b. 3 KW P/N 56870 c. 5 KW P/N 56789
Doors will not close	1. No command from KR Computer	1. When the KR computer starts Vac 2, check 1A3 and 3A3 on the A3 Relay Board for 220 VAC	1. If the power is not present check the wiring back to the KR Computer Pin #23. Replace the KR Computer if the wiring is proper and there is no output during vac 2 operation. KR Computer P/N is 5509
	2. Defective A3 Relay Board	2. Check that 220 VAC is at Terminals 1A3 and 3A3 when the computer is in Vac #2. Than check that 8A3 and 6X1 of the main terminal strip has (+) 16 Vdc. Than check for (+) 16 Vdc at 9A3 and 6X1	2. If the power is present at1A3 and 3A3 but no power is at 8A3 than the A3 board is defective. A3 Relay Board is P/N 56862
	3. Defect drive motor	3. check the drive motors for (+16) Vdc	3. If (+) 16Vdc is present than the drive motor is defective, replace with P/N 43363
	4. Defective Limit switch	4. Check Limit for continuity	4. Limit Switch P/N is 72104
	5. Defective Steering Diodes	5. Check the steering diodes located near the door switches for front to back resistance	6. Diode P/N 30509
	6. Mechanical problem with doors	6. The doors are closed under spring tension. The motor allows the doors to close but it does not drive them closed. Check the doors springs and the mechanical alignment	6. Door Spring P/N 68670
Door will not open	1. Defective A3 Relay Board	1. Check that the K3 Relay on the A3 relay board is relaxed. Make shore that (-16) Vdc is present between 7A3 & 6X1. Than check if (-16) Vdc is between 9A3 and 6X1	1. If there is no power at 7A3 than replace the A3 Relay board P/N 56862
	2. Defect drive motor	2. check the drive motor for (-16) Vdc	2. If (- 16) Vdc is present than the drive motor is defective, replace with P/N 43363
	4. Defective limit Switch	4. Check Limit for continuity	4. Limit Switch P/N is 72104
	5. Defective Steering Diodes	5. Check the steering diodes located near the door switches for front to back resistance	6. Diode P/N 30509
KR Computer			
No Display	1. F3 Fuse blown	1. Check F3 Fuse for continuity	1. Replace F3 with 10 A Fuse, P/N 63312

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	2. Defective KR Computer	2. Check for 220 VAC at KR Computer Connector, Pin 12A6 and Pin 25 A6	2. If 220 VAC is present and the display does not light than replace the KR Computer P/N 5509
Exposure sequence will not start when frame handle is locked	1. Defective Frame handle switch, S5	1. Check for continuity (0W), between 3X1 and 4X1, on the KR Computer connector, when the lock handle in in the locked position. When the handle is unlocked the the switch should open (¥W).	1. Handle lock up switch, S5, is P/N 72104
	2 .Defective shutter interrupt relay K12 on A 3 Relay Board	2. Check continuity between 19A3 and 20A3	2. A3 Relay board P/N 56862
	3. (On Machines with Optional Diffuser installed) Diffuser not fully retracted or fully extended	3. Check diffuser mechanism, limit switches and A1 Steering diodes.	3. Diffuser Limit Switch P/N 72104 Steering diode A1 P/N 56693
	4. Wrong Machine Code set into the KR Computer	4. Depress Keys 2,5 & 8 at the same time. In Expo # 1 window the code 616 or 617 will appear	4. If wrong code appears, reset code and depress Keys 4 & 6 to store the code and depress stop to return to normal operation.
	3. Defective KR Computer	3. If the handle switch checks good and the proper machine code is set in and the exposure sequence will not start, replace the KR Computer	3. KR Computer is P/N 5509
Exposure will not count down in Exp 1	1. Obstruction in front of Photo Cell	1. Examine Photo cell and make shore that it is seeing the Light.	
	2. Defective KR Computer	2. At the KR Computer connector, short out the photo Cell input. Pins # 14 and 2. The KR computer should count at about 100 units a second if the computer is good	2. If the computer does not count with the photo cell input shorted, replace the KR Computer P/N 5509
	3. Defective Photo cell or wiring	3. check continuity of coax cable and look for physical damage to the Photo Cell	3. If defective replace with P/N 95468
Exposures Erratic	1. Photo cell not securely mounted	1. Check security of Photo Cell	
	2. Sliding shutter in, Photo Cell, loose	2. Dismantle Photo cell and check for security of shutter assembly	2. If defective replace with P/N 95468
Exposure Cycle Restarts, if the vacuum frame Handle is left in the lock position	1. Defective frame handle switch	1. Check for continuity (0W), between 3X1 and 4X1, on the KR Computer connector, when the lock handle in in the locked position.	1. Handle lock up switch, S5, is P/N 72104

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	2. Defective shutter Interrupt relay K12	2. Jumper terminals 19A3 and 20A3. If the problem is resolved replace the A3 Relay Board. (Note with the jumper in place the shutter will not close when the diffuser is in motion.)	2. A3 Relay board P/N 56862