



# CUSTOM TEST REPORT

## 24-PIN IMPACT PRINTERS Oki Data Microline 490



### SUMMARY

The Oki Data Microline 490 24-pin impact printer provided a flawless reliability performance in both controlled and harsh environments during its 46.6-million-character BLI test, requiring no service and experiencing no malfunctions or misfeeds.

The ML 490 also demonstrated good ease of use from the desktop via its print drivers, which BLI technicians found intuitive, and offers comprehensive documentation that clearly covers the operation of the unit and its network interface (the OkiLAN 6120i). Also noteworthy is that the ML 490 earned high marks from BLI for operating system compatibility, for which it was tested with Microsoft Windows 98 SE, Windows NT 4.0, Windows 2000 Professional, Windows Me and Windows XP operating systems. Moreover, test technicians noted that it features a buffer capacity (128 KB) that is higher than that of competitive models tested, which feature buffer capacities of 64 to 79.5 KB.

With a maximum resolution of 360 x 360 dpi, the ML 490 also earned BLI's highest impact printer output quality rating for all aspects of print quality

(bold fonts, thin fonts, lines, graphs and images) when printing on single-part forms, while displaying performance comparable to competitive models tested when printing on multi-part forms. BLI's test technicians also gave the ML 490 good marks for ease of replacing the unit's ribbon cartridge, which can quickly and easily be snapped in and out of place.

Also noteworthy is that the Microline 490 is priced competitively, and Oki Data provides a longer limited warranty of three years than that offered by some of its competitors, which provide only two-year standard limited warranties.

In addition to proving to be a very reliable printer that's worthy of a BLI "Certificate of Reliability," the Oki Data Microline 490 proved to be a solid overall performer in BLI's three-month test.

#### Print Quality (single-part forms paper):

- Text (bold fonts/thin fonts): ..... Good/Good
- Lines: ..... Good
- Graphs: ..... Good
- Images: ..... Good

*continued*

**Summary** *continued*

Ease of use: ..... Good

Malfunctions: ..... None

Ease of maintenance: ..... Good

Misfeeds: ..... None

Estimated waste: ..... Low

Estimated downtime: ..... Low

## TEST RESULTS AND OBSERVATIONS

### Reliability Testing In A Controlled Ambient Environment

Each product was subjected to a 34,000,951-character durability test in a controlled ambient environment (74+/- degrees Fahrenheit, 25+/-% humidity), with 31,000,000 characters printed on single-part forms paper and 3,000,951 characters printed on six-part forms paper.

*Oki Data Microline 490*

Malfunctions encountered during testing: None.

Misfeeds encountered during testing: None.

*Epson LQ-570e*

Malfunctions encountered during testing: At 29,000,000 characters into testing, the LQ-570e's ribbon mechanism jammed, rendering the machine inoperable. Testing was discontinued at this point.

Misfeeds encountered during testing: None.

*Lexmark 2490*

Malfunctions encountered during testing: None.

Misfeeds encountered during testing: None.

### Reliability Performance In Harsh Environments

All printers were operated in a Ransco Walk-in Temperature/Humidity Chamber [Model #36172 SH35 HT-2] for eight hours under each of the following temperature and humidity conditions: 41 degrees Fahrenheit at 20% humidity, 54 degrees Fahrenheit at 40% humidity, 77 degrees Fahrenheit at 60% humidity, and 95 degrees Fahrenheit at 80% humidity. All printing was on single-part forms paper, and 12,643,200 characters were produced by each printer.

*Oki Data Microline 490*

Malfunctions encountered during testing: None.

Misfeeds encountered during testing: None.

*Epson LQ-570e*

Malfunctions encountered during testing: At 29,000,000 characters into testing, the LQ-570e's ribbon mechanism jammed, rendering the machine inoperable. Testing was discontinued at this point.

Misfeeds encountered during testing: None.

*Lexmark 2490*

Malfunctions encountered during testing: None.

Misfeeds encountered during testing: None.

## Image/Print Quality

Image/print quality was measured with the printers set in the Letter-Quality Mode at 360 x 360 dpi. Test originals were printed on single-part forms paper and on six-part forms paper, in 6-point, 8-point, 10-point, 12-point, 14-point, 16-point and 18-point. Both were analyzed for quality of characters/fonts, lines, graphs and images:

**Image/Print quality when using single-part forms paper (based on rankings of good, fair and poor):**

	<i>Oki Data Microline 490</i>	<i>Lexmark 2490</i>	<i>Epson LQ-570e</i>
<i>Text Bold Fonts</i>	Good	Good	Good
<i>Text Thin Fonts</i>	Good	Good	Good
<i>Lines</i>	Good	Good	Good
<i>Graphs</i>	Good	Good	Good
<i>Image</i>	Good	Good	Good

*Comments:* All of the printers produced legible copy on single-part forms paper; although when using 6-point fonts with each printer, character definition was not crisp and clear. When magnified and analyzed by the BLI technician, the Lexmark 2490 had the cleanest and most well-defined characters.

**Image/Print quality when using six-part forms paper (based on rankings of good, fair and poor):**

	<i>Oki Data Microline 490</i>	<i>Lexmark 2490</i>	<i>Epson LQ-570e</i>
<i>Text Bold Fonts – Page One</i>	N/A	Good	N/A
<i>Text Bold Fonts – Page Six</i>	N/A	Good	N/A
<i>Text Thin Fonts – Page One</i>	N/A	Good	N/A
<i>Text Thin Fonts – Page Six</i>	N/A	Good	N/A
<i>Lines – Page One</i>	N/A	Good	N/A
<i>Lines – Page Six</i>	N/A	Good	N/A
<i>Graphs – Page One</i>	N/A	Good	N/A
<i>Graphs – Page Six</i>	N/A	Good	N/A
<i>Image – Page One</i>	N/A	Good	N/A
<i>Image – Page Six</i>	N/A	Fair	N/A

*Comments:* The Epson LQ-570e does not support six-part continuous forms paper, so this test could not be conducted with the LQ-570e (the manufacturer states that it only supports up to five-part continuous forms). The Oki Data Microline 490 is recommended for printing only on up to five-part continuous forms paper. With all of the printers, when using six-part forms paper and a 6-point font, none of the impressions were defined very well. The Lexmark 2490 gave the best performance when using six-part continuous forms paper.

## GENERAL OBSERVATIONS

### Maintenance

The only maintenance required for each printer during testing was occasional cleaning of paper dust from the printers.

### User-Replaceable Consumables

#### *Ease of replacing ribbon cartridge:*

*Oki Data Microline 490:* Good. The ribbon cartridge easily snapped out and back into place.

*Lexmark 2490:* Good. The ribbon cartridge easily snapped out and back into place.

*Epson LQ-570e:* Fair. The test technician had to use his hands or a pencil tip to string the ribbon.

#### *Ease of loading paper:*

*Oki Data Microline 490:* Fair. Paper needed to be loaded from the rear of the printer and the operator was required to lift a plastic paper guide plate to align the paper on the tracks of the forms tractor.

*Lexmark 2490:* Good. No hand-feeding of the paper was required, and the forms tractor was easily accessed. The user only needs to start the paper on the tractor, press the load button and paper is automatically loaded and aligned. To unload the paper, the user simply presses the unload paper button and the paper is fed out and removed from the tractor. No rolling of the platen is required by the user.

*Epson LQ-570e:* Fair. The operator has to first push the paper into the printer. Next, the top of the paper must be gripped and pulled, and then inserted into the tracks of the forms tractor.

### Ease of Operation

*Oki Data Microline 490:* Good. The documentation included a set-up guide and one CD-ROM containing three manuals in PDF format that can be read online or printed. The manuals contained on the CD-ROM are the Microline 420/421 and 490/491 User's Reference Guide, OkiLAN 6120i User's Guide, and the Microline 490/491 Reference Material.

*Lexmark 2490:* Fair. Included with the printer is the Lexmark Forms Printer 2400 Series User's Guide and the Lexmark Forms Printer 2400 Series Setup/Quick Reference Manual. Print drivers for the Lexmark 2490 were not included and the user is required to download them from the Lexmark web site.

*Epson LQ-570e:* Good. Included with the printer is the LQ-580/LQ-570e User's Guide and one CD-ROM containing the print drivers and network utilities. The CD-ROM did not contain URGs or documentation.

### Throughput Capabilities/Materials

*Oki Data Microline 490:* Continuous Multiple-Part Cut Forms (10.0" maximum page width, 3.0" minimum page width). Continuous Single-Part Cut Forms (10.0" maximum page width, 3.0" minimum page width; 11-lb. maximum paper weight, 9-lb. minimum paper weight). Sheet-Fed Paper (8.5" maximum page width, 7.2" minimum page width; 24-lb. maximum paper weight, 14-lb. minimum paper weight).

*Lexmark 2490:* Continuous Multiple-Part Cut Forms (11.7" maximum page width, 3.0" minimum page width, 22.0" maximum page length, 3.0" minimum page length, 0.014" paper thickness). Continuous Single-Part Cut Forms (11.7" maximum page width, 3.0" minimum page width, 22.0" maximum page length, 3.0" minimum page length, 24-lb. maximum paper weight, 16-lb. minimum paper weight, 0.0045" paper thickness). Sheet-Fed Paper (8.5" maximum page width, 4.13" minimum page width, 22.0" maximum page length, 5.5" minimum page length, 24-lb. maximum paper weight, 16-lb. minimum paper weight). AS4 (8.27" x 11.7"), Legal (8.5" x 14"), Letter (8.5" x 11").

*Epson LQ-570e:* Continuous Multiple-Part Cut Forms (10.0" maximum page width, 4.0" minimum page width, 22.0" maximum page length, 4.0" minimum page length, 0.015" to 0.025" paper thickness). Continuous Single-Part Cut Forms (10.0" maximum page width, 4.0" minimum page width, 22.0" maximum page length, 4.0" minimum page length, 15-lb. maximum paper weight, 12-lb. minimum paper weight, 0.0025" paper thickness). Sheet-Fed Paper (10.1" maximum page width, 3.9" minimum page width, 14.3" maximum page length, 3.9" minimum page length, 24-lb. maximum paper weight, 14-lb. minimum paper weight). Legal (8.5" x 14"). Letter (8.5" x 11").

## Operating System Compatibility

*Units were tested for compatibility with Microsoft Windows Millennium, Microsoft Windows 98SE, Microsoft Windows 2000 Professional, Microsoft Windows XP Professional, and Microsoft Windows NT 4.0.*

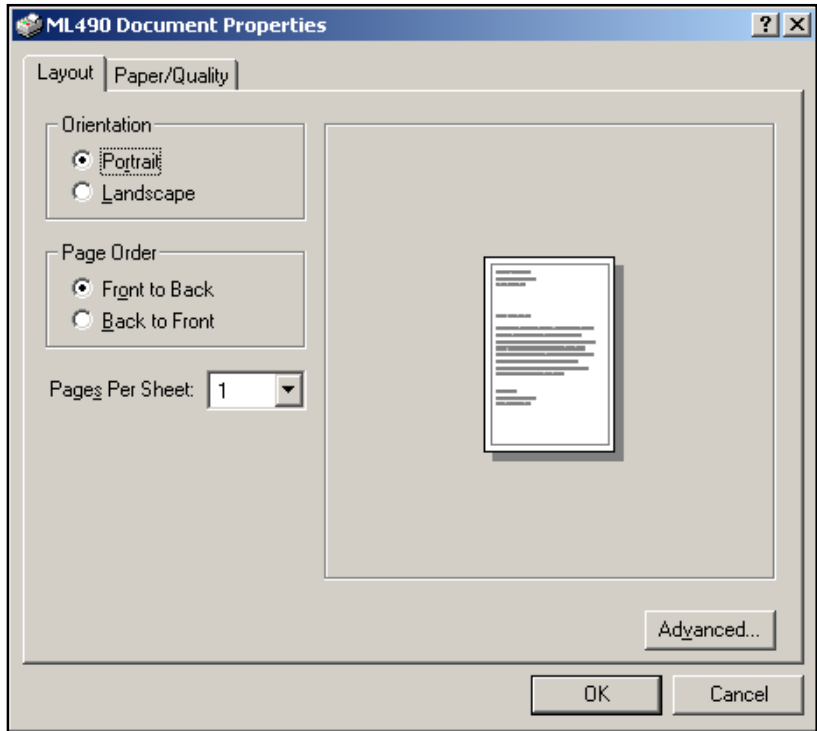
*Oki Data Microline 490:* Good.

*Lexmark 2490:* Good.

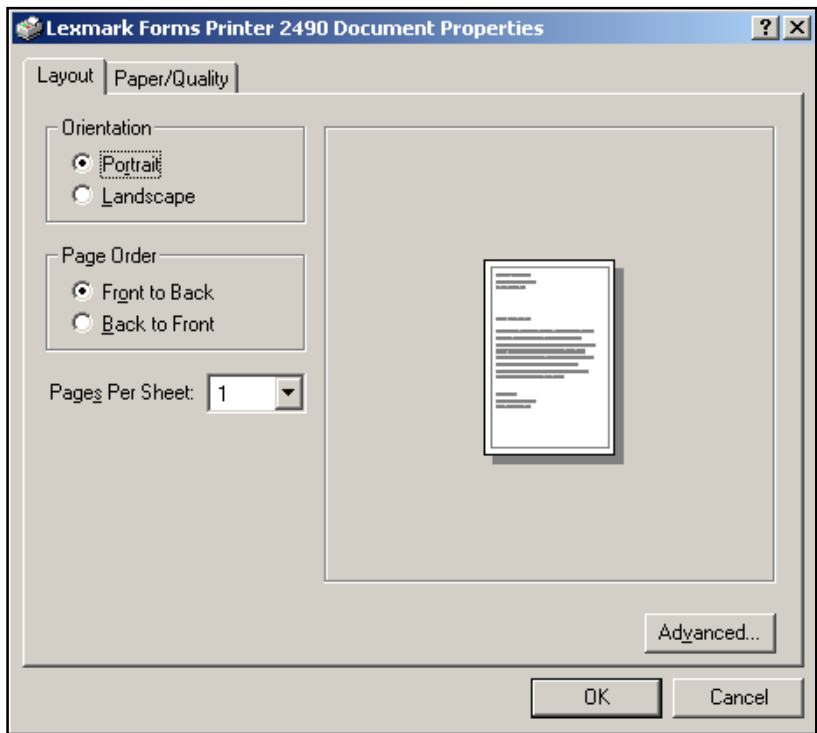
*Epson LQ-570e:* Good.

## Print Drivers

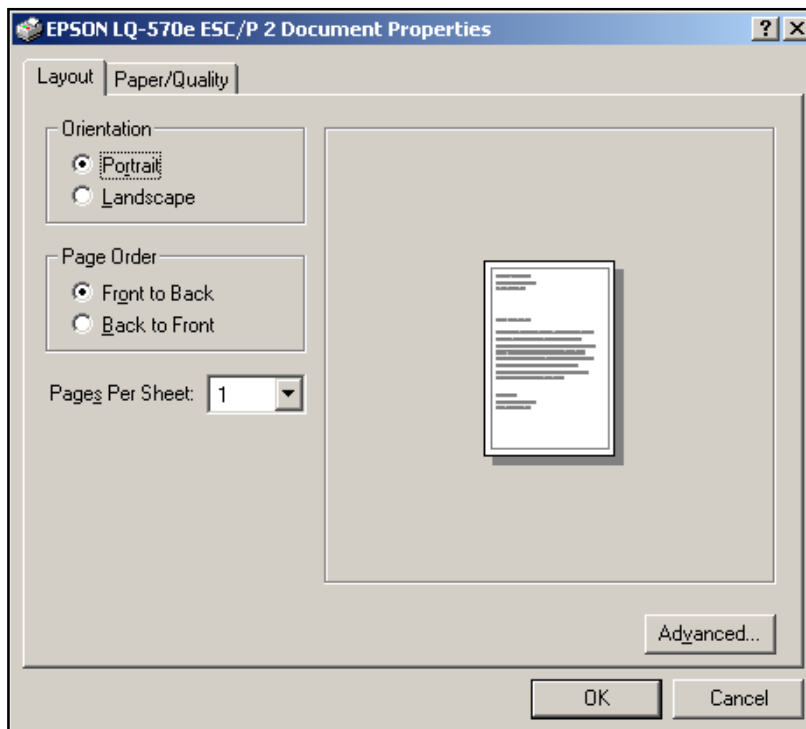
The print drivers for each of the printers tested were all very simple to use and intuitive, if the user had experience with the Windows environment. The platform determined the features that could be selected from the driver. Older platforms such as Windows 98SE, Millennium and NT 4.0 did not have the mode and resolution setting available for the printer. None of the drivers were Windows XP certified. The Lexmark 2490 was the only printer that did not come with print drivers; they had to be downloaded from the Lexmark Web site.



Oki Data Microline 490 Windows 2000 Print Driver



Lexmark 2490 Windows 2000 Print Driver



**Epson LQ-570e Windows 2000 Print Driver**

### **Print Receive Buffer**

*Oki Data Microline 490:* 128 KB

*Lexmark 2490:* 79.5 KB

*Epson LQ-570e:* 64 KB

### **Networking and Connectivity**

Each of the printers tested can be networked, and some were run in a network environment. An analysis of the networking capabilities and/or network utilities was not done for this test since all printers were not equipped with network capabilities.

### **Electrical Requirements**

*Oki Data Microline 490:* 102 V to 127 V, 50/60 Hz, AC, 1.1 amps. The unit tested had a three-wire cord (grounded), 6' 0" in length, and carried UL approval for the United States and Canada.

*Lexmark 2490:* 100 to 127 V, 50/60 Hz, AC, 2.0 amps. The unit tested had a three-wire cord (grounded), 6' 0" in length, and carried UL approval for the United States and Canada.

*Epson LQ-570e:* 99 V to 132 V, 50/60 Hz, AC, 1.0 amps. The unit tested had a three-wire cord (grounded), 6' 2" in length, and carried UL approval for the United States and Canada.

**Dimensions and Weights**

<b>Model</b>	<b>Height</b>	<b>Width</b>	<b>Depth</b>	<b>Weight</b>
Oki Data Microline 490	6.0"	15.7"	13.6"	16.4 lbs.
Lexmark 2490	7.7"	19.4"	11.4"	17.6 lbs.
Epson LQ-570e	6.3"	16.35"	14.5"	16.53 lbs.

**Warranties**

*Oki Data Microline 490:* Three-year limited warranty in the U.S. and Canada.

*Lexmark 2490:* Two-year LexExpress, Lexmark's overnight-exchange service.

*Epson LQ-570e:* Two-year limited warranty in the U.S. and Canada.

**BACKGROUND**

Web Price (USA): \$432.99  
 Manufacturing Status: Current  
 Domestic Launch Date: November 2002  
 Engine OEM: Oki Data Corporation  
 Country of Manufacture: Japan  
 Type: 24-pin  
 Serial, Impact, Dot Matrix



**RELIABILITY**

MTBF<sup>1</sup>: 20,000 hours<sup>2</sup>  
 Printhead Life: 200 million characters  
 Ribbon Life: 4 million characters

**TECHNOLOGY**

Printhead: 24-pin SIDM  
 Max Resolution (H x V): 360 x 360dpi  
 Feed Rate: 4.5 ips (11.4 cm/sec.)  
 Print Speeds:  
   LQ Mode (12cpj): 126 cps  
   Utility Mode (12 cpi): 380 cps  
   HSD Mode (10 cpi): 420 cps  
   Utility Mode (15 cpi): 475 cps

**FEATURES**

Emulation(s): Epson LQ, IBM ProPrinter  
 IBM AGM, IBM XL24  
 Standard Interface(s): Parallel, USB  
 Optional Interface(s): 10/100BaseT Ethernet<sup>3</sup>  
 Serial, Twinax/Coax  
 IEEE 802.11b Wireless  
 Memory: 128 KB

**PAPER HANDLING**

Paper Input: Single-part, Multi-part  
 Continuous forms  
 Cut sheet, Index stock  
 Envelopes, Labels  
 Number of Copies: 5  
 Thickness: 0.017" (0.43 mm)  
 Paper Feeding: Rear push/Friction feed  
 Options: Bottom Push Tractor  
 Top Pull Tractor  
 Cut-Sheet Feeder  
 Roll-Paper Stand

**ADDITIONAL INFORMATION**

Dimensions (HxWxD): 6.0" x 15.7" x 13.6"  
 Weight: 16.4 lbs  
 Noise: 56 dB  
 Warranty: 3 years parts and labor  
 2 years printhead

**COMPATIBILITY**

Operating Systems: Windows XP/2000/9x/NT/3.x  
 MS-DOS

**COMMENTS/FOOTNOTES**

<sup>1</sup> Mean Time Between Failures.  
<sup>2</sup> 25% duty cycle/35% page density.  
<sup>3</sup> Via optional OkiLAN 6120i internal print server.

**SUPPLIES**

Self-Inking Ribbon Cartridge \$14.99

**ACCESSORIES**

Top-Mount Pull Tractor Kit: \$44.99  
 Bottom Push Tractor Kit: \$76.99  
 Cut-Sheet Feeder: \$239.99  
 Roll-Paper Stand: \$55.99  
 OkiLAN 6120i Internal 10/100BaseT: \$223.99  
 OkiLAN 6020e External 10/100BaseT: \$223.99  
 OkiLAN 6010e External 10BaseT: \$199.99  
 TROY EtherWind 802.11b Wireless Server: \$239.99  
 RS-232C Serial Interface: \$79.99

Note: The specifications and pricing on this page were provided by the manufacturer and not confirmed by BLI testing.