



PARTS NOW!

PARTS NOW!



SERVICE TODAY

JULY 1999, VOLUME EIGHT, NUMBER 6

THIS ISSUE

- 50 ERROR
- OHMING DIAGRAM
- INSPECTION LISTS
- WESTERN DISTRIBUTION CENTER

TECHNICAL

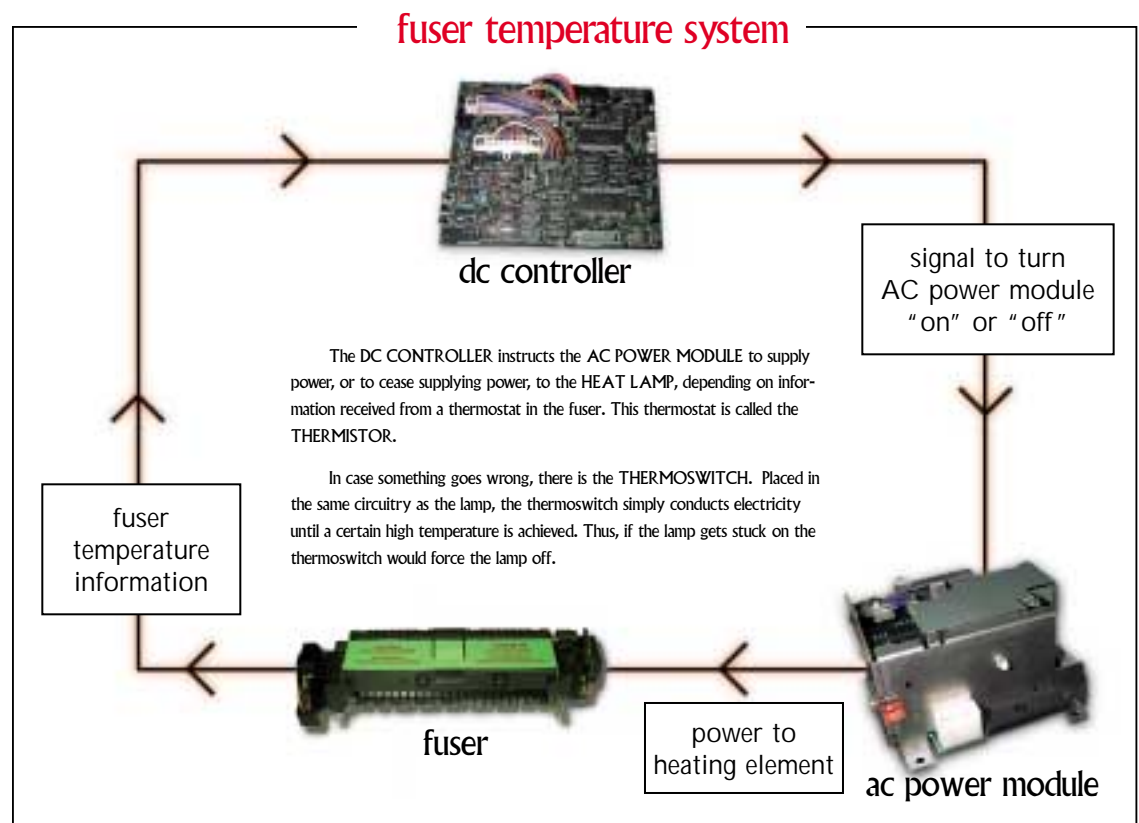
TROUBLE-SHOOTING COMMON ERRORS: *50 SERVICE*

We devote much of this month's **SERVICE TODAY** to the second-most common printer problem, the **50 SERVICE**. We covered the number one error, the **13 PAPER JAM**, last month.

The fusing assembly uses a combination of heat and pressure to "fuse" or "fix" the toner to the paper. It must operate within a fairly narrow temperature range: too cool and the toner will not be completely fused; too hot and the paper

may be scorched. For this reason, its temperature is closely controlled and monitored. A **50 SERVICE** error means that this system has broken down: either the fuser temperature is "out of bounds," or the monitoring circuits are no longer working properly.

The diagram below shows the fuser temperature system for SX- and NX-engine printers, but the concept is the same for most laser printers. Other laser printers incor-



TECHNICAL

porate the AC module into other assemblies. For example, LX, BX, EX and WX printers combine the AC power module and DC power supply, renaming it low voltage power supply, or just power supply.

The diagram shows the three key parts of the fuser temperature system: the fuser, the AC power module, and the DC controller. A 50 SERVICE error can always be traced to a malfunction of one or more of these three elements.

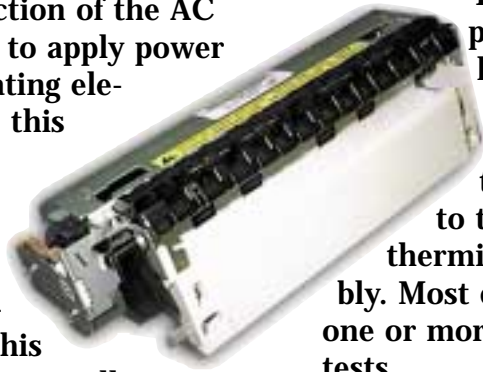
The main function of the AC power module is to apply power to the fuser's heating element. Of course, this power cannot be applied all the time, or the fuser would just keep getting hotter and hotter. This is where the DC controller comes in — it continuously monitors the fuser temperature, via the thermistor, and keeps that temperature within allowable limits by telling the AC power module to turn on or off, as needed.

50 SERVICE AND RESISTANCE CHECKS

The most common cause of a 50 error is a defective fuser. To know for certain, it is necessary to either 'ohm-out' the fuser or replace it with a known-good fuser and run test prints.

The most common fuser defect

is an open heating element — it either burns out like a light bulb (in most fusers, it IS a light bulb), or it gets broken when the fuser is dropped or otherwise handled roughly. Along with the heating element, the thermistor and thermal switch need to be checked for failure, as these three parts form a circuit. The thermistor measures the temperature of the fuser; the thermal switch opens the circuit if the fuser overheats.



Resistance tests can be performed to see if the heating element or other fuser part has failed. This involves touching the leads of an ohmmeter to the AC circuit and the thermistor on the fusing assembly. Most defective fusers will fail one or more of these ohmmeter tests.

For safety reasons, **these checks must be done with the fusing assembly out of the printer with no power applied.** Page seven has diagrams which show the location and expected readings for AC circuits of various printers.

AC POWER MODULE AND ALTERNATIVES

If it is not the fuser, it is almost always the AC power module. Swap the power module with a known good part. Note that removing the fuser and measuring the voltage output of the AC module is not a reli-

50 ERROR TROUBLE-SHOOTING STEPS

1. OHM-OUT OR SWAP OUT FUSER
 2. SWAP-OUT AC POWER MODULE
 3. SWAP-OUT DC CONTROLLER
 4. CHECK CABLES
- STEPS 3 & 4 ARE RARE.

NOTE

IN MOST NEWER PRINTERS, ALL POWER SUPPLIES HAVE BEEN INCORPORATED INTO THE DC CONTROLLER BOARD WHICH IS OFTEN CALLED A "PRINTER CONTROLLER" OR "ENGINE CONTROLLER." IN THESE CASES, THE DIAGRAM AND TROUBLE-SHOOTING HINTS ABOVE STILL APPLY. THE ONLY DIFFERENCE IS THAT, IF YOU DECIDE TO REPLACE THE AC MODULE, YOU WILL HAVE TO REPLACE THE APPROPRIATE ASSEMBLY THAT INCLUDES THE AC MODULE.

TECHNICAL

50 SERVICE CONTINUED

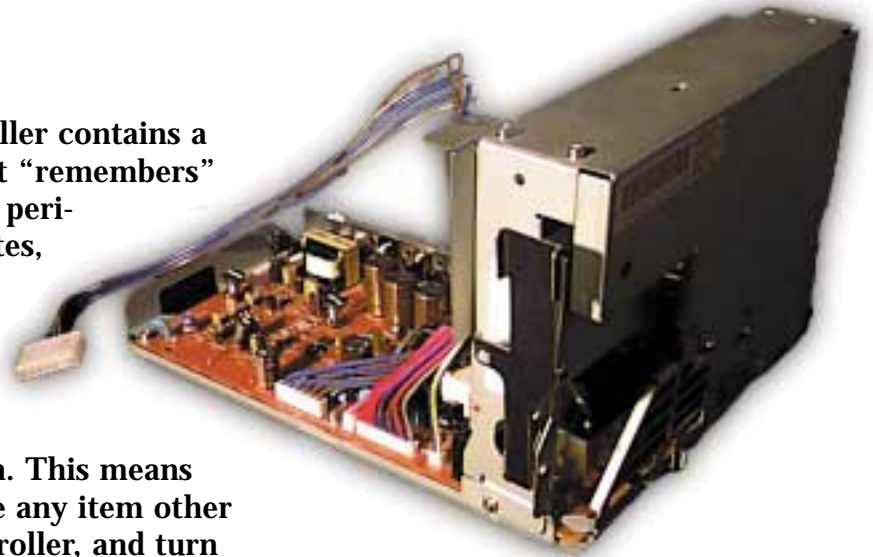
able test — often, a defective AC module will have the proper voltage with no fuser in the machine, but cannot maintain that voltage with the fuser in place.

Rare alternate causes of 50 errors include the DC controller and bad cables.

VERY IMPORTANT NOTE

The DC controller contains a timing circuit that “remembers” the 50 error for a period of 10-20 minutes, even with the power off. This safety feature gives an overheated fuser time to cool down. This means that if you replace any item other than the DC controller, and turn the machine on too soon, you will still get a 50 error, even though you

may have fixed it. In general, wait 15 to 20 minutes; the appropriate service manual will provide the specific recommendation.



Service Today

Editor: Robert Reinke
Director: David Reinke

With Assistance this month from
Steve Geishirt and Dennis Kosterman

Past Service Today articles
are available at
the PARTS NOW! website.

www.partsnowinc.com

TECHNICAL

LASERJET INSPECTIONS WITH FUSER REMOVED

With the fusing assembly out of the printer, it is a good time to inspect parts for wear and tear. These parts are indicated below; they are available from PARTS NOW!

SX, NX & WX, LX, EX & BX

1. Upper roller (metal)
2. Pressure roller (rubber)
3. Toner build up on parts
4. Paper detection flag and sensor
5. Roller end cap
6. Leaf spring
7. Gears
8. Delivery roller FOR SX, NX AND WX ONLY
9. Separation claws FOR SX, NX AND WX ONLY

SX also check cleaning wand, end covers & drive release cam.

NX also check drive release cam and top covers.

WX also check cover and position of pressure relief arms.

LX also check for damage to frame and damage to electrical contacts on the fusing assembly.

EX also check end covers, separation guide, and position of pressure relief arms.

BX also check end covers and separation claws



AX, PX/VX, HP 4000 & HP 5000

1. Fixing film/heating element (black or tan belt)
2. Pressure roller (rubber)
3. Toner build up on parts
4. Paper detection flag (not AX)
5. Delivery roller (not AX)
6. Gears (not AX)

TECHNICAL

OHMING OUT WX PRINTERS: HP LASERJET 8000, 5SI & MOPIER

The WX fuser has more pins than most fusers, but most of these are non-functional. It also has a second heat lamp. This sub-lamp is similar in appearance and wattage, but is set up differently and has different connectors. It heats the ends of the upper roller while the main lamp heats the center of the roller. This helps shorten warm-up time.

1. **Thermistor Test.** Checking the thermistor is the same as with other fusers. Check across the two pins indicated (J50 pins 2 and 3). At room temperature, the range is 150-290K Ohms.

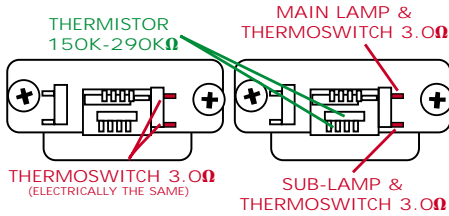


2. **Thermoswitch--Main Lamp Test.** Distinguishing lamp from thermoswitch can be done without disassembly of the fuser. The two thermoswitch contacts (J51 pins 4 and 5) go to the same point on the thermoswitch and are the same electrically. Going from either thermoswitch contact to the main lamp contact (J52 pin 1) should create a reading of 3 ohms +/- 10%. This would mean that BOTH the main lamp and thermoswitch are good.

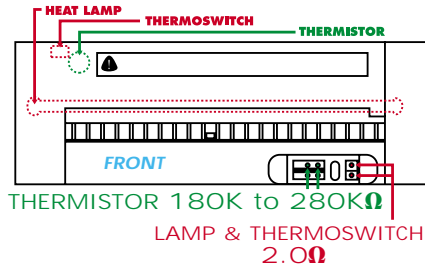
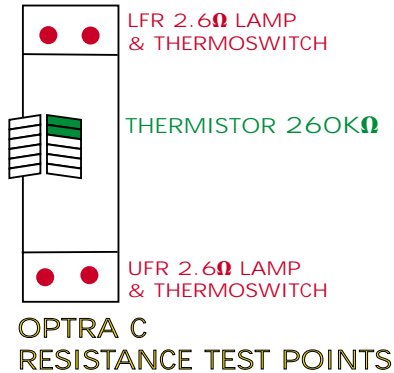
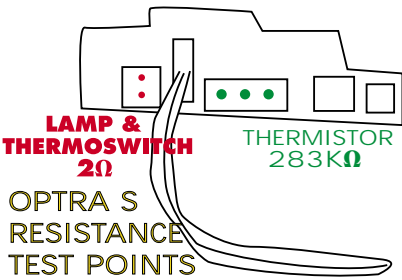
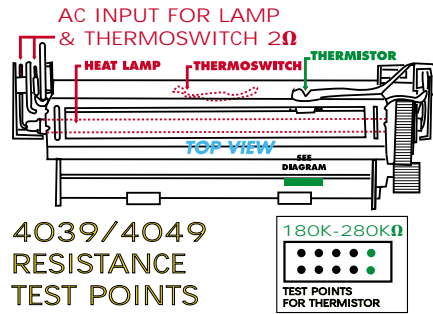
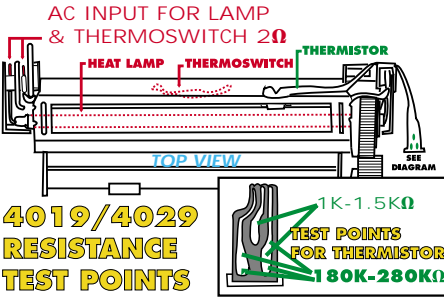
3. **Thermoswitch--Sub-Lamp Test.** A reading using the sub lamp contact (J53 pin 1) and a thermoswitch contact should read 3 ohms +/- 10%.

4. **Two Lamp Test.** You can check both lamps WITHOUT the thermoswitch by going across the main and sub-lamp contacts. This should read 5 ohms +/- 10%. The sub-lamp is bad if you get a reading from the thermoswitch (Main Lamp Test) but not from Tests 3 and 4. The main lamp is bad if you get a reading from the Thermoswitch--Sub-Lamp Test but not from Tests 2 and 4. The Thermoswitch is bad if the Two Lamp Test gives you a reading and Tests 2 and 3 do not.

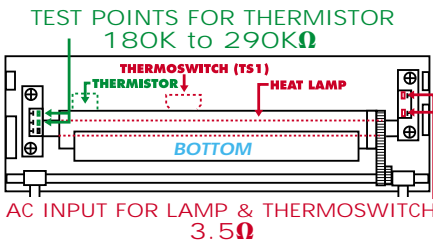
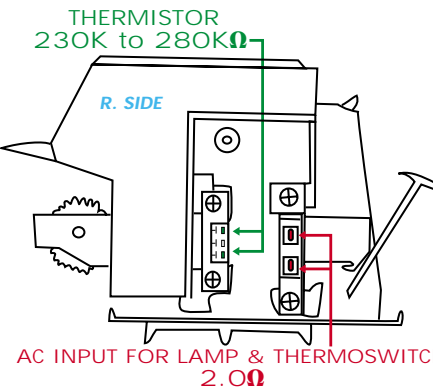
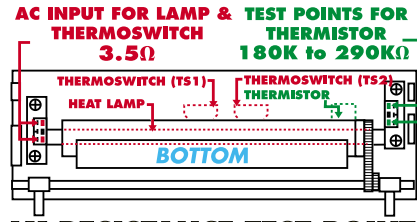
RESISTANCE CHECK GUIDE



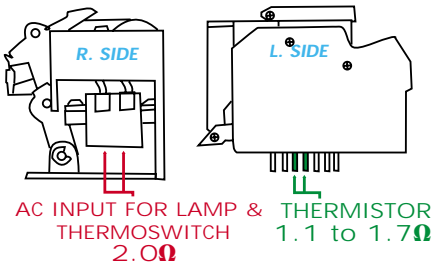
WX RESISTANCE TEST POINTS



EX RESISTANCE TEST POINTS

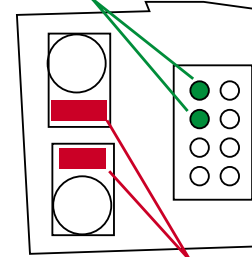


BX RESISTANCE TEST POINTS



SX RESISTANCE TEST POINTS

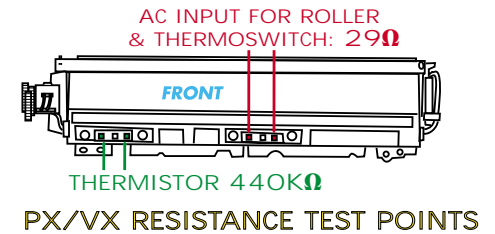
THERMISTOR 230-280KΩ



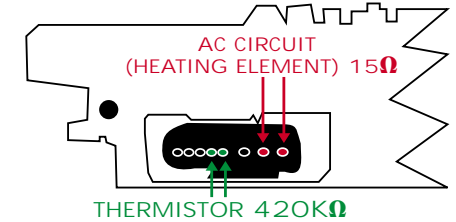
HP COLOR/COLOR 5 RESISTANCE TEST POINTS



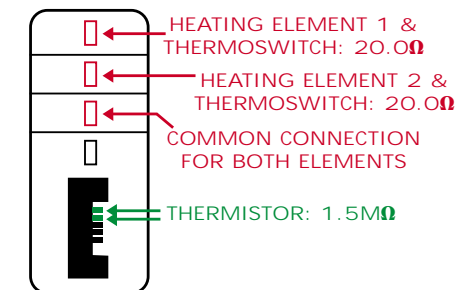
AX RESISTANCE TEST POINTS



PX/VX RESISTANCE TEST POINTS



HP 4000 RESISTANCE TEST POINTS



HP 5000 RESISTANCE TEST POINTS

COMPANY

PARTS NOW! WESTERN DISTRIBUTION CENTER

PARTS NOW! announces the opening of its West Coast Distribution Center to better serve its customers.

Western states will have faster, cheaper access to the PARTS NOW! \$5.5 million inventory. The new distri-

bution center is in Fresno, Calif.

“The new center means more convenience and savings for West Coast customers,” says Dan Olszewski, PARTS NOW! president and COO.

PART NOW! CUSTOMER SATISFACTION IN TOP 2.5%

According to Canon Computer Systems Inc., PARTS NOW ranked in the top 2.5 percent on warranty repair customer satisfaction, and ranked first locally.

“Based on May CSI (Customer Satisfaction Index) data, PARTS NOW! had a ranking of number 4 out of the Central Region’s 177 accounts,” says Mark Wercheik, regional service manager for CCSI. “PARTS NOW! also ranked number 1 in May as being the best ASF (Authorized Service Facility) in Madison, Wis.”

Wercheik commends Eddie Karlsllyst, who heads the warranty department at PARTS NOW!

PARTS NOW! is a warranty repair center for CCSI, handling the Bubble Jet, FaxPhone and MultiPass lines.



IN HOUSE REPAIR

RAPID TURN-AROUND

HP LASERJETS & COMPATIBLES

● HP 4000 REPAIR

RG5-2661-000R	fusing assembly
RG5-3693-000R	engine cont. board
C4118-37908R	formatter

● WX ENGINE REPAIR 5SI & COMPATIBLES

C3168-67902R	formatter
RG5-1852-000R	paper pickup assy
RG5-1863-000R	fusing assy
RG5-1880-000R	pickup assy
RG5-1844-000R	dc controller

● VX ENGINE REPAIR 5P/6P & COMPATIBLES

C3151-67901R	formatter, 5P
RG5-1700-000R	fusing assy, 5P
RG5-2800-000R	fusing assy, 6P
RG5-1798-000R	dc controller, 5P
RG5-2826-000R	dc controller, 6P

● EX ENGINE REPAIR 4/4 PLUS/5 & COMPATIBLES

C2002-67901R	formatter, 4
C2038-67901R	formatter, 4 plus
C2041-67901R	formatter, 4MP
C3919-67901R	formatter, 5
RG5-0451-000R	paper feed assy, 4
RG5-0454-000R	fusing assy, 4
RG5-0456-000R	output assy, 4
RG5-0511-000R/ RG5-1078-000R	dc controller, 4/860
RG5-0512-000R	paper control pca, 4
RG5-0513-000R	hvps, 4

RG5-0531-000R	power supply, 4/4 plus/5
RG5-0877-000R	input assy, 4 plus
RG5-0879-000R	fusing assy, 4 plus/1260
RG5-0886-000R	paper output assy, 4 plus
RG5-0966-000R	dc controller, 4 plus, 5
RG5-0969-000R	hv power supply, 4 plus, 5
RG5-1933-000R	power supply, 4/4 plus, 5
RG5-2189-000R	output assy, 5
RG5-2195-000R	paper input repair, 5

● AX ENGINE REPAIR 5L & COMPATIBLES

RG5-2000-000R	scanner
RG5-2023-000R	dc controller
C3942-67902R	formatter

● BX ENGINE REPAIR 4V & COMPATIBLES

C3143-67901R	formatter
RG5-1435-000R	high voltage power supply
RG5-1557-000R	fusing assy
RH3-2150-000R	power supply
RG5-1559-000R	dc controller
RG5-1584-000R	paper guide
RG5-2044-000R	hvps assy

● NX ENGINE REPAIR IIISI/4SI & COMPATIBLES

33491-60143R	formatter, older
33491-60160R	formatter, newer
C2009 69001R	formatter, 4Si
C2061A-R	duplex assy
RG5-0025-000R	input (+parts)
RG5-0046-000R	fusing assy, IIISI
RG5-0067-000R	delivery cov. assy
RG5-0076-000R	hvps, IIISI
RG5-0085-000R	dcps, IIISI
RG5-0089-000R	dc controller, IIISI
RG5-0095-000R	acpm, IIISI
RG5-0381-000R	job offset assy
RG5-0842-000R	dc controller, 4Si
RG5-0161-000R	reg. assy, IIISI
RG5-0166-000R	ac power module
RG5-0168-000R	dc power supply, 4Si
RG5-0170-000R	hvps, 4Si
RG5-0627-000R	dc controller, 4Si

● LX ENGINE REPAIR IIP/IIP PLUS/IIIP & COMPATIBLES

C2008-69001R	formatter, IIP plus
33471-60004R	formatter, IIP
33471-60007R	dual i/o assy, IIP
33481-60001R	formatter
RG1-1591-000R	dc controller
RG1-1597-000R	HV power supply
RG1-1604-000R	density pca
RG1-1782-000R	power supply
RG1-1788-000R	fusing assembly
RG1-1792-000R	pickup assy
RG1-1909-000R	power supply

● SX ENGINE REPAIR II/III/IIID/IIID & COMPATIBLES

33446-60001R	formatter, IID
33449-60001R	formatter, III
33451-67901R	formatter, III/IIID
33497-67901R	formatter, III
RG1-0710-000R	dc controller, II
RG1-0718-000R	paper control pca
RG1-0931-000R	paper pickup assy
RG1-0932-000R	registration assy
RG1-0936-000R	high voltage power supply
RG1-0939-000R	fusing assy
RG1-0939-000GR	fusing assy, gold
RG1-0945-000R	delivery assy
RG1-0951-000R	dc power supply
RG1-1278-000R	dc controller, IID
RG1-1310/2007R	dc power supply, IID/IIID
RG1-1326-000R	reg. assy, IID/IIID
RG1-1340-000R	lower pickup assy
RG1-1394-000R	dc power supply
RG1-1944-000R	dc controller, IIID
RG1-1969-000R	dc controller, III
RG1-1970-000R	dc controller, IIID
RG1-1975-000R	dc power supply
RG1-2007-000R	power supply, IIID
RG1-2702-000R	power supply, III
RG1-2706-000R	dc controller, III
RG9-0205-000R	ac power module, II
RG9-0319-000R	ac power module, III
RG9-0749-000R	ac power module, III
SG4-6212-000R	formatter, II

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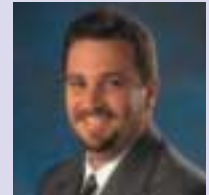
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Wayne Tougas
Southeast Branch Mgr.



Roxanne Wenzel
Sales Manager



Richard Jordan
Sales Manager



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PARTS NOW! POLICY

RETURNS/EXCHANGES

EXCHANGES

■ A. THE RMA# MUST ACCOMPANY RETURNS.

An RMA number assigned by a sales representative must be put on the outside and inside of your returned product package for adequate identification. Product returned without a valid RMA# will be refused at the PARTS NOW! Inc. dock. Place the enclosed label on the outside of the package and print the RMA# on the packing slip. This is the customer's responsibility.

■ B. RMA# DURATION.

The customer's RMA# is valid only for 30 calendar days from the date issued.

■ C. RESTRICTIONS.

Product returns must be: 1) repairable (no alterations or physical damage); 2) have a valid RMA# and; 3) be an exact equivalent of the part shipped out and; (4) be received by PARTS NOW! prior to the RMA expiration date of 30 calendar days from the date issued.

■ D. RETURN PROCESS.

When PARTS NOW! Inc. receives the product return, PARTS NOW! Inc. will inspect it to confirm that it is 1) the correct part and; 2) eligible for product return. If not, then PARTS NOW! Inc. will have the option of: 1) returning it with an explanation or; 2) providing no refund for items received after 30 days.

■ E. REIMBURSEMENT.

Upon inspection and acceptance of returned product, PARTS NOW! Inc. will credit the account of the open account customer. If the customer is non-open account, PARTS NOW! Inc. will send a refund check.

WARRANTY RETURNS

■ A. PROPER RETURNS

1. Product being returned to PARTS NOW! Inc. due to defect or PARTS NOW! Inc. error must be returned with:
 - a. A valid RMA number (legible on outside of packaging)
 - b. Copy of the Original Invoice
 - c. Original packaging (if new)
 - d. Reason for return

■ B. INTERNAL WARRANTY PROCEDURE

1. PARTS NOW! Inc. will, at the company's option, select one of the following:
 - a. Replace the product
 - b. Repair the product
 - c. Credit the invoiced amount of the product (if not replaceable due to lack of inventory)

■ C. RESTOCKING FEE

1. The restocking fee is 20% or \$25.00,

whichever is greater.

- a. In cases not involving PARTS NOW! Inc. error
 - b. If non-defective product is not returned within 5 days.
- D. MISCELLANEOUS
1. Any product returned without an RMA number will be refused.
 2. Manuals, printheads and special order items are not returnable.
 3. PARTS NOW! Inc. is not responsible for damages incurred in transit.
 4. Damaged product is the shipping carrier's responsibility.
 5. Customer is responsible for return shipping.
 6. All product must be returned within 30 days.

PARTS NOW! WARRANTY PERIOD

■ A. NEW PRODUCT

Original Manufacturer Warranty

■ B. FACTORY REFURBISHED PRODUCT: Original Manufacturer Warranty

■ C. REFURBISHED PRODUCT

1. Fusing Assemblies
 - a. 12 pages/minute or slower - 6 months
 1. SX, LX, EX, EX+, PX, AX, most Lexmark printers
 - b. 13 page/minute or faster - 3 months
 1. NX, BX, WX, HP 4000, HP 5000
2. Mechanical Assemblies - 3 months
 - a. Input Assy., Output Assy., Delivery Assy. etc.
3. Electronics - 3 months
 - a. I/Os, DC Controllers, Power Supplies etc.
4. Printers
 - a. As is: Guaranteed working on arrival
 - b. PARTS NOW! Inc. Refurbished-90 days.

The printer you receive should be mechanically sound and operational. We will replace or repair, at our discretion, the part or parts that fail during the 90-day warranty period. This is a limited warranty and does not cover minor cosmetic defects, such as blemishes, scratches, and color defects.

Upon arrival, inspect the package for damage and refuse it if you feel the printer may be damaged as a result of shipping. If you accept the printer and later discover apparent shipping damage, a claim should be made with the carrier.

Your first step to make a warranty claim would be to call our tech support and give a description so we can take the appropriate steps to get you back up and running.

RESPONSIBILITY FOR DAMAGE

■ A. PARTS NOW! Inc. is not responsible for damages incurred in transit. The shipping carrier is responsible for such damage.

■ B. PARTS NOW! Inc. does not issue RMA#s for products damaged due to shipping. PARTS NOW! Inc. will place a new order for the customer while the carrier is processing the customer's claim.



HEADQUARTERS:

3517 W. Beltline Hwy.
Madison, WI 53713
(608) 276-8688
(800) 886-6688
FAX (608) 276-9593

SOUTHEAST BRANCH:

1085 SW 15th Ave. #5
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