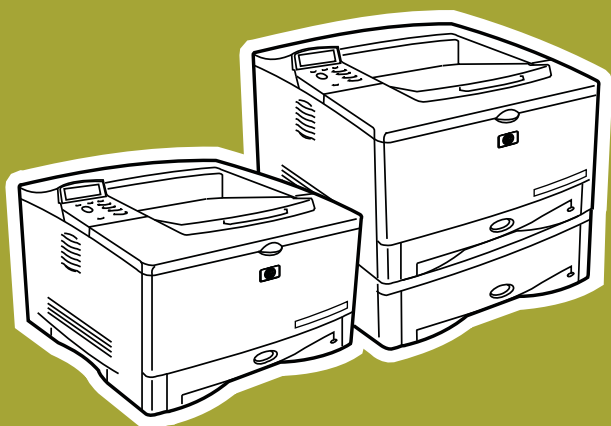


For the complete PDF manual  
please visit [www.LaserPros.com](http://www.LaserPros.com).



i n v e n t

**service**

**hp** LaserJet 5100  
5100tn • 5100dtn  
5100Le



hp LaserJet 5100 series printers

**service** \_\_\_\_\_

**© Copyright Hewlett-Packard Company 2002**

All Rights Reserved.  
Reproduction, adaptation, or translation without prior written permission is prohibited, except as allowed under the copyright laws.

Publication number  
Q1860-90918

First Edition, May 2002

**Warranty**

The information contained in this document is subject to change without notice.

Hewlett-Packard makes no warranty of any kind with respect to this information.

HEWLETT-PACKARD SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTY OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Hewlett-Packard shall not be liable for any direct, indirect, incidental, consequential, or other damage alleged in connection with the furnishing or use of this information.

**Trademark Credits**

PostScript® is a trademark of Adobe Systems Incorporated.

HP-UX Release 10.20 and later and HP-UX Release 11.00 and later (in both 32 and 64-bit configurations) on all HP 9000 computers are Open Group UNIX 95 branded products.

Microsoft, Windows®, MS-DOS, and Windows NT, are U.S. registered trademarks of Microsoft Corporation.

TrueType™ is a U.S. trademark of Apple Computer, Inc.

UNIX® is a registered trademark of The Open Group.

ENERGY STAR® is a U.S. registered service mark of the United States Environmental Protection Agency.

# Contents

## 1 Printer description

|                                      |    |
|--------------------------------------|----|
| Printer features                     | 16 |
| Printer information                  | 17 |
| Identification                       | 19 |
| Model and serial numbers             | 19 |
| Site requirements                    | 20 |
| Environmental and power requirements | 20 |
| Space requirements                   | 21 |
| Paper specifications                 | 25 |
| Supported types of paper             | 26 |
| Guidelines for using paper           | 27 |
| Labels                               | 29 |
| Transparencies                       | 29 |
| Vellum                               | 29 |
| Envelopes                            | 29 |
| Card stock and heavy paper           | 31 |
| Safety information                   | 32 |
| Laser safety statement               | 32 |
| Canadian DOC regulations             | 32 |
| FCC regulations                      | 32 |
| Laser statement for Finland          | 33 |
| Luokan 1 laserlaite                  | 33 |
| Material Safety Data Sheet           | 33 |
| Environmental product stewardship    | 34 |

## 2 Service approach

|  |    |
|--|----|
| Regulatory information                   | 36 |
| Service approach                         | 36 |
| Parts and supplies                       | 36 |
| Warranty                                 | 36 |
| Limited warranty for the print cartridge | 36 |
| Service and support                      | 37 |
| Worldwide service and support offices    | 38 |

### 3 Printer operation

|  |    |
|--|----|
| Using the control panel                                      | 42 |
| Control panel layout   | 42 |
| Control panel lights   | 42 |
| Control panel keys   | 43 |
| Settings and defaults  | 44 |
| Control panel menus  | 45 |
| Private/stored jobs menu                                     | 46 |
| Information menu   | 47 |
| Paper-handling menu  | 48 |
| Print-quality menu   | 50 |
| Printing menu  | 51 |
| Configuration menu   | 53 |
| I/O menu   | 55 |
| EIO menu (HP LaserJet 5100tn and 5100dtn printers)           | 56 |
| Resets menu  | 58 |
| Service mode   | 59 |
| Service menu   | 59 |
| Setting the page count, maintenance count, and serial number | 60 |
| Cold reset paper size  | 62 |
| Diagnostics  | 62 |
| Clear event log  | 62 |
| Testing the printer  | 63 |
| Resetting the printer  | 63 |
| Cold reset   | 63 |
| Clearing NVRAM   | 63 |
| Initializing the hard disk                                   | 63 |
| System configuration   | 64 |
| MS-DOS system configuration                                  | 64 |
| Parallel MS-DOS commands                                     | 64 |
| Printer I/O configuration                                    | 64 |
| Parallel menu  | 64 |

### 4 Printer maintenance

|                                      |    |
|--------------------------------------|----|
| Cleaning the printer and accessories | 66 |
| Cleaning spilled toner               | 67 |
| Preventive maintenance               | 68 |
| Reset maintenance count              | 68 |
| Expected life of components          | 68 |

## 5 Functional information

|  |     |
|--|-----|
| Printer subsystems . . . . .                                       | 71  |
| Power supply system . . . . .                                      | 72  |
| Ac/dc power distribution . . . . .                                 | 72  |
| Overcurrent overvoltage protection . . . . .                       | 73  |
| High-voltage power distribution . . . . .                          | 74  |
| Toner-cartridge detection . . . . .                                | 75  |
| Dc controller system . . . . .                                     | 75  |
| Laser and scanner drive . . . . .                                  | 76  |
| Paper-motion monitoring and control . . . . .                      | 76  |
| Solenoids, sensors, clutches, and switches . . . . .               | 76  |
| Engine test . . . . .  | 76  |
| Motors . . . . .   | 77  |
| Formatter system . . . . .   | 78  |
| PowerSave . . . . .  | 78  |
| Resolution Enhancement technology . . . . .                        | 78  |
| EconoMode . . . . .  | 79  |
| Input/output . . . . .   | 79  |
| CPU . . . . .  | 79  |
| Printer memory . . . . .   | 80  |
| Memory Enhancement technology . . . . .                            | 80  |
| Page protect . . . . .   | 81  |
| PJM . . . . .  | 81  |
| PML . . . . .  | 81  |
| Control panel . . . . .  | 81  |
| Image-formation system . . . . .                                   | 82  |
| Toner cartridge . . . . .  | 83  |
| Photosensitive drum . . . . .                                      | 84  |
| Writing the image . . . . .  | 86  |
| Developing the image . . . . .                                     | 87  |
| Transferring the image . . . . .                                   | 88  |
| Image fusing/variable fusing temperature . . . . .                 | 89  |
| Paper feed system . . . . .  | 91  |
| Clutches and sensors . . . . .                                     | 92  |
| Printing from Tray 1 . . . . .                                     | 92  |
| Printing from Tray 2 . . . . .                                     | 93  |
| Printing from the optional 500-sheet and 250-sheet Trays . . . . . | 95  |
| Paper jam . . . . .  | 97  |
| Duplexer . . . . .   | 98  |
| Paper jam in the duplexer . . . . .                                | 100 |
| Basic sequence of operation . . . . .                              | 101 |

## 6 Removing and replacing parts

|  |     |
|--|-----|
| User-installable accessories                 | 107 |
| Checking memory installation                 | 109 |
| Installing EIO cards or mass-storage devices | 110 |
| Paper-handling accessories                   | 110 |
| Before you begin                             | 111 |
| Replacing printer parts                      | 111 |
| Removing loose toner                         | 111 |
| Required tools                               | 111 |
| Parts removal order                          | 112 |
| Covers                                       | 113 |
| Rear door and rear output bin                | 113 |
| Fuser  | 114 |
| Top cover                                    | 115 |
| Control panel overlay and control panel      | 117 |
| Toner cartridge door assembly                | 119 |
| Front cover and Tray 1                       | 120 |
| Front cover pins                             | 121 |
| Face-down cover                              | 122 |
| Left and right side covers                   | 123 |
| Tray 1 inner cover                           | 124 |
| Right and left corner covers                 | 126 |
| Internal assemblies                          | 127 |
| Transfer-roller assembly                     | 128 |
| Paper-handling PCA                           | 131 |
| Main gear assembly                           | 134 |
| Pickup gear assembly                         | 136 |
| Tray 1 pickup solenoid                       | 137 |
| Fan  | 138 |
| Formatter assembly                           | 139 |
| Tray 1 roller                                | 140 |
| Tray 1 separation pad                        | 141 |
| Tray 2 pickup roller                         | 142 |
| Tray 2 separation pad                        | 143 |
| Paper-feed roller assembly                   | 144 |
| Dc controller and power supply               | 146 |
| Paper-feed belt assembly                     | 148 |
| Tray 1 shaft                                 | 150 |
| Tray 2 shaft                                 | 152 |
| Tray 1 lift plate                            | 154 |
| Paper guide                                  | 155 |
| Top-of-page sensor                           | 156 |
| Face-down bin-full sensor lever              | 157 |
| Accessory interface connector                | 158 |
| Registration assembly                        | 159 |
| Upper delivery assembly                      | 161 |
| Delivery roller                              | 162 |
| Laser/scanner assembly                       | 164 |
| Main motor                                   | 165 |
| Toner cartridge guides                       | 166 |
| Power inlet assembly                         | 167 |

|  |     |
|--|-----|
| Optional 250-sheet feeder . . . . .            | 168 |
| Separation pad . . . . .                       | 168 |
| Pickup roller . . . . .                        | 169 |
| Sensing flag . . . . .                         | 170 |
| Control PCA . . . . .                          | 171 |
| Paper-size spring assembly . . . . .           | 173 |
| Optional 500-sheet feeder . . . . .            | 174 |
| Covers and base frame . . . . .                | 174 |
| Tray indicator assembly . . . . .              | 176 |
| Left front corner cover installation . . . . . | 177 |
| 500-sheet feeder feed roller . . . . .         | 178 |
| 500-sheet feeder pickup roller . . . . .       | 179 |
| 500-sheet feeder PCAs . . . . .                | 180 |
| 500-sheet feeder power connector . . . . .     | 181 |
| 500-sheet feeder separation roller . . . . .   | 182 |

## 7 Troubleshooting

|   |     |
|---|-----|
| Troubleshooting process . . . . .             | 184 |
| Troubleshooting process flow . . . . .        | 185 |
| Troubleshooting the printing system . . . . . | 187 |
| Preliminary operating checks . . . . .        | 187 |
| Power on . . . . .                            | 188 |
| Engine test . . . . .                         | 190 |
| Display . . . . .                             | 190 |
| Event log . . . . .                           | 191 |
| Printer messages . . . . .                    | 193 |
| General paper-path troubleshooting . . . . .  | 202 |
| Information pages . . . . .                   | 204 |
| Image quality . . . . .                       | 207 |
| Image system troubleshooting . . . . .        | 224 |
| Interface troubleshooting . . . . .           | 225 |
| Reference diagrams . . . . .                  | 227 |
| Locations of components . . . . .             | 227 |
| Sensors and signals . . . . .                 | 236 |
| Dc controller inputs and outputs . . . . .    | 252 |

## 8 Parts and diagrams

|  |     |
|--|-----|
| Ordering parts and supplies, and getting support . . . . . | 259 |
| Related documentation and software . . . . .               | 259 |
| Support . . . . .  | 259 |
| Ordering parts . . . . .                                   | 259 |
| Ordering consumables . . . . .                             | 259 |
| Accessories and supplies . . . . .                         | 260 |
| Common hardware and replacement cables . . . . .           | 261 |
| Diagrams and parts lists . . . . .                         | 262 |
| Alphabetical parts list . . . . .                          | 290 |
| Numerical parts list . . . . .                             | 294 |

## Index

For the complete PDF manual  
please visit [www.LaserPros.com](http://www.LaserPros.com).