



service

hp color LaserJet 9500n
hp color LaserJet 9500hdn

hp color LaserJet 9500 series printer

service

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Product features	20
Product specifications	22
Identification	22
Specifications	22
Environmental specifications	23
Product overview	25
External assembly locations	25
Accessories	26
Space requirements	27
Printer with packaging	27
Printer physical dimensions	28
Setup	30
Media specifications	31
Guidelines for selecting media	31
Supported media and capacity for input and output	32
Recommended media	33
Special media specifications	35
Storing print media	39
Testing media specifications	39
Media assessment tools and suppliers	44
Service approach	46
Parts and supplies	47
Ordering parts	47
Ordering supplies	47
Exchange program	47
Supplies	47
World Wide Web	47
HP service parts information compact disc	48
Customer care reseller sales and service support center	48
Ordering related documentation and software	49
Warranty	50
Limited warranty for print cartridge and image drum life	50
Transfer unit and fuser warranty	50
HP maintenance agreements	50
Onsite service agreements	51
Control panel layout	54
Control panel menus	56
Menu map	56
Using a menu map	56
Retrieve job menu	57
Information menu	58
Paper handling menu	59
Selecting media for a document	60
Configure device menu	61
Printing submenu	61
Print Quality submenu	64
System Setup submenu	69
Output Setup submenu	71
I/O submenu	71
Resets submenu	74
Diagnostics menu	75
Service menu	79

Service ID	79
Restoring the Service ID	80
Converting the Service ID to an actual date	80
Settings and defaults	81
Configure the control panel display language	81
Configure the input trays	82
Boot key sequences	86
Hard disk reinitialization	86
NVRAM initialization	87
Cold reset	89
 Preventative maintenance	 92
Image transfer kit	92
Image cleaning kit	92
Image fuser kit	92
Cleaning the printer and accessories	93
General cleaning	93
Cleaning spilled toner	93
Vacuum specifications	93
First aid measures	93
Cleaning procedures	94
Cleaning the post charger	94
Cleaning the separation guide, feed guide, and front fuser guide	94
Cleaning the fuser input	94
Cleaning the registration roller unit	95
Cleaning the other rollers	95
Cleaning the tray 1 separation pad	95
Print cartridges	96
Non-HP print cartridges and image drums	96
Authenticating print cartridges	96
Storing print cartridges	97
Image drums	98
Storing image drums	98
Firmware upgrades	99
Downloading the new firmware from the HP Web site	99
Downloading the new firmware to the printer	99
Remote firmware update through a local Windows port	99
 Basic operation	 108
Major printer systems	108
Printer block diagram	109
Sequence of operation	110
Timing charts	112
Wiring diagrams	114
Flat flexible cable signals	118
Connector location	126
Engine-control system	130
DC controller circuit	131
DC controller operations	134
T driver circuit	135
Fuser control circuit	136
Low-voltage power supply	137
High-voltage power supply circuits	138
Post charger power supply unit	138
Motors and fans	139
Switches, solenoids, clutches, and sensors	142

Formatter	146
DIMM slots	146
Formatter heartbeat LED	147
Laser/scanner system	148
Dual-beam method	149
Laser control	150
Scanner-motor control	154
Color plane registration calibration control	155
Image formation system	158
Electrophotographic process	158
Image stabilization control	166
Paper-path system	169
Pickup/feed unit	171
Jam detection	178
Introduction	183
Removal and replacement strategy	183
General cautions during removal and replacement	183
Electrostatic discharge	183
Required tools	184
Flat flexible cable caution	185
DC controller and cable/connector damage areas	186
Potential damage areas while servicing	186
Consumables	187
Toner cartridges (print cartridges)	187
Process cartridges (image drums)	189
Waste toner bottle (toner collection bottle)	191
Transfer cleaner (cleaning blade)	192
Transfer roller	193
External covers	194
Control panel overlay	194
Control panel	195
Right upper cover	196
Left upper cover	198
Top right cover	199
Top left cover	201
Front doors	203
Fuser door	204
Intermediate transfer belt (ITB) door	206
Left back cover	210
Left lower cover	211
Right back cover	213
Back cover	214
Major assemblies	215
Process cartridge (image drum) door	215
Laser/scanner assembly	217
Printing a laser/scanner adjustment page	219
Reading a laser/scanner adjustment page	221
Adjusting the laser/scanner assemblies	223
Delivery unit	235
Delivery unit sensor	239
Vertical feed unit	240
Duplexer	244
Fuser	245
Intermediate transfer belt (ITB)	246
Density and registration sensor assembly	248
Right back fan	251

Right front fan	252
Secondary transfer assembly (T2)	253
Pickup unit	258
Temperature and humidity sensor	266
High-voltage power supply	267
Low-voltage power supply	268
Registration assembly	269
Delivery fan	276
Fuser fan	277
P-crg (image drum) drive assembly	278
T-crg (print cartridge) drive assembly	282
Fuser motor	284
Fuser drive assembly	285
DC controller	286
Formatter PCB	288
Formatter cage	289
High-voltage contact	291
Post charger power supply	292
Tray 1 pickup roller	294
Tray 1 separation pad	295
Left door switch	296
Right door switch (front and right side doors)	297
ITB sensor	298
Upper left door sensor	299
Fuser front paper sensor	300
Fuser sensor PCA	301
Introduction	306
Troubleshooting process	306
Pre-troubleshooting checklist	306
Power checks	308
Control panel checks	308
Troubleshooting tools and procedures	309
Hardware and electrical troubleshooting tools	309
Image formation and print-quality troubleshooting tools	330
Sample defects and solutions	336
Media and paper-path troubleshooting tools	373
Tests for troubleshooting paper-path problems	383
Noise troubleshooting tools	384
Control panel messages	385
Control panel and event log message format	386
Event log page	386
Error message interpretation	389
Data and communication troubleshooting tools	435
Tray 4 troubleshooting tools	438
Introduction	443
Ordering parts	443
Kits, supplies, accessories, exchange parts, and documentation	445
Hardware identification	447
Illustrations and parts lists	448
External covers and panels	448
Left cover assembly	452
Right door assembly	453
Internal components (1 of 9)	454
Internal components (2 of 9)	456

Internal components (3 of 9)	458
Internal components (4 of 9)	460
Internal components (5 of 9)	462
Internal components (6 of 9)	464
Internal components (7 of 9)	466
Internal components (8 of 9)	468
Internal components (9 of 9)	470
Registration drive assembly	472
Process cartridge drive assembly (image drum drive)	473
Toner cartridge drive assembly (print cartridge drive)	474
Fuser drive assembly	476
Cassette assembly	478
Paper pickup assembly (1 of 3)	480
Paper pickup assembly (2 of 3)	482
Paper pickup assembly (3 of 3)	484
Manual feed pickup assembly (tray 1) (1 of 2)	486
Manual feed pickup assembly (tray 1) (2 of 2)	488
Registration assembly	490
Secondary transfer assembly (T2) (1 of 2)	492
Secondary transfer assembly (T2) (2 of 2)	494
Delivery feed assembly	495
Face down delivery assembly	496
Delivery cover assembly	497
Fuser assembly	498
PCB assemblies	499
Tray 4	500
Tray 4 main body	500
Tray 4 drive assembly	504
Tray 4 PCA location	505
Master parts lists	506
Alphabetical parts list	506
Numerical parts list	512

List of tables

Table 1. Features of the HP color LaserJet 9500 series printer	20
Table 2. Out-of-box specifications	22
Table 3. Packaged specifications	22
Table 4. Power requirements and circuit capacity	23
Table 5. Power consumption	23
Table 6. Environmental specifications	24
Table 7. Noise level specifications	24
Table 8. Supported standard media sizes	32
Table 9. Maximum custom sizes	32
Table 10. Minimum custom sizes	32
Table 11. Supported media weights	32
Table 12. Input tray capacities	32
Table 13. Output bin capacities	32
Table 14. Recommended media	33
Table 15. Media weight, finish, and type	35
Table 16. Determining basis weight of paper	40
Table 17. Paper weight equivalence	40
Table 18. Tools and suppliers	44
Table 19. Related documentation and software	49
Table 20. Control panel features, and key functions	54
Table 21. Retrieve job menu	57
Table 22. Information menu	58
Table 23. Paper handling menu default settings	59
Table 24. Configure device menu	61
Table 25. PCL submenu	63
Table 26. Print Quality menu	64
Table 27. Description of print modes	67
Table 28. System Setup submenu	69
Table 29. Output Setup submenu	71
Table 30. I/O submenu	71
Table 31. Parallel Input submenu	71
Table 32. EIO submenu	72
Table 33. Resets submenu	74
Table 34. Diagnostics menu	75
Table 35. Component test values	78
Table 36. Service menu	79
Table 37. Maximum custom sizes	84
Table 38. Minimum custom sizes	84
Table 39. Update messages	105
Table 40. Troubleshooting a firmware update	105
Table 41. Troubleshooting a firmware update failure	105
Table 42. Printer components	109
Table 43. Power-on sequence	110
Table 44. Normal sequence of operation	111
Table 45. Failure sequence of operation	111
Table 46. FFC input/output signals on the DC controller	118
Table 47. Motors, fans, clutches, solenoids, and sensors	132
Table 48. Motors and fans	139
Table 49. Switches, solenoids, clutches, and sensors	143

Table 50. Hardware table	184
Table 51. Common torque values	184
Table 52. Pre-troubleshooting checklist	306
Table 53. Power checks	308
Table 54. Repeating print-quality defect dimensions	335
Table 55. Repeating marks	339
Table 56. Lines and bands	342
Table 57. Description	342
Table 58. Lines, streaks, or scratches appear parallel to feed direction	345
Table 59. Diagonal bands or lines	349
Table 60. Light or faint image and dropouts	351
Table 61. Wavy brush marks	354
Table 62. Color plane misregistration	356
Table 63. Possible causes	356
Table 64. Primary color covers entire page	357
Table 65. Ghosted image	360
Table 66. Distorted or misplaced image	361
Table 67. Poorly fused image	363
Table 68. Missing color plane	364
Table 69. Blank	365
Table 70. Hand or fingerprints	366
Table 71. Fine, yellow dot background	367
Table 72. Toner halos or explosions	369
Table 73. Paper path jam sensors	374
Table 74. Media jams by location	374
Table 75. General jam troubleshooting	381
Table 76. Alphabetical error messages	389
Table 77. Numerical error messages	400
Table 78. DIP switch settings	438
Table 79. Tray 4 light pattern interpretation	440
Table 80. Term decoder	444
Table 81. Kits and supplies	445
Table 82. Accessories, exchange parts, and documentation	445
Table 83. Common hardware	447
Table 84. Common torque values	447
Table 85. External covers and panels (1 of 2)	449
Table 86. External covers and panels (2 of 2)	451
Table 87. Left cover assembly	452
Table 88. Right door assembly	453
Table 89. Internal components (1 of 9)	455
Table 90. Internal components (2 of 9)	457
Table 91. Internal components (3 of 9)	459
Table 92. Internal components (4 of 9)	461
Table 93. Internal components (5 of 9)	463
Table 94. Internal components (6 of 9)	465
Table 95. Internal components (7 of 9)	467
Table 96. Internal components (8 of 9)	469
Table 97. Internal components (9 of 9)	471
Table 98. Registration drive assembly	472
Table 99. Process cartridge drive assembly (image drum drive)	473
Table 100. Toner cartridge drive assembly (print cartridge drive)	475
Table 101. Fuser drive assembly	477
Table 102. Cassette assembly	479
Table 103. Paper pickup assembly (1 of 3)	481
Table 104. Paper pickup assembly (2 of 3)	483
Table 105. Paper pickup assembly (3 of 3)	485
Table 106. Manual feed pickup assembly (tray 1) (1 of 2)	487
Table 107. Manual feed pickup assembly (tray 1) (2 of 2)	489
Table 108. Registration assembly	491

Table 109. Secondary transfer assembly (T2) (1 of 2)	493
Table 110. Secondary transfer assembly (T2) (2 of 2)	494
Table 111. Delivery feed assembly	495
Table 112. Face down delivery feed assembly	496
Table 113. Delivery cover assembly	497
Table 114. Fuser assembly	498
Table 115. PCB assemblies	499
Table 116. Tray 4 main body (1 of 2)	501
Table 117. Tray 4 main body (2 of 2)	503
Table 118. Tray 4 drive assembly	504
Table 119. Tray 4 PCA location	505
Table 120. Alphabetical parts list	506
Table 121. Numerical parts list	512

List of figures

Figure 1. Sample identification label	22
Figure 2. Front and right side assembly locations	25
Figure 3. Back and left side assembly locations	25
Figure 4. Accessories	26
Figure 5. HP color LaserJet 9500n printer dimensions (top and front views)	28
Figure 6. HP color LaserJet 9500hdn printer dimensions (top and front views)	29
Figure 7. Sample seams	35
Figure 8. Adhesive labels	36
Figure 9. Long, short, and diagonal grain curl	42
Figure 10. Measuring curl	43
Figure 11. Control panel layout	54
Figure 12. Printable area from edges	85
Figure 13. Maximum printable area	85
Figure 14. Cleaning the fuser input (step 5)	94
Figure 15. Printer systems	108
Figure 16. Printer components	109
Figure 17. Power-on block diagram	110
Figure 18. Timing chart (1 of 2)	112
Figure 19. Timing chart (2 of 2)	113
Figure 20. Wiring diagram (1 of 4)	114
Figure 21. Wiring diagram (2 of 4)	115
Figure 22. Wiring diagram (3 of 4)	116
Figure 23. Wiring diagram (4 of 4)	117
Figure 24. Connector location (1 of 4)	126
Figure 25. Connector location (2 of 4)	127
Figure 26. Connector location (3 of 4)	128
Figure 27. Connector location (4 of 4)	129
Figure 28. Engine-control system	130
Figure 29. DC controller circuit (1 of 2)	131
Figure 30. DC controller circuit (2 of 2)	132
Figure 31. T driver circuit	135
Figure 32. Fuser control circuit	136
Figure 33. Low-voltage power supply circuit	137
Figure 34. High-voltage power supply circuit	138
Figure 35. Motors and fans	139
Figure 36. Switches, solenoids, and clutches	142
Figure 37. Sensors	142
Figure 38. Formatter system	146
Figure 39. Laser/scanner system	148
Figure 40. Dual-beam method	149
Figure 41. Laser control	150
Figure 42. Image mask control	152
Figure 43. Scanner motor control	154
Figure 44. Color plane registration (CPR) adjustment	156
Figure 45. Laser beam skew calibration	157
Figure 46. EP process main components	158
Figure 47. Primary charging (step 1)	159
Figure 48. Laser writing latent image (step 2)	159
Figure 49. Developing (step 3)	160

Figure 50. Primary transfer (step 4)	161
Figure 51. Post charging (step 5)	162
Figure 52. Secondary transfer (step 6)	162
Figure 53. Separation (step 7)	163
Figure 54. Fusing (step 8)	163
Figure 55. ITB cleaning (step 9)	164
Figure 56. OPC cleaning	164
Figure 57. OPC cleaning toner collection (step 11)	165
Figure 58. OPC cleaning toner not charged by brushes (step 12)	165
Figure 59. Image density detection control.	167
Figure 60. Paper-path system motors, clutches, and solenoids.	169
Figure 61. Paper-path system switches, sensors, and PCA	170
Figure 62. Cassette pickup.	172
Figure 63. Lifting-up operation	173
Figure 64. Tray 1 paper pickup.	174
Figure 65. Tray 1 paper-width detection.	175
Figure 66. Tray 1 last-paper detection	176
Figure 67. Tray 1 paper feed	177
Figure 68. Remove the FFC.	185
Figure 69. DC controller and cable/connector damage areas	186
Figure 70. Gain access to the toner cartridges.	187
Figure 71. Rotate the toner cartridge lever.	187
Figure 72. Remove the toner cartridge.	188
Figure 73. Gain access to the process cartridge door	189
Figure 74. Rotate the process cartridge door dial	189
Figure 75. Open the process cartridge door.	190
Figure 76. Remove the process cartridges.	190
Figure 77. Remove the waste toner bottle	191
Figure 78. Unlock the transfer cleaner	192
Figure 79. Remove the transfer cleaner.	192
Figure 80. Disengage the ITB to release the transfer roller	193
Figure 81. Remove the transfer roller.	193
Figure 82. Remove the control panel overlay.	194
Figure 83. Release the control panel	195
Figure 84. Remove the control panel	195
Figure 85. Gain access to the right upper cover mounting screws.	196
Figure 86. Remove the right upper cover mounting screws.	196
Figure 87. Remove the right upper cover.	197
Figure 88. Gain access the left upper cover mounting screws.	198
Figure 89. Remove the left upper cover mounting screws	198
Figure 90. Remove the top right cover mounting screws	199
Figure 91. Remove the top right cover	199
Figure 92. Reinstalling the top right cover	200
Figure 93. Remove the top left cover mounting screws (1 of 2)	201
Figure 94. Remove the top left cover mounting screws (2 of 2)	201
Figure 95. Remove the top left cover	202
Figure 96. Reinstall the top left cover.	202
Figure 97. Remove the front doors.	203
Figure 98. Gain access to the fuser	204
Figure 99. Release the fuser door pistons	204
Figure 100. Remove the fuser door	205
Figure 101. Release the right lower door	206
Figure 102. Remove the right lower door assembly	206
Figure 103. Open the ITB door.	207
Figure 104. Remove the wire harness shield	207
Figure 105. Disconnect the ITB door wire harness	208
Figure 106. Gain access to the ITB door mounting screws	208
Figure 107. Remove the ITB door mounting screws	209
Figure 108. Remove the left back cover.	210

Figure 109. Remove the left lower cover mounting screws.	211
Figure 110. Remove the front left cover	211
Figure 111. Release the left lower cover tabs.	212
Figure 112. Remove the right back cover	213
Figure 113. Remove the back cover	214
Figure 114. Unclip the process cartridge door hinge pins.	215
Figure 115. Unlock the process cartridge door	215
Figure 116. Remove the process cartridge door hinge pins	216
Figure 117. Remove the process cartridge door.	216
Figure 118. Disconnect a laser/scanner assembly	217
Figure 119. Do not loosen the laser/scanner adjustment screws	217
Figure 120. Reinstall the laser/scanner assembly.	218
Figure 121. Cover the laser/scanners to prevent a light leak	219
Figure 122. Prepare to print a laser/scanner adjustment page.	220
Figure 123. Reading the laser/scanner adjustment page	221
Figure 124. Interpreting the laser/scanner adjustment page.	222
Figure 125. Laser/scanner adjustment page step 1	224
Figure 126. Placing the initial laser/scanner S-shims	225
Figure 127. Install the laser/scanner adjustment plate	225
Figure 128. Position the laser/scanner adjustment plate	226
Figure 129. Add or remove laser/scanner adjustment S-shims	226
Figure 130. Position the laser/scanner assembly	227
Figure 131. Tighten the laser/scanner assembly mounting screws	227
Figure 132. Reading the laser/scanner adjustment step 2 images	228
Figure 133. Laser/scanner adjustment page step 2	229
Figure 134. Remove the laser/scanner assembly mounting screws.	230
Figure 135. Remove the laser/scanner assembly shim retainers and shims	230
Figure 136. Add or remove the laser/scanner adjustment shims	231
Figure 137. Replace the laser/scanner adjustment shim retainers and shims	232
Figure 138. Tighten the laser/scanner assembly mounting screws	233
Figure 139. Print another laser/scanner adjustment page	234
Figure 140. Gain access to the delivery unit	235
Figure 141. Remove the left side front cover	235
Figure 142. Remove the delivery unit shields	236
Figure 143. Disconnect the delivery unit connectors.	236
Figure 144. Remove the delivery unit mounting screws (1 of 2)	237
Figure 145. Remove the delivery unit mounting screws (2 of 2)	237
Figure 146. Remove the delivery unit	238
Figure 147. Remove the delivery unit sensor	239
Figure 148. Gain access to the vertical feed unit	240
Figure 149. Remove the paper path access door	240
Figure 150. Gain access to the left side middle cover mounting screws.	241
Figure 151. Remove the left side middle cover mounting screws.	241
Figure 152. Remove the left side middle cover mounting bracket	242
Figure 153. Remove the vertical feed unit mounting screws.	242
Figure 154. Remove the vertical feed unit.	243
Figure 155. Gain access to the duplexer.	244
Figure 156. Remove the duplexer.	244
Figure 157. Unlock the fuser.	245
Figure 158. Remove the fuser.	245
Figure 159. Release the ITB	246
Figure 160. Open the ITB door	246
Figure 161. Slide the ITB out of the printer	247
Figure 162. Remove the ITB	247
Figure 163. Remove the right front cover	248
Figure 164. Remove the density and registration sensor mounting screws	248
Figure 165. Disconnect the density and registration sensor connector.	249
Figure 166. Unclip the density and registration sensor wire retainers.	249
Figure 167. Release the density and registration sensor assembly	250

Figure 168. Remove the density and registration sensor assembly.	250
Figure 169. Remove the right back fan	251
Figure 170. Remove the right front fan.	252
Figure 171. Remove the T2 cam access door	253
Figure 172. Remove the T2 bearing surface	253
Figure 173. Remove the T2 link cover	254
Figure 174. Remove the T2 cam spring.	254
Figure 175. Remove the T2 wire harness cover.	255
Figure 176. Remove the T2 link (1 of 2).	255
Figure 177. Remove the T2 link (2 of 2).	256
Figure 178. Remove the T2 assembly	257
Figure 179. Release the right lower door	258
Figure 180. Remove the right lower door	258
Figure 181. Remove the right front cover.	259
Figure 182. Open the ITB door.	259
Figure 183. Remove the wire harness shield	260
Figure 184. Disconnect the ITB door wire harness	260
Figure 185. Gain access to the ITB door mounting screws	261
Figure 186. Remove the ITB door	261
Figure 187. Remove the front lower right cover	262
Figure 188. Remove the vertical transfer unit.	262
Figure 189. Remove the right lower cover	263
Figure 190. Remove the paper path door stop.	263
Figure 191. Remove the tray guide mounting screws	264
Figure 192. Remove the tray guides	264
Figure 193. Disconnect the pickup unit connectors	265
Figure 194. Remove the pickup unit.	265
Figure 195. Remove the temperature and humidity sensor cover	266
Figure 196. Remove the temperature and humidity sensor	266
Figure 197. Remove the high-voltage power supply	267
Figure 198. Disconnect the low-voltage power supply	268
Figure 199. Remove the low-voltage power supply	268
Figure 200. Disconnect the registration assembly motor	269
Figure 201. Remove the registration assembly motor	269
Figure 202. Remove two wire harness covers	270
Figure 203. Gain access to the green ITB release lever	270
Figure 204. Lower the ITB release lever	271
Figure 205. Release the right back ITB lifting link	271
Figure 206. Remove the right back ITB lifting link	272
Figure 207. Disconnect the registration assembly connector.	272
Figure 208. Remove the registration assembly plate mounting screws	273
Figure 209. Remove the registration assembly plate (1 of 2).	273
Figure 210. Remove the registration assembly plate (2 of 2).	274
Figure 211. Remove the registration assembly mounting screws	274
Figure 212. Disconnect the registration assembly connectors.	275
Figure 213. Remove the registration assembly	275
Figure 214. Remove the delivery fan	276
Figure 215. Remove the fuser fan	277
Figure 216. Disconnect the P-crg drive assembly connectors	278
Figure 217. Remove the right back ITB lift link (1 of 2)	279
Figure 218. Remove the right back ITB lift link (2 of 2)	279
Figure 219. Disconnect the P-crg drive assembly	280
Figure 220. Remove the P-crg drive assembly mounting screws	280
Figure 221. Disconnect the T-crg drive assembly	282
Figure 222. Remove the T-crg drive assembly mounting screws.	283
Figure 223. Remove the fuser motor	284
Figure 224. Remove the fuser drive assembly mounting screws.	285
Figure 225. Disconnect the DC controller connectors	286
Figure 226. Remove the DC controller FFCs	286

Figure 227. Remove the DC controller mounting screws	287
Figure 228. Verify that the DC controller connectors and FFCs are connected properly	287
Figure 229. Remove the formatter PCB mounting screws	288
Figure 230. Remove the formatter PCB	288
Figure 231. Remove the formatter cage mounting screws	289
Figure 232. Unclip the formatter cage wire retainers	289
Figure 233. Unplug the formatter PCB connector	290
Figure 234. Remove the formatter cage mounting screws	290
Figure 235. Remove the high-voltage contact.	291
Figure 236. Disconnect the post charger connectors	292
Figure 237. Remove the cable shield	292
Figure 238. Remove the post charger mounting screw.	293
Figure 239. Remove the tray 1 pickup roller	294
Figure 240. Unhook the tray 1 separation pad	295
Figure 241. Remove the tray 1 separation pad.	295
Figure 242. Remove the left door switch cover.	296
Figure 243. Remove the left door switch mounting screws.	296
Figure 244. Remove the right door switch mounting screws.	297
Figure 245. Unhook the ITB sensor cable cover.	298
Figure 246. Disconnect the ITB sensor connector	298
Figure 247. Disconnect the upper left door sensor	299
Figure 248. Remove the fuser front paper sensor mounting screws.	300
Figure 249. Disconnect the fuser front paper sensor	300
Figure 250. Remove the fuser sensor PCA mounting screws.	301
Figure 251. Disconnect the fuser sensor PCA	301
Figure 252. Engine test button	321
Figure 253. Engine test print page	322
Figure 254. Sample configuration page	324
Figure 255. Sample supplies status page (1 of 2).	325
Figure 256. Sample supplies status page (2 of 2).	326
Figure 257. Sample usage page	327
Figure 258. Sample file directory page	328
Figure 259. Print-quality assessment page (1 of 2).	331
Figure 260. Print-quality assessment page (2 of 2).	332
Figure 261. Print-quality assessment page attributes	333
Figure 262. Color band test page	334
Figure 263. Engine test print page	335
Figure 264. Repeating marks (98 mm)	337
Figure 265. Repeating marks (45 mm)	338
Figure 266. Lines and bands.	341
Figure 267. Lines, streaks, or scratches appear parallel to feed direction (1 of 2)	344
Figure 268. Lines, streaks, or scratches appear parallel to feed direction (2 of 2)	345
Figure 269. Diagonal bands or lines	348
Figure 270. Light or faint image and dropouts.	350
Figure 271. Wavy brush marks	354
Figure 272. Color plane misregistration	355
Figure 273. Primary color covers entire page	357
Figure 274. Ghosted image (98 mm)	358
Figure 275. Ghosted image (140 mm)	359
Figure 276. Distorted or misplaced image.	361
Figure 277. Poorly fused image (1 of 2)	362
Figure 278. Poorly fused image (2 of 2)	363
Figure 279. Missing color plane	364
Figure 280. Blank	365
Figure 281. Hand or fingerprints	366
Figure 282. Fine, yellow dot background	367
Figure 283. Toner halos or explosions	368
Figure 284. Paper path jam sensors	373
Figure 285. Example of events on the event log.	387

Figure 286. Sample event log page	388
Figure 287. Sample Jetdirect page.	437
Figure 288. External covers and panels (1 of 2).	448
Figure 289. External covers and panels (2 of 2).	450
Figure 290. Left cover assembly	452
Figure 291. Right door assembly	453
Figure 292. Internal components (1 of 9)	454
Figure 293. Internal components (2 of 9)	456
Figure 294. Internal components (3 of 9)	458
Figure 295. Internal components (4 of 9)	460
Figure 296. Internal components (5 of 9)	462
Figure 297. Internal components (6 of 9)	464
Figure 298. Internal components (7 of 9)	466
Figure 299. Internal components (8 of 9)	468
Figure 300. Internal components (9 of 9)	470
Figure 301. Registration drive assembly	472
Figure 302. Process cartridge drive assembly (image drum drive)	473
Figure 303. Toner cartridge drive assembly (print cartridge drive).	474
Figure 304. Fuser drive assembly	476
Figure 305. Cassette assembly	478
Figure 306. Paper pickup assembly (1 of 3).	480
Figure 307. Paper pickup assembly (2 of 3).	482
Figure 308. Paper pickup assembly (3 of 3).	484
Figure 309. Manual feed pickup assembly (tray 1) (1 of 2)	486
Figure 310. Manual feed pickup assembly (tray 1) (2 of 2)	488
Figure 311. Registration assembly.	490
Figure 312. Secondary transfer assembly (T2) (1 of 2)	492
Figure 313. Secondary transfer assembly (T2) (2 of 2)	494
Figure 314. Delivery feed assembly	495
Figure 315. Face down delivery assembly.	496
Figure 316. Delivery cover assembly	497
Figure 317. Fuser assembly.	498
Figure 318. PCB assemblies	499
Figure 319. Tray 4 main body (1 of 2)	500
Figure 320. Tray 4 main body (2 of 2)	502
Figure 321. Tray 4 drive assembly.	504
Figure 322. Tray 4 PCA location	505

Product information

Product features	20
Product specifications	22
Identification	22
Specifications	22
Environmental specifications	23
Product overview	25
External assembly locations	25
Accessories	26
Space requirements	27
Printer with packaging	27
Printer physical dimensions	28
Setup	30
Media specifications	31
Guidelines for selecting media	31
Supported media and capacity for input and output	32
Recommended media	33
Special media specifications	35
Storing print media	39
Testing media specifications	39
Media assessment tools and suppliers	44



HP color LaserJet 9500n printer (C8546A)

The HP color LaserJet 9500n printer comes standard with a 128-MB RAM DIMM, wide-format printing capability, tray 1 (a 100-sheet multipurpose tray), tray 2 and tray 3 (500-sheet trays), and an HP Jetdirect print server.



HP color LaserJet 9500hdn printer (C8547A)

The HP color LaserJet 9500hdn printer comes standard with a 256-MB RAM DIMM, a 20-GB EIO hard disk, wide-format printing capability, tray 1 (a 100-sheet multipurpose tray), tray 2 and tray 3 (500-sheet trays), tray 4 (a 2,000-sheet feeder), an HP Jetdirect print server, and a duplexer (for printing on both sides of media).

Table 1. Features of the HP color LaserJet 9500 series printer

Up to 24 pages per minute (ppm) for letter- or A4-size media
Half-speed for glossy or heavy media
First page out in less than 17 seconds
Duplexes up to 24 sides per minute for letter- or A4-size media
600-by-600 dots per inch (dpi) with Resolution Enhancement technology (REt)
HP ImageRet 4800
Up to 256 levels of gray
Four no-pull-tab print cartridges
Four image drums
PostScript® (PS) Level 3 emulation with 35 built-in PS language fonts
HP printer command language (PCL) 6 driver
HP PCL 5c driver for compatibility with previous products
Printer job language (PJM)
Printer management language
80 scalable TrueType™ typefaces
Direct .pdf printing
Memory Enhancement technology (MEt) automatically compresses data to use RAM more efficiently
128 MB of RAM, expandable to 384 MB by using industry-standard 168-pin DIMM
Tray 1 supports up to 100 sheets or 10 envelopes for automatic and manual feeding of paper envelopes, labels, transparencies, custom-sized media (98 by 191 mm [3.8 by 7.5 in] to 312 by 470 mm [12.3 by 18.5 in]), and heavy paper
Tray 2 and tray 3 support up to 500 sheets of media
Tray 4 supports letter, legal, B4, A4, 11-by-17 inch, A3, executive, B5, and custom (182 by 210 mm [7.2 by 8.3 in] to 297 by 431.8 mm [11.7 by 17 in]) print media
Two-sided printing (duplex printing)
Wide-format printing
Glossy printing
Document finishing options (hdn model only)

Table 1. Features of the HP color LaserJet 9500 series printer (continued)

HP color LaserJet 9500 duplexer (standard in the 9500hdn model)
3,000-sheet stapler/stacker (for the 9500hdn model only)
3,000-sheet stacker (for the 9500hdn model only)
Multifunction finisher (for the 9500hdn model only)
Enhanced input/output (EIO) cards
DIMM slots for adding memory and fonts
Accepts a 10-GB hard disk for RIP Once capability, job retention features, and font storage (the hard disk is standard on the 9500hdn model)

Supports wireless printing with the installation of a Fast InfraRed Connect pod (IrDA compliant)
Wireless EIO card

Bidirectional ECP type-C parallel port (IEEE-1284 compliant)
Three EIO slots for installation of a hard-disk accessory or print server
Foreign interface connector
HP Jet-Link connector

HP 615N Jetdirect print server

200,000 images per month

Identification

A user-accessible label is located inside the right door of the print engine. The model number is alphanumeric, such as C8547A.

The serial number contains information about the country/region of origin and the revision level, production code, and production number of the printer. An example of a serial number is USBB123456.

The identification label also contains electrical information and regulatory information (see figure 1).

The electrical information and regulatory information vary by country/region.

Sample identification label

Specifications

Table 2. Out-of-box specifications

Specification	HP color LaserJet 9500n	HP color LaserJet 9500hdn
	887 mm (34.9 inches)	1,212 mm (47.8 inches)
	682 mm (26.9 inches)	682 mm (26.9 inches)
	767 mm (30.2 inches)	767 mm (30.2 inches)
	100 kg (221 lb)	130 kg (287 lb)
	174 kg (383 lb)	198 kg (436 lb)

Table 3. Packaged specifications

Specification	HP color LaserJet 9500n	HP color LaserJet 9500hdn
	1,313 mm (51.7 inches)	1,488 mm (58.6 inches)
	1,200 mm (47.2 inches)	1,200 mm (47.2 inches)

Table 3. Packaged specifications

Specification	HP color LaserJet 9500n	HP color LaserJet 9500hdn
	1,022 mm (40.2 inches)	1,022 mm (40.2 inches)

Table 4. Power requirements and circuit capacity

	110-volt models	220-volt models
	100 to 127 V (+/- 10%) 50 to 60 Hz (+/- 2 Hz)	220 to 240 V (+/- 10%) 50 to 60 Hz (+/- 2 Hz)
	15.0 Amps (dedicated circuit)	10.0 Amps (dedicated circuit)

Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. This can damage the printer and void the product warranty.

Table 5. Power consumption

Printer state	HP color LaserJet 9500n	HP color LaserJet 9500hdn
Printing (24 ppm)	722 W	741 W
Standby (Ready)	171 W	173 W
Low PowerSave (ENERGY STAR®)	69 W	69 W
High PowerSave (Blue Angel)	32 W	32 W
Off	<2 W	<2 W

Environmental specifications

The environmental specifications must be maintained to ensure the proper operation of the printer. Consider the following points before installing the printer:

Install the printer in a well-ventilated, dust-free area.

Install the printer on a level, flat surface that can support its size and weight. Do not install on carpet or on other soft surfaces. Make sure that all four printer feet are level.

Install the printer where temperature and humidity are stable, with no abrupt changes (away from water sources, humidifiers, air conditioners, refrigerators, or other major appliances).

Install the printer away from direct sunlight, areas that experience vibration, open flames, ammonia fumes, ultrasonic heaters, and devices that emit a magnetic field. If the printer is placed near a window, make sure that the window has a curtain or blind to block direct sunlight.

Maintain enough space around the printer for proper access and ventilation.

Table 6. Environmental specifications

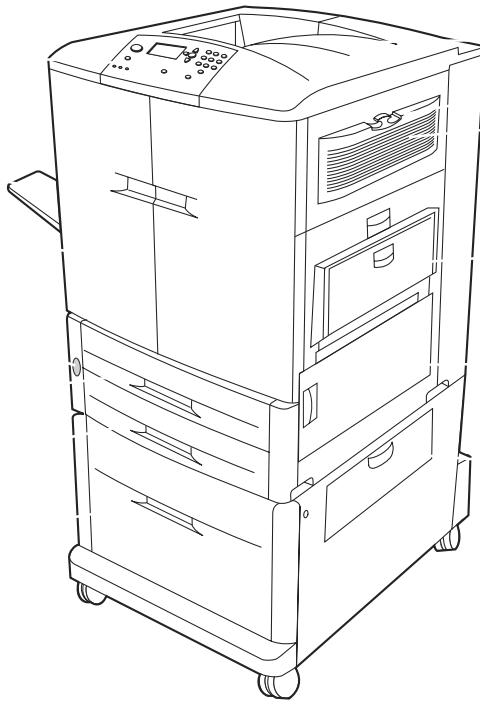
	Allowable condition	Recommended condition
	10° to 30° Celsius (C) (50° to 86° Fahrenheit [F])	20° to 26° C (68° to 79° F)
	10 to 80 percent	20 to 50 percent
	15° to 30° C (59° to 86° F)	20° to 26° C (68° to 79° F)
	5 percent to 95 percent	5 percent to 95 percent

Table 7. Noise level specifications

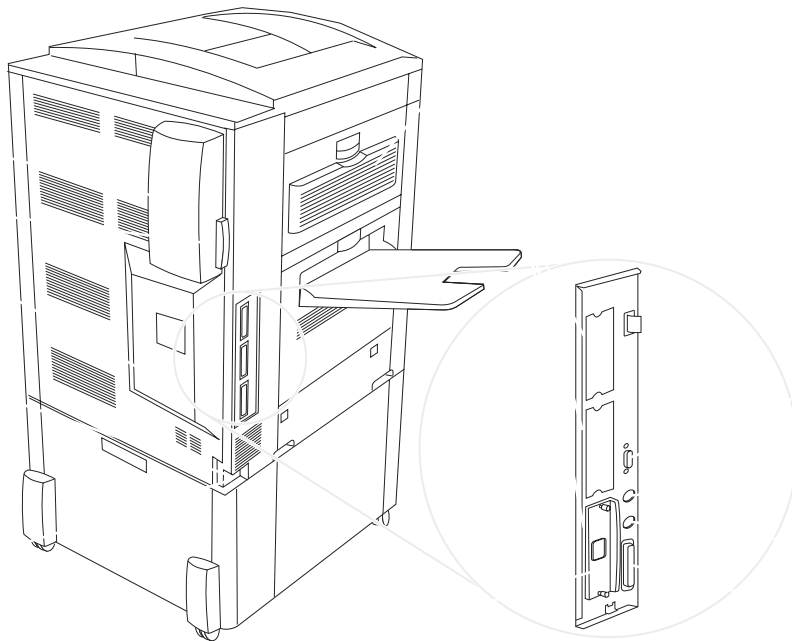
Acoustics	Printing (24 ppm)	PowerSave
	$L_{WA} = 67 \text{ dB(A)}$	essentially inaudible
	$L_{pA} = 50 \text{ dB(A)}$	essentially inaudible

Testing per International Standards Organization (ISO) 9296.

External assembly locations

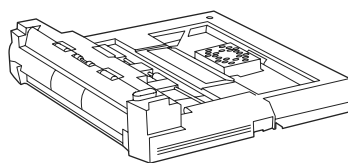
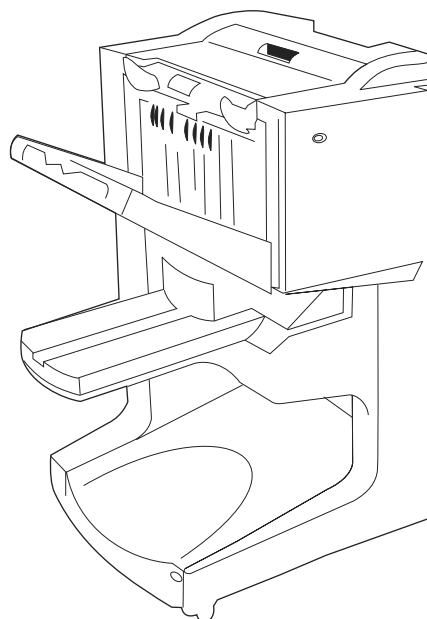
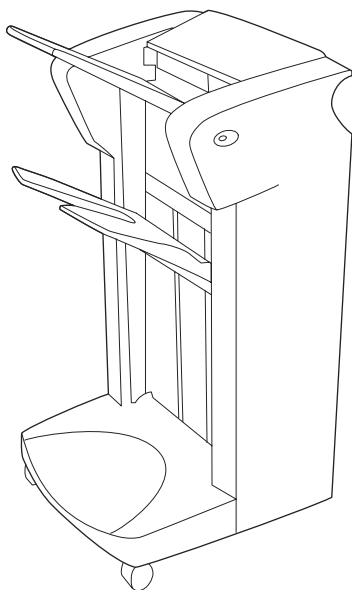


Front and right side assembly locations



Back and left side assembly locations

Accessories



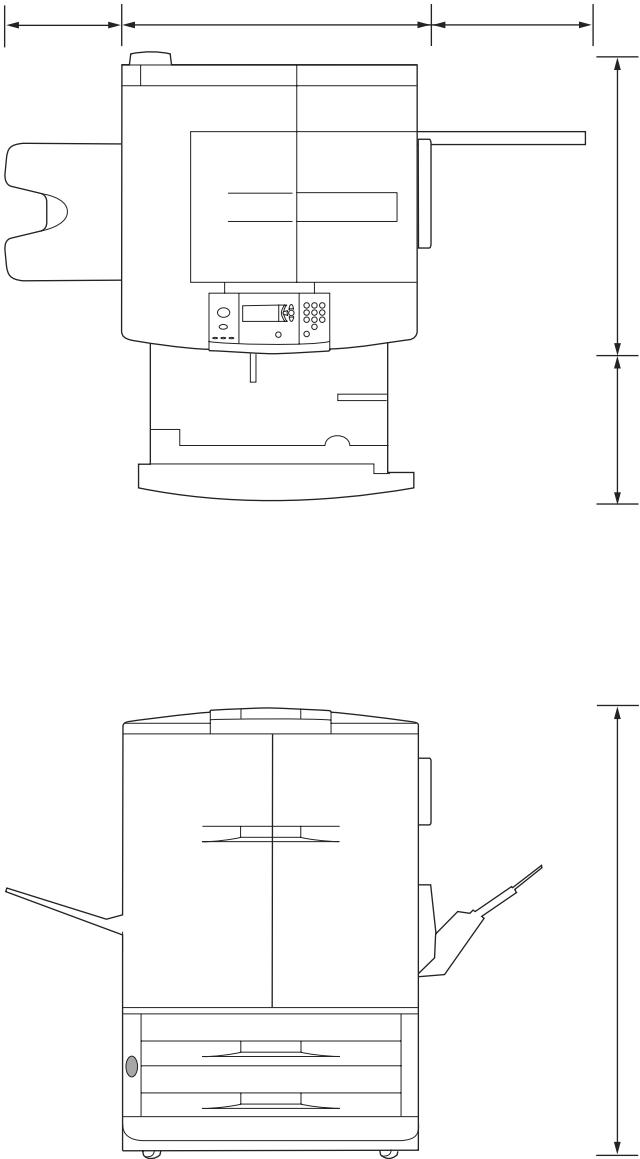
Accessories

Printer with packaging

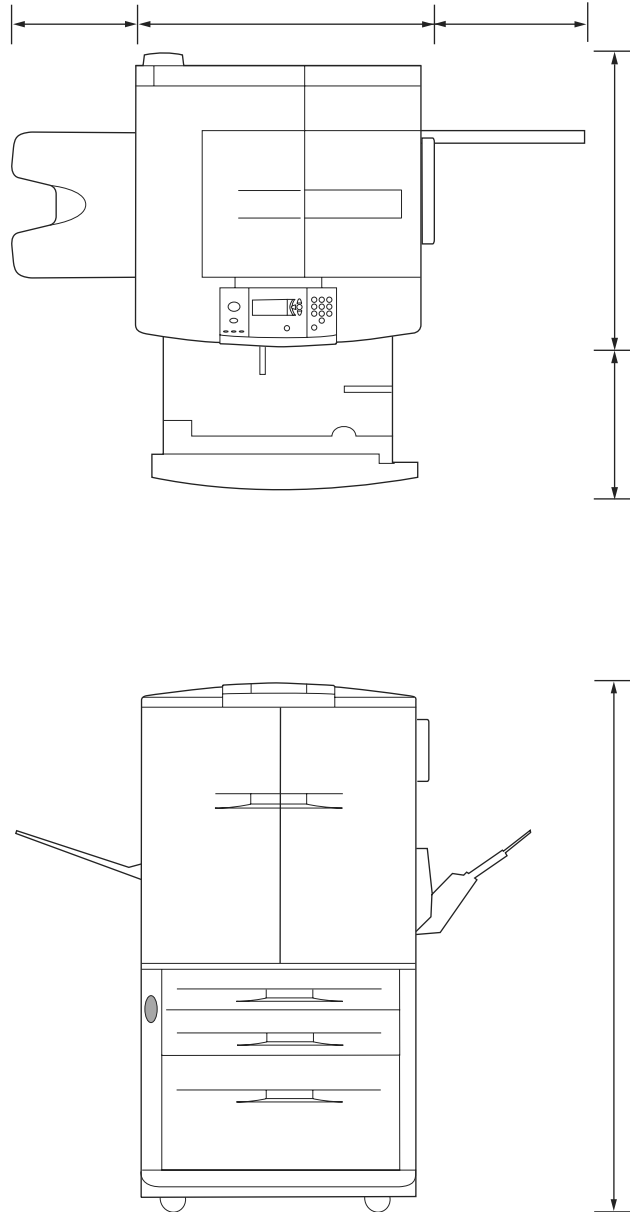
The shipping box that contains the HP color LaserJet 9500 series printer is 1,200 mm (47.2 inches) wide and 1,022 mm (40.2 inches) deep. The shipping box that contains the HP color LaserJet 9500n is 1,313 mm (51.7 inches) high, and the shipping box that contains the HP color LaserJet 9500hdn is 1,488 mm (58.6 inches) high. The in-box weight of the HP color LaserJet 9500n is 174 kg (383 lb), and the in-box weight of the HP color LaserJet 9500hdn is 198 kg (436 lb). The customer must locate a door or receiving area that is large enough to accept delivery of the shipping box.

Before removing the printer from the box, make sure that adequate space is available to unpack the printer and to roll the product off of the shipping pallet. At least 10 feet of clearance around the box is required to remove all of the shipping materials.

Printer physical dimensions



HP color LaserJet 9500n printer dimensions (top and front views)



HP color LaserJet 9500hdn printer dimensions (top and front views)

The initial printer setup includes the following steps:

Remove the printer from the box.

Set up and install the printer. See the *HP color LaserJet 9500 User Reference Guide* at <http://www.hp.com/support/lj9500>.

Set up and install the finishing device (for the 9500hdn only). See the install guide that came with the finishing device.

The shipping box contains the following items:

HP color LaserJet 9500 series printer

One power cord

Control panel overlay

Consumables box

- Four print cartridges
- Four image drums
- One image cleaning blade
- One toner collection bottle

Printer software on CD-ROM (includes the *HP color LaserJet 9500 User Reference Guide*)

Start guide

The finishing device is delivered in a separate box (optional for the 9500hdn model only).

The HP color LaserJet 9500hdn is delivered with the duplexer, hard disk, network card, and tray 4 installed.

Before purchasing large quantities of print media, make sure that it meets the requirements specified in this service manual and in the *HP color LaserJet 9500 User Reference Guide*. Always test the print media before buying large quantities.

Hewlett-Packard neither warrants nor recommends the use of a particular brand of paper or print media other than HP media. Media properties are subject to manufacturing changes, and HP has no control over such changes. Although testing the media helps to characterize the performance and the manufacturer's process quality, the customer assumes all responsibility for the quality and performance of media.

Using print media that does not meet HP specifications might cause problems for the printer, requiring repair. Such repair is not covered by the Hewlett-Packard warranty or service agreements.

The HP color LaserJet 9500 series printers accept a variety of media, such as cut-sheet paper (including up to 100 percent recycled fiber-content paper), envelopes, labels, transparencies, and custom-size paper. Properties such as weight, composition, grain, and moisture content are important factors affecting printer performance and output quality. Media that does not meet the guidelines outlined in this manual and in the print media guide can cause the following problems:

- poor print quality
- increased jams
- premature wear on the printer, requiring repair

Guidelines for selecting media

This printer accepts a variety of media, such as cut-sheet paper (including recycled paper), envelopes, labels, transparencies, and custom-size paper. Properties such as weight, grain, and moisture content are important factors that affect printer performance and print quality.

Selecting media by type and size at the control panel and in the printer driver results in significantly better print quality for heavy paper and glossy paper. Using the wrong setting can result in unsatisfactory print quality. Always print by type for special print media such as labels or transparencies. Always print by size for envelopes.

The printer can use a variety of paper and other print media in accordance with the guidelines in this manual. Paper that does not meet these guidelines can cause the following problems:

- poor print quality
- media jams and multiple-sheet feeds
- premature wear on the printer, requiring repair

Some print media might meet all of the guidelines in this manual and still not produce satisfactory results. This might be the result of improper handling, unacceptable temperature and humidity levels, or other variables over which HP has no control.

If you are unsure what type of paper you are loading (such as bond or recycled), check the label on the package of paper.

See "Basis weight field test" on page 40 for information about measuring basis weight.

See "Caliper field test" on page 42 for information about measuring caliper.

See "Paper finish field test" on page 42 for information about smoothness.

Do not purchase more media than can be easily used in a short time (about 3 months). Media that is stored for long periods experiences heat and moisture extremes that can be damaging. Planning is important to prevent damage to a large supply of media.

Supported media and capacity for input and output

The leading edge is listed first in the dimension measurements.

Table 8. Supported standard media sizes

Printing task	Tray 1	Tray 2 and tray 3	Tray 4
Simplex, and manual and auto duplex	letter, legal, executive, ISO A3, ISO A4, ISO A5, 11 by 17, JIS B5, JIS B4, JPostD, 8K, 16K	letter, legal, executive, ISO A3, ISO A4, ISO A5, JIS B4, JIS B5, 11 by 17	letter, legal, executive, ISO A3, ISO A4, 11 by 17, JIS B4, JIS B5

Table 9. Maximum custom sizes

Printing task	Tray 1	Tray 2 and tray 3	Tray 4
Simplex, and manual and auto duplex	306 by 470 mm (12.05 by 18.5 inches)	297 by 432 mm (11.7 by 17 inches)	297 by 432 mm (11.7 by 17 inches)

Table 10. Minimum custom sizes

Printing task	Tray 1	Tray 2 and tray 3	Tray 4
Simplex and manual duplex	98 by 170 mm (3.9 by 6.7 inches)	148 by 210 mm (5.8 by 8.3 inches)	182 by 210 mm (7.2 by 8.3 inches)
Auto duplex	148 by 210 mm (5.8 by 8.3 inches)	148 by 210 mm (5.8 by 8.3 inches)	182 by 210 mm (7.2 by 8.3 inches)

Table 11. Supported media weights

Printing task	Tray 1	Tray 2 and tray 3	Tray 4
Simplex and manual duplex	64 to 220 g/m ² (17- to 58-lb bond)	64 to 200 g/m ² (17- to 53-lb bond)	64 to 200 g/m ² (17- to 53-lb bond)
Auto duplex	64 to 200 g/m ² (17- to 53-lb bond)	64 to 200 g/m ² (17- to 53-lb bond)	64 to 200 g/m ² (17- to 53-lb bond)

Table 12. Input tray capacities

Type of media	Tray 1	Tray 2 and tray 3	Tray 4
Cut sheets	up to 100 sheets (10 mm total height, 5 mm total height for media that is 200 g/m ² [53-lb bond] or heavier)	Up to 500 sheets	Up to 2,000 sheets
Envelopes	up to 10 envelopes (10 mm total height)	Not supported	Not supported

Table 13. Output bin capacities

Bin	75 g/m ² (20-lb bond)	Transparencies
Top bin (face down)	up to 500 sheets	Up to 50 sheets
Left bin (face up)	up to 100 sheets	Up to 10 sheets

Do not use paper that is heavier than 200 g/m² (53-lb bond) for duplex printing. Damage to the printer and jams might result.

Recommended media

The media types that are listed in the following table meet these criteria:

- They have been tested in this printer.
- They have proven to be of good quality.
- They work well with the printer's settings.

Ordering recommended media

The product numbers for media are listed in parentheses after the media sizes. Use these product numbers when ordering media.

All of the HP-brand media is available at [HP Store Direct](#) or from your local office supplies retailer.

The printer supports the StoraEnso paper that is listed in the table. It is available through your local office products supplier.

Note Set the type at the control panel when you load the trays, and in the printer driver when you print your print job.

Table 14. Recommended media

Recommended media	Type	Characteristics
HP High Gloss Laser Paper letter (Q2419A) 11 by 17 (tabloid) (Q2420A) A4 (Q2421A) A3 (Q2422A)	HP HEAVY GLOSSY	120 g/m ² (32-lb bond), 200 sheets, high-gloss finish coating on both sides, 95 bright Use for: brochures, catalogs, business plans, photographs, and images
HP Premium Cover Paper letter (Q2413A) A4 (Q2414A)	CARDSTOCK >164 g/m ²	200 g/m ² (75-lb cover), 100 sheets, super-smooth matte finish on both sides, 96 bright Use for: postcards and document covers
HP Color Laser Paper letter (HPL245R) 11 by 17 (tabloid) (HPL2417)	PLAIN	90 g/m ² (24-lb bond), 500 sheets, smooth matte finish on both sides, 96 bright Use for: newsletters and color documents
HP Color Laser Paper 105 g/m ² (28-lb bond) letter (HPL285R) 11 by 17 (tabloid) (HPL2817)	PLAIN	105 g/m ² (28-lb bond), 500 sheets, smooth matte finish on both sides, 96 bright Use for: newsletters and color documents
HP Soft Gloss Laser Paper letter (C4179A) A4 (C4179B) Note HP Soft Gloss Laser Paper is designed specifically for use with the HP color LaserJet 9500 series printers.	HP HEAVY GLOSSY	120 g/m ² (32-lb bond), 200 sheets, satin finish coating on both sides, 96 bright Use for: flyers, handouts, sales briefs, proposals, and color images

Table 14. Recommended media (continued)

Recommended media	Type	Characteristics
HP Soft Gloss LaserPaper 105 g/m ² (28-lb bond) letter (Q2415A) 11 by 17 (tabloid) (Q2416A) A4 (Q2417A) A3 (Q2418A)	GLOSSY 75-105 g/m ²	105 g/m ² (28-lb bond), 500 sheets, satin finish coating on both sides, 96 bright Use for: flyers, handouts, sales briefs, proposals, and color images
HP Premium Choice LaserJet Paper letter (HPU1132) 11 by 17 (tabloid) (HPU1732) A4 (CHP410) A4 (Asia) (Q2397A) A3 (Asia) (Q2396A)	HEAVY 106-163 g/m ²	120 g/m ² (32-lb bond), 500 sheets (250 sheets for 11 by 17), matte finish on both sides, 98 bright Use for: proposals and charts
HP Premium Choice LaserJet Paper 160 g/m ² (42-lb bond) A4 (Europe) (CHP413) A3 (Europe) (CHP421)	HEAVY 106-163 g/m ²	160 g/m ² (42-lb bond), 250 sheets, matte finish on both sides 98 bright Use for: proposals and charts
HP LaserJet Paper letter (HPJ1124) 3-hole prepunched (HPJ113H) legal (HPJ1424) 11 by 17 (tabloid) (HPJ1724) A4 (Europe) (CHP310)	PLAIN	90 g/m ² (24-lb bond), 500 sheets, matte finish on both sides, 96 bright Use for: reports, user manuals, letterhead, and correspondence
HP Office Recycled Paper letter (HPE1120) 3-hole prepunched (HPE113H) legal (HPE1420)	PLAIN	75 g/m ² (20-lb bond), 500 sheets, matte finish on both sides, contains 30 percent post-consumer content (satisfies U.S. Executive Order 13101), 87 bright Use for: training manuals and general office printing
HP Tough Paper letter (Q1298A) A4 (Q1298B)	TOUGH PAPER	5 mil thick (approximately 44-lb bond equivalent), 50 sheets, satin finish coating on both sides, waterproof, tearproof Use for: signs, maps, restaurant menus, waterproof documents, and tearproof documents
HP Color LaserJet Transparencies letter (C2934A) A4 (C2936A)	TRANSPARENCY	5 il thick, 50 sheets, premium coated both sides Use for: transparencies
StoraEnso Futura Laser Cover 11 by 17 (01109)	NON HP HEAVY GLOSSY	163 g/m ² (60-lb cover), 250 sheets, coated, premium white Use for: document cover

Table 15. Media weight, finish, and type

Weight	Finish	Type
Less than 75 g/m ² (20-lb bond)	any	LIGHT<75 g/m
75 g/m ² (20-lb bond) to 105 g/m ² (28-lb bond)	matte	PLAIN
75 g/m ² (20-lb bond) to 105 g/m ² (28-lb bond)	glossy	GLOSSY 75-105 g/m
106 g/m ² (29-lb bond) to 163 g/m ² (43-lb bond)	matte	HEAVY 106-163 g/m
106 g/m ² (29-lb bond) to 163 g/m ² (43-lb bond)	glossy	HP HEAVY GLOSSY (if using HP-brand media) NON HP HEAVY GLOSSY (if using non-HP-brand media)
164 g/m ² (44-lb bond) and heavier	any	CARDSTOCK>164 g/m

Special media specifications

Envelope specifications

Successful printing on envelopes depends upon the quality of the envelopes. Envelope fold lines can vary considerably, not only between manufacturers, but also within a box from the same manufacturer. When selecting envelopes, consider the following components:

Construction: Prior to printing, envelopes should lie flat with less than 6 mm (0.25 inch) curl, and have well-constructed seams.

Condition: Envelopes should not be wrinkled, nicked, or otherwise damaged.

Temperature: Envelopes should be compatible with the heat and pressure produced by the printer.

Sample seams

Print on envelopes from tray 1 only. Send envelopes straight through the printer, entering at tray 1 and exiting from the face-up bin.

For the best print quality, position margins no closer than 15 mm (0.6 inch) from the edges of the envelope. Avoid printing over the area where the envelope seams meet.

Envelopes with adhesive strips or multiple flaps

Envelopes with a peel-off adhesive strip, or with more than one flap that folds over to seal, must use adhesives that are compatible with the heat and pressure of the printer. The extra flaps might cause wrinkling, creasing, or jams.

Label specifications

To avoid damaging the printer, use only labels that are recommended for laser printers. Never print on the same sheet of labels more than once and never print on a partial sheet of labels.

When selecting labels, consider the quality of each component:

Adhesives: The adhesive material should be stable at 200° C (392° F), which is the printer fusing temperature.

Arrangement: Do not use labels that have exposed backing between them. Labels can peel off sheets with spaces between the labels, causing jams.

Curl: Prior to printing, labels must lie flat with no more than 13 mm (0.5 inch) of curl in any direction.

Condition: Do not use labels that have wrinkles, bubbles, or other indications of separation.

Use only tray 1 to print on labels. Send labels straight through the printer, entering at tray 1 and exiting from the face-up bin.

Adhesive labels

Card stock construction

When selecting card stock, consider the quality of each component:

Smoothness: 135- to 220-g/m² (36- to 58-lb bond) card stock should have a smoothness rating of 100 to 180 Sheffield.

Curl: Card stock should lie flat with less than 5 mm (0.2 inch) of curl.

Condition: Make sure that the card stock is not wrinkled, nicked, or otherwise damaged.

Size: See “Supported media and capacity for input and output” on page 32.

Weight: Card stock of 200 g/m² (53 lb) or less can be loaded in any tray. Card stock heavier than 200 g/m² (53 lb) must be printed from tray 1.

When printing on card stock, make sure to set the `CARDSTOCK` type at the control panel when you load the tray, and in the printer driver when you print your print job.

Transparency specifications

To avoid damaging the printer, use only transparencies that are recommended for use in color laser printers.

Construction: Prior to printing, transparencies should lie flat with less than 10 mm (0.39 inch) curl.

Condition: Transparencies should not be wrinkled, nicked, or otherwise damaged.

Temperature: Transparencies should be stable at 190° C (374° F), which is the printer fusing temperature.

Size: 5 mm thick (0.005 inch)

If problems occur while printing on transparencies, use tray 1. Send transparencies straight through the printer, entering at tray 1 and exiting from the face-up bin.

Transparencies used in the printer must be able to withstand 190° C (374° F), the printer fusing temperature.

Preprinted forms and special letterhead

Many preprinted forms and special letterhead papers perform well in HP LaserJet printers. However, these papers undergo processes that alter their original characteristics, and care must be taken to ensure they conform to HP specifications. All special papers should be wrapped in moisture-proof wrapping when purchased from the paper converter or printing house.

Forms and letterhead must be printed with inks that conform to the following specifications:

Only use ink that is heat-resistant, and that will not melt, scorch, or release hazardous emissions when subjected to 200° C (392° F) for 0.1 second.

Inks must have resistance to silicon oils, and must not be affected by resin components in toner.

Inks must not be flammable.

Inks must not “offset” (transfer from the printed paper onto the printer, contaminating internal printer components). The principle cause of offset is ink that is not fully dried or that cannot withstand the printer fusing temperature.

Do not use forms or letterhead that was produced by using low-temperature inks (the kind used with thermography).

Embossed media

Embossed media is not recommended for use in HP LaserJet printers. Media is embossed by stamping an image into the media by compressing the media fibers together at approximately 200° C (392° F), and sometimes by applying a thin metal foil to the surface. The printer fusing process can loosen the foil; loose foil can interfere with the mechanical and electronic operation of the printer.

Embossed paper, with or without foil, can also cause multifeed jams. Multiple embossed print media sheets tend to stick to one another.

Glossy media

Keep these considerations in mind when selecting or printing on glossy media:

Print quality can vary with the media used. For best results, use HP-brand glossy media.

When using media that has only one glossy side, make sure to orient the media so that the printer prints on the glossy side.

When printing on glossy media that is between 75 g/m² (20-lb bond) and 105 g/m² (28-lb bond) in weight, make sure to set the `GLOSSY` type at the control panel when you load the tray, and in the printer driver when you print your print job.

When printing on HP-brand glossy media that is between 106 g/m² (29-lb bond) and 163 g/m² (43-lb bond) in weight, make sure to set the `HP HEAVY GLOSSY` type at the control panel when you load the tray, and in the printer driver when you print your print job.

When printing on non HP-brand glossy media that is between 106 g/m² (29-lb bond) and 163 g/m² (43-lb bond) in weight, make sure to set the `NON HP HEAVY GLOSSY` type at the control panel when you load the tray, and in the printer driver when you print your print job.

Media with cutouts or perforations

Avoid media with cutouts or perforations for these reasons:

Cut fibers absorb more moisture and can increase waviness and media curl. This decreases the print quality near the cutout or perforated area.

Cutting knives leave a sharp edge on the cutout or perforation. If the sharp edge is facing the print cartridge drum during printing, it can scratch the drum surface.

If printing occurs over a cutout hole, the transfer roller is contaminated with unused toner, creating light streaks on the paper.

Chemically treated media

Coatings such as lacquers, polymers, laminations, or other chemicals protect the paper, but can cause problems in the fuser and transfer areas of HP LaserJet printers. The surface resistivity and moisture content can be greatly altered, resulting in print-quality problems. Hard surface coatings increase wear on the rollers and media guides. All chemically treated media must meet Hewlett-Packard specifications for fusing compatibility.

Synthetic media

Synthetic media (those manufactured from man-made fibers) do not perform as well as bond media in any printer, especially HP LaserJet printers. All synthetic media must meet Hewlett-Packard specifications, especially for caliper and fusing compatibility.

Other special media

Non-standard sizes. Check minimum and maximum supported sizes on page 32.

Carbonless media. Carbonless media (NCR) is not supported by HP LaserJet printers.

Recycled media. Choose recycled media that meets Hewlett-Packard specifications. Note that recycled media might not be as bright as indicated in the specifications. Hewlett-Packard recommends that recycled media contain no more than 5 percent groundwood. See “Testing media specifications” on page 39.

Storing print media

Ideally, the printing and media storage environment should be at or near room temperature, and should not be too dry or too humid. Remember that paper is hygroscopic; it absorbs and loses moisture rapidly.

Heat works with humidity to damage paper. Heat causes the moisture in paper to evaporate, while cold causes it to condense on the sheets. Heating systems and air conditioners remove most of the humidity from a room. As a paper package is opened and used, it loses moisture, causing streaks and smudging. Humid weather or water coolers can cause the humidity in a room to increase. As a package of paper is opened and used, it absorbs any excess moisture, causing light print and dropouts. Also, as paper loses and gains moisture, it can distort. This can cause jams.

Therefore, paper storage and handling are as important as the paper-making process itself. Paper storage environmental conditions directly affect the feed operation.

Users should not purchase more paper than can easily be used in a short time (about three months). Paper stored for long periods might experience heat and moisture extremes, which can cause damage. Planning is important to prevent damage to a large supply of paper.

Unopened paper in sealed packages can remain stable for several months before use. Opened packages of paper have more potential for environmental damage, especially if they are not wrapped with a moisture-proof barrier.

The paper storage environment should be correctly maintained to ensure optimum printer performance. The required condition is 20° to 24° C (68° to 75° F), with a relative humidity of 45 percent to 55 percent. The following guidelines should be helpful when evaluating the paper's storage environment:

- Paper should be stored at or near room temperature.

- The air should not be too dry or too humid (because of the hygroscopic properties of paper).

- The best way to store an opened package of paper is to rewrap it tightly in its moisture-proof wrapping. If the printer environment is subject to extremes, unwrap only the amount of paper to be used during the day's operation to prevent unwanted moisture changes.

Envelope storage

Proper storage of envelopes contributes to good print quality. Envelopes should be stored flat. If air is trapped in an envelope, and creates an air bubble, then the envelope might wrinkle during printing.

Testing media specifications

The following tests describe ways to evaluate media with respect to the specifications listed in this manual, and the *HP LaserJet Printer Family Print Media Guide*. See “Media assessment tools and suppliers” on page 44 for help obtaining the tools that are needed to perform these tests.

Basis weight field test

The basis weight should be indicated on the package label. If the label is not available, a simple field test can determine the basis weight of paper. The basis weight of paper is equal to the weight of 2,000 sheets of paper, or about four full packages. Weigh a full package on a postal scale and then multiply that weight by four. Or weigh 10 sheets of paper, divide that weight by 10, multiply by 2,000, and then divide by 16.

10 sheets weigh 1.6 ounces ÷ 10
 0.16 ounce x 2,000 = 320 ounces
 320 ounces ÷ 16 ounce/lb = 20 lb paper (letter only)

Table 16. Determining basis weight of paper

Amount	Formula
Four packages	weight = basis weight
One package	weight x 4 = basis weight
10 sheets	(weight divided by 10) x 2,000 and then divided by 16 = basis weight

Metric sizes

For metric-size paper (A4), use the following method to determine basis weight.

Take 16 sheets of A4 paper and weigh them. One square meter of paper contains approximately 16 A4 size sheets. Compare this weight to the appropriate weight in the paper weight equivalence table.

Paper weight equivalence table

Use this table to determine approximate equivalent points in weight specifications other than U.S. bond weight. For example, to determine the equivalent of 20 lb U.S. bond-weight paper in U.S. cover-weight paper, locate the bond weight (in row 3, second column) and scan across the row to the cover weight (in the fourth column). The equivalent is 28 lb. Shaded areas indicate a standard weight for that grade.

Table 17. Paper weight equivalence

U.S. post-card thickness (mm)	U.S. bond weight (lb)	U.S. text/book weight (lb)	U.S. cover weight (lb)	U.S. bristol weight (lb)	U.S. index weight (lb)	U.S. tag weight (lb)	Europe metric weight (g/m ²)	Japan metric weight (g/m ²)
	17	43	24	29	35	39	64	64
	20	50	28	34	42	46	75	75
	21	54	30	36	44	49	80	80
	22	56	31	38	46	51	81	81
	24	60	33	41	50	55	90	90
	27	68	37	45	55	61	100	100
	28	70	39	49	58	65	105	105
	32	80	44	55	67	74	120	120
	34	86	47	58	71	79	128	128
	36	90	50	62	75	83	135	135
0.18	39	100	55	67	82	91	148	148
0.19	42	107	58	72	87	97	157	157
0.20	43	110	60	74	90	100	163	163

Table 17. Paper weight equivalence (continued)

U.S. post-card thickness (mm)	U.S. bond weight (lb)	U.S. text/book weight (lb)	U.S. cover weight (lb)	U.S. bristol weight (lb)	U.S. index weight (lb)	U.S. tag weight (lb)	Europe metric weight (g/m ²)	Japan metric weight (g/m ²)
0.23	47	119	65	80	97	108	176	176
	53	134	74	90	110	122	199	199
	54	137	75	93	113	125	203	203
	58	146	80	98	120	133	216	216
	65	165	90	111	135	150	244	244
	66	169	92	114	138	154	250	250
	67	171	94	115	140	155	253	253
	70	178	98	120	146	162	264	264
	72	183	100	123	150	166	271	271

The U.S. postcard measurements are approximate. Use for reference only.

Caliper field test

The specified caliper differs according to the type of media used. Caliper can be measured in the field by using a micrometer.

Never use the coarse adjustment end of the micrometer when measuring for caliper. The coarse adjustment will compress the paper fibers, resulting in an inaccurate reading. For example, if the fibers are compressed, 6 mm (0.24 inch) paper could measure as little as 3 mm (0.12 inch). Always use the fine adjustment to measure caliper.

Using the fine adjustment, slide the micrometer along the edge of the paper and measure at one end. To double-check the accuracy of the reading, always measure again at the opposite end of the paper.

Paper finish field test

Paper finish, or smoothness, can be accurately measured with a Sheffield meter. If this tool is not available, a new U.S. dollar bill can be used as a benchmark for comparing paper texture. A dollar bill has a finish of 350 Sheffields. If paper feels rougher than a dollar bill, it is recommended that users do not continually use this paper in the printer.

Moisture content field test

Specification: Use paper with 4 percent to 6 percent moisture content.

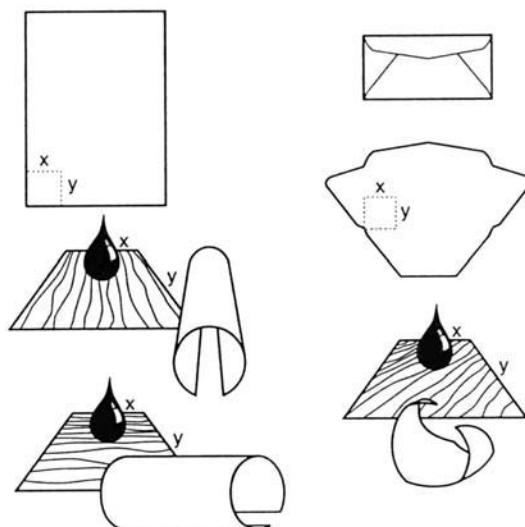
A package or a sheet of paper can be measured with a moisture meter. In general, only evaluate customer storage environment when trying to determine if excess moisture or dryness is the cause of a problem with paper.

Grain field test

Grain direction is usually specified on the package label (written out “long” or “short”). The paper dimensions listed on the label also indicate grain direction. For example, short-grain letter-size paper labels are marked “11 by 8.5,” and long-grain paper labels are marked “8.5 by 11.”

If grain direction is not included on the package label, it can be determined by a simple wet test. Cut a small square from the corner of a sheet of paper, wet it, and observe the manner in which it curls.

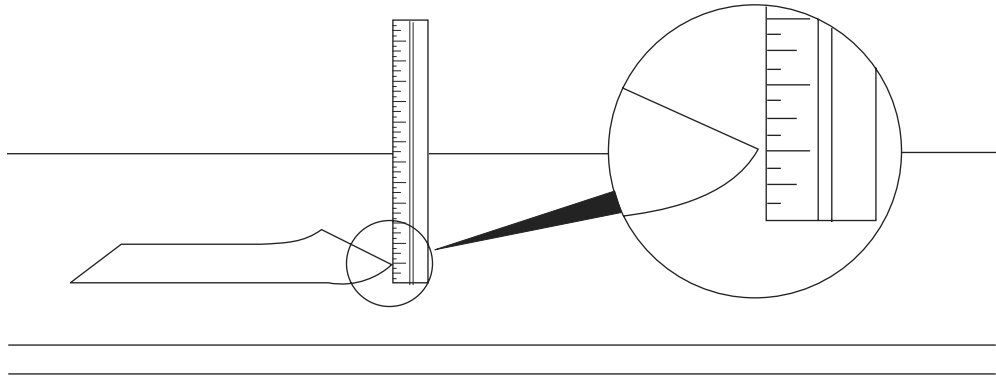
Envelopes should have a diagonal grain, which gives them the best stability. To determine this, cut a square section from one corner of an envelope. Wet this section and observe the manner in which it curls. On diagonal grain envelopes, the two opposite corners will curl toward each other.



Long, short, and diagonal grain curl

Curl field test

To check for paper curl, place a single sheet of paper on a flat surface and measure curl at the greatest deflection, holding a ruler perpendicular to the flat surface.



Measuring curl

Cut edge condition field test

The condition of the cut edge can be easily observed with an eye loop. Under magnification, a good edge will appear even. A poorly cut edge will show fraying, jagged edges, compressed fibers, and other damage.

Furnish (fiber composition) field test

Use paper made from 100 percent chemical wood pulp and/or cotton fiber. Recycled paper made with no more than 5 percent groundwood is also acceptable.

Read the package label to determine the fiber composition of the paper. Paper is usually specified as xerographic bond (suitable for copiers or laser printers) or cotton bond. Cotton bond paper of 25 percent, 50 percent, or 100 percent will be indicated on a watermark. If paper is less than 25 percent cotton bond, the watermark will not indicate a percentage. A wood pulp test kit can also be used to test fiber composition.

Fusing compatibility field test

Inspect the rollers for colored ink buildup from preprinted logos or letterhead, and for toner buildup or spots. Inspect printed output for repetitive defects and smearing. If necessary, have users contact the forms vendor to ensure paper fusing compatibility with HP LaserJet printers.

Hewlett-Packard neither warrants nor recommends a particular manufacturer, supplier, or tool. Products are subject to change, and HP has no control over such changes. However, the following table of tools and their suppliers is provided for convenience.

Table 18. Tools and suppliers

Tool	Part Number	Supplier Address
	2RRDMP	Mitchell Instrument 1570DDD Cherokee St. San Marcos, CA 92069-2433
	2R43E	Mitchell Instrument 1570DDD Cherokee St. San Marcos, CA 92069-2433
	#3T331	Industrial Motor Service 2000 Albright Montgomery, IL 60538
	TM 58-25-01	TMI Testing Machines Inc. 400 Bayview Avenue Amityville, NY 11701 (516) 842-5400
	TM 58-25-02	TMI Testing Machines Inc. 400 Bayview Avenue Amityville, NY 11701 (516) 842-5400
	4280-2	Shape Products 1127 57th Avenue Oakland, CA 94621 (800) 444-0015
	4360-2	Shape Products 1127 57th Avenue Oakland, CA 94621 (800) 444-0015
	278	Monroe Electronics 100 Housel Avenue PO Box 100 Lyndonville, NY 14098 (800) 821-6001
	96117-1	Monroe Electronics 100 Housel Avenue PO Box 100 Lyndonville, NY 14098 (800) 821-6001

Service approach

Service approach	46
Parts and supplies.	47
Ordering parts.	47
Ordering supplies	47
Exchange program	47
Supplies	47
World Wide Web.	47
HP service parts information compact disc.	48
Customer care reseller sales and service support center.	48
Ordering related documentation and software	49
Warranty	50
Limited warranty for print cartridge and image drum life	50
Transfer unit and fuser warranty	50
HP maintenance agreements	50
Onsite service agreements.	51

The HP color LaserJet 9500 is designed to be diagnosed over the phone, and repaired in the field. Repair of the printer normally begins with a three-step process:

- 1** Isolate the problem to the major system (the host computer, the network or server, or the printer).
- 2** Isolate the problem to the print engine, the input device, or the finishing device.
- 3** Troubleshoot the problem by using the troubleshooting procedures described in chapter 7.

After a faulty part is located, repair is usually accomplished by assembly-level replacement of field replaceable units (FRUs). Some mechanical assemblies can be repaired at the subassembly level. Hewlett-Packard does not support replacement of components on the printed circuit assemblies. Some parts can be installed by the customer.

Ordering parts

Ordering Parts in chapter 8 of this manual contains FRU and replacement part numbers. Order replacement parts from Hewlett-Packard Customer Support-Americas (HPCS-A) or Hewlett-Packard Customer Support-Europe (HPCS-E).

All standard part numbers listed are stocked and can be ordered from HP's Customer Services and Support Organization. Use the following website to search for HP product parts by using the HP product name, model number, or part number, or by choosing an HP product from a list.

To order parts, go to the following website:

Consumables and accessories can be ordered from Hewlett-Packard.

Supplies, accessories, and consumables can be ordered from the following websites

North America:

Canada:

Europe:

Asia Pacific:

Ordering supplies

Order supplies directly from Hewlett-Packard. The following are phone numbers for ordering supplies:

U.S. (1) (800) 538-8787

Canada (1) (800) 387-3154; Toronto (1) (416) 671-8383

United Kingdom 0734-441212

Exchange program

Hewlett-Packard might offer remanufactured assemblies for parts. These can be ordered through Parts Direct Ordering.

Supplies

Media and print cartridges can be ordered directly from Hewlett-Packard. See chapter 8 for ordering information.

World Wide Web

Printer drivers, updated HP printer software, and product and support information can be obtained from one of the following websites:

In the U.S.:

Printer drivers can be obtained from the following sites:

then select the appropriate country/region

HP service parts information compact disc

This powerful, CD-ROM-based parts information tool is designed to give users fast, easy access to parts information such as pricing and recommended stocking lists for a wide range of HP products. To subscribe to this quarterly service in the U.S. or Canada, call (800) 336-5987. In Asia Pacific, call (65) 740-4484. Parts identification and pricing information can also be checked via the World Wide Web at .

Customer care reseller sales and service support center

The Customer Care Reseller Sales and Support Center is available to assist resellers and service technicians. To reach this support center, call (1) (800) 544-9976.

HP authorized resellers and support

To locate authorized HP resellers and support, call (1) (800) 243-9816 in the U.S. or (1) (800) 387-3867 in Canada.

HP service agreements

Call (1) (800) 743-8305 in the U.S. or (1) (800) 268-1221 in Canada.

Other areas

Outside of North America and Europe, contact the local HP sales office for assistance in obtaining technical support for resellers and service technicians.

Ordering related documentation and software

Table 19 shows where to order related documentation and software. Telephone numbers for the various sources are:

HPCS-A:
(1)(800) 227-8164 (U.S. only)
HPCS-E:
(49 7031) 14 2253
HP Distribution Center (HPD) (661) 257-5565.
Fax: (805) 257-6995

Table 19. Related documentation and software

Description	Part number
HP LaserJet Family Print Media Guide	5963-7863
HP JetDirect Print Server Administrator's Guide	5971-3257
PCL/PJL Technical Reference Package	5021-0377

End user documentation is available electronically at

For warranty information and requirements, see the *HP color LaserJet 9500 Use Guide*.

This HP product is warranted to be free from defects in materials and workmanship during its useful life (end of life is indicated by a printer control panel low-life message).

This warranty does not cover products that have been modified, refurbished, remanufactured, misused, or tampered with in any way.

This limited warranty gives you specific legal rights. You may have other rights which vary from state to state, province to province, and country/region to country/region.

THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED. THE HEWLETT-PACKARD COMPANY SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ALLOWED BY APPLICABLE LAW, IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT, PUNITIVE, OR EXEMPLARY DAMAGES OR LOST PROFITS FROM ANY BREACH OF THIS WARRANTY OR OTHERWISE.

In the event that your product proves to be defective, please return to place of purchase with a written description of the problem.

This HP product is warranted to be free from defects in materials and workmanship for one year or until the printer control panel indicates a low-life message, whichever occurs first.

This warranty does not cover products that have been modified, refurbished, remanufactured, misused, or tampered with in any way.

This limited warranty gives you specific legal rights. You may have other rights which vary from state to state, province to province, and country/region to country/region.

THE ABOVE WARRANTIES ARE EXCLUSIVE AND NO OTHER WARRANTY, WHETHER WRITTEN OR ORAL, IS EXPRESSED OR IMPLIED. THE HEWLETT-PACKARD COMPANY SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. TO THE EXTENT ALLOWED BY APPLICABLE LAW, IN NO EVENT SHALL HEWLETT-PACKARD COMPANY BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT, PUNITIVE, OR EXEMPLARY DAMAGES OR LOST PROFITS FROM ANY BREACH OF THIS WARRANTY OR OTHERWISE.

In the event that your product proves to be defective, please return to place of purchase with a written description of the problem.

Hewlett-Packard has several types of maintenance agreements that meet a wide range of support needs. Maintenance agreements are not part of the standard warranty. Support services may vary by area. Check with your local HP dealer to determine the services available to you.

Onsite service agreements

To provide you with the level of support best suited to your needs, HP offers the following onsite service agreements, with three response times.

next business day onsite, HW support, four years

next business day onsite, HW support, five years

four-hour, 13 x 5 onsite, HW support, four years

four-hour, 13 x 5 onsite, HW support, five years

For more information about HP service agreements, call (1) (800) 271-3113 (U.S.) or (1) (800) 268-1221 (Canada).

Priority onsite service

This agreement provides four-hour service response to your site for calls made during normal HP business hours.

Next-day onsite service

This agreement provides support by the next working day following a service request. Extended coverage hours and extended travel beyond HP's designated service zones are available on most onsite agreements (for additional charges).

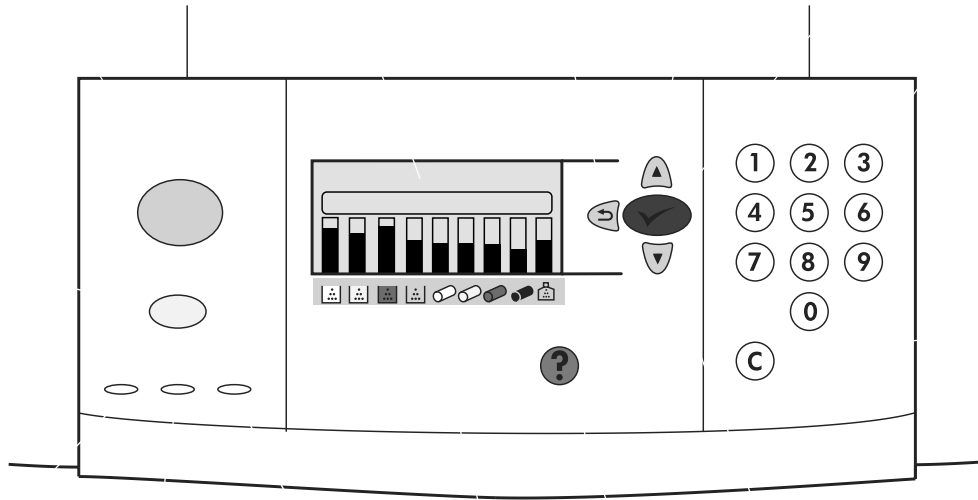
Weekly (volume) onsite service

This agreement provides scheduled weekly onsite visits for organizations that own or lease many HP products. This agreement is designated for sites that use 25 or more workstation products, including printers, plotters, computers, and disk drives.

Product configuration

Control panel layout	54
Control panel menus	56
Menu map	56
Using a menu map	56
Retrieve job menu	57
Information menu	58
Paper handling menu	59
Selecting media for a document	60
Configure device menu	61
Printing submenu	61
Print Quality submenu	64
System Setup submenu	69
Output Setup submenu	71
I/O submenu	71
Resets submenu	74
Diagnostics menu	75
Service menu	79
Service ID	79
Restoring the Service ID	80
Converting the Service ID to an actual date	80
Settings and defaults	81
Configure the control panel display language	81
Configure the input trays	82
Boot key sequences	86
Hard disk reinitialization	86
NVRAM initialization	87
Cold reset	89

The control panel includes three indicator lights; four navigation buttons; a help button; a PAUSE/RESUME button; a CANCEL JOB button; a numeric keypad; and a graphical display that shows up to four lines of text, supplies-status indicators, and printer animations.



Control panel layout

Table 20. Control panel features, and key functions

Feature or key	Function
✓	<p>Opens the main menu.</p> <p>Saves the selected value for that item. An asterisk (*) appears next to the selection, indicating that it is the new default. The default settings remain when the printer is switched off or is reset (unless you restore the factory defaults from the RESETS menu).</p> <p>Performs the action associated with the item that is highlighted on the graphical display.</p>
↶	Backs up one level in the menu tree or clears a numeric value.
▲	Navigates to the previous item in the list.
▼	Navigates to the next item in the list.
C	Returns a numeric entry to its previous value.
?	Provides information about the current message on the graphical display.
	<p> Cancels the current print job in process. The time it takes to cancel the job depends on the size of the print job.</p>

Table 20. Control panel features, and key functions (continued)

Feature or key	Function
	Returns the printer to the ready state (or to printing) from the menus or the online help. Toggles between PAUSE and RESUME.
	Can be used to type numeric values or menu shortcuts.

Press ▲ or ▼ to cycle through the control panel menus. Each menu is described in a separate table in this section. Menu items appear only if their associated option is installed, or if their functions are activated.

All menus and their associated items are available when the printer is online. In menu mode, if no keys are touched for approximately 30 seconds, the system automatically returns to the top level and displays either an existing error or one of the following items:

READY, if the printer is online.

OFFLINE, if the printer is offline.

Menu map

From the control panel, you can print a menu map that shows the current printer menus and settings. Additional menu items can appear in the control panel, depending on the options that are currently installed in the printer. The following is a list of menus available from the control panel, and where to find information about each.

Retrieve job menu (page 57)

Information menu (page 58)

Paper handling menu (page 59)

Configure device menu (page 61)

Diagnostics menu (page 75)

Using a menu map

To see the current settings for the menus and items that are available in the control panel, print a control panel menu map. Values that appear with an asterisk (*) next to them are the currently selected values for a setting. Many of these values can be overridden from the print driver or a user software program.

The content of the menu map varies, depending on the optional accessories that are currently installed in the printer. For a complete list of accessories or to change a control panel item and possible values, see “Configure device menu” on page 61.

Select an item from the menu map

- 1 Press ✓.
- 2 Press ▲ or ▼ to scroll to the required menu, and then press ✓.
- 3 Press ▲ or ▼ to scroll to the appropriate page, and then press ✓.

If no private, stored, quick copy, or proof and hold jobs are on the printer hard disk or in RAM memory, the message `NO STORED JOBS` appears when the Retrieve Job menu is selected.

Table 21. Retrieve job menu

Item	Explanation
USER 1 (X1) USER 2 (X2) USER 3 (X3) USER 4 (X4) USER 5 (X5) USER 6 (X6)	Use this item to see the job names for the username you select. The (X) notation tells you the number of stored print jobs for that user.
<USER NAME> ALL PRIVATE JOBS JOB 1 JOB 2 JOB 3 JOB 4	Use this item to select which print jobs to work with. Select the <code>ALL PRIVATE JOBS</code> option to see a list of all the print jobs for that user that require a PIN.
<JOB NAME> PRINT DELETE	<p>Use this item to print or delete the selected job.</p> <p>If the job requires a PIN to be printed, P appears next to the <code>PRINT</code> command, and a PIN must be provided. If a job requires a PIN to be deleted, P appears next to the <code>DELETE</code> command, and a PIN must be provided.</p> <p>If you select <code>PRINT</code>, the printer prompts you to specify the number of copies to print (1 to 32,000)</p>

To select an information item, scroll to the page that you want and then press ✓ .

Table 22. Information menu

Item	Explanation
PRINT MENU MAP	Generates a menu map that shows layout and current settings of the control menu items. The printer backs up one screen to SET FRONT TO BACK when the page is completed.
PRINT CONFIGURATION	Generates a page that provides details about the current configuration of the printer. The printer returns to the online READY state when the page is completed.
PRINT SUPPLIES STATUS	Generates a page that shows the number of pages remaining for each supply in the printer. The printer returns to the online READY state when the page is completed.
SUPPLIES STATUS	Shows a scrollable list of supplies and the status of each supply on the control panel. The printer returns to READY when you exit the menu.
PRINT FILE DIRECTORY	Generates a directory page that contains information for all installed mass-storage devices. The directory page does not include information for the printer's ROM. The printer returns to the online READY state when the page is completed.
PRINT USAGE PAGE	Generates a page that contains information that could be used for cost accounting. This item is available only if a hard disk is installed. The printer returns to the online READY state when the page is completed.
PRINT DEMO	Generates a demonstration test page that describes printer features. The printer returns to READY when you exit the menu.
PRINT FILE DIRECTORY	Generates a page that lists the contents of the hard disk drive (if installed).
PRINT PCL FONT LIST	Generates a typeface list of all PCL fonts available on the printer. The printer returns to the online READY state when the page is completed.
PRINT PS FONT LIST	Generates a typeface list of all PS fonts available on the printer. The printer returns to the online READY state when the page is completed.

When paper-handling settings are correctly configured through the control panel, you can print by selecting the type and size of media in the printer driver or software program.

Table 23. Paper handling menu default settings

Item	Values	Explanation
TRAY <N> SIZE=*ANY SIZE	*ANY SIZE LETTER LETTER ROTATED LEGAL EXECUTIVE 8.5X13 11X17 A3 A4 A4 ROTATED A5 B5<ISO> B5<JIS> B4<JIS> EXECUTIVE<JIS> DPOSTCARD<JIS> 8K 16K ENVELOPE #10 ENVELOPE MONARCH ENVELOPE C5 ENVELOPE DL ENVELOPE B5 CUSTOM ANY CUSTOM	Use this item to set the paper size for tray 1, tray 2, tray 3, and tray 4 (if installed). TRAY <N> indicates the appropriate tray number. Note ENVELOPE #10, ENVELOPE MONARCH, ENVELOPE C5, ENVELOPE DL, DPOSTCARD <JIS>, and ENVELOPE B5 appear for tray 1 only. Note ANY SIZE prints on any supported size of media, CUSTOM is used to configure a custom size specific to X and Y, and using ANY CUSTOM assumes that the maximum paper size is being used and prints on any size of media.
TRAY <N> TYPE=*ANY TYPE	*ANY TYPE PLAIN PREPRINTED LETTERHEAD TRANSPARENCY PREPUNCHED LABELS BOND RECYCLED COLOR LIGHT < 75 g/m ² HEAVY 106-163 g/m ² CARD STOCK > 164 g/m ² GLOSSY 75-105 g/m ² HP HEAVY GLOSSY NON HP HEAVY GLOSSY TOUGH PAPER ENVELOPE	Use this item to specify the type of media in each tray. TRAY <N> indicates the appropriate tray number. Note For the ANY TYPE value, the printer prints on the media that is loaded regardless of the media type that the driver requests. Note The media types might be mapped to different print modes in the CONFIGURE DEVICE, PRINT QUALITY, and PRINT MODE menu. Note Selecting a media type from this menu causes the printer to use the print mode that is assigned to requested paper type in the CONFIGURE DEVICE, PRINT QUALITY, PRINT MODES menu.

Table 23. Paper handling menu default settings (continued)

Item	Values	Explanation
TRAY <N> CUSTOM	UNIT OF MEASURE X DIMENSION Y DIMENSION	<p>This message appears when the custom switch is in the CUSTOM position and you select CUSTOM from the list of media sizes.</p> <p>The values listed are available in a pop-up menu from which you choose either millimeters or inches as the unit measure and also set the X and Y dimensions of the custom paper size.</p>

Selecting media for a document

See “Media specifications” on page 31 for more information.

The configure device menu contains all of the administrative functions.

Printing submenu

Some items in this menu are available in a software program or the printer driver (if the appropriate printer driver is installed). Printer driver and software program settings override control panel settings.

Table 24. Configure device menu

Item and default setting	Values	Explanation
COPIES=1	1 TO 32,000	Set the default number of copies by specifying any number from 1 to 32,000. Use the numeric keypad to specify the number of copies. Note It is best to set the number of copies in the printer driver or software program. (Printer driver and software settings override control panel settings.)
DEFAULT PAPER SIZE= LETTER	LETTER LEGAL EXECUTIVE 8.5X13 11X17 A3 A4 A5 B5(ISO) B5(JIS) B4(JIS) EXECUTIVE(JIS) DPOSTCARD(JIS) 8K 16K ENVELOPE #10 ENVELOPE MONARCH ENVELOPE C5 ENVELOPE DL ENVELOPE B5 CUSTOM ANY CUSTOM	This value is used only if no paper size was sent with the job. Set the default size for which media and envelopes to print on if no size is selected for the print job. (The item name changes from media to envelope as you scroll through the available sizes.)
DEFAULT CUSTOM PAPER SIZE	UNIT OF MEASURE X DIMENSION Y DIMENSION	Use this item to set a custom paper size for any of the installed trays. This menu only appears when the selected tray custom switch is in the "custom" position. Select the X and Y dimensions of the custom paper size by using the ruler labels in the trays.
PAPER DESTINATION= STANDARD OUTPUT BIN	STANDARD OUTPUT FACE UP OPTIONAL BIN	Use this item to configure the output media bin destination. Only the installed bins appear on the menu.

Table 24. Configure device menu (continued)

Item and default setting	Values	Explanation
DUPLEX=OFF	OFF ON	<p>This item appears only when a duplexer is installed. Set the value to ON to print on both sides (duplex) or OFF to print on one side (simplex) of a sheet of paper.</p> <p>Note It is best to set the duplex option in the printer driver or software program. (Printer driver and software settings override control panel settings.)</p>
BINDING=LONG EDGE Note The menu item appears only if DUPLEX=ON.	LONG EDGE SHORT EDGE	<p>Use this item to change the binding edge for duplex printing.</p> <p>Note It is best to set the binding layout in the printer driver or software program. (Printer driver and software settings override control panel settings.)</p>
OVERRIDE A4/ LETTER=NO	YES NO	Use this item to print on letter-size media when an A4 job is sent but no A4-size media is loaded in the printer (or to print on A4-size media when a letter job is sent but no letter-size media is loaded in the printer).
MANUAL FEED=OFF	OFF ON	Use this item to feed the media manually from tray 1 rather than automatically from another tray. When MANUAL FEED=ON and tray 1 is empty, the printer goes offline when it receives a print job. The message MANUALLY FEED [PAPER SIZE] then appears on the control panel.
COURIER FONT=REGULAR	REGULAR DARK	<p>Use this item to select the version of Courier font to use:</p> <p>REGULAR is the internal Courier font that is available on the HP LaserJet 4 Series and later printers.</p> <p>DARK is the internal Courier font that is available on the HP LaserJet III Series printers.</p> <p>Both fonts are <i>not</i> available at the same time.</p>
WIDE A4=NO	YES NO	<p>The Wide A4 setting changes the number of characters that can be printed on a single line of A4 media.</p> <p>YES: Up to 80 10-pitch characters can be printed on one line.</p> <p>NO: Up to 78 10-pitch characters can be printed on one line.</p>
PRINT PS ERRORS=OFF	ON OFF	Select ON to print the PS error page when PS errors occur.
PCL		Use this item to open PCL submenu items (see).

PCL submenu

Gain access to this submenu through the Printing submenu. Some items in this menu can be opened in a software program, or in the printer driver (if the appropriate printer driver is installed). Printer driver and software settings override control panel settings.

If no private, stored, quick copy, or proof and hold jobs are on the printer hard disk or in RAM memory, the message `NO STORED JOBS` appears when the menu is selected.

Table 25. PCL submenu

Item and default setting	Values	Explanation
FORM LENGTH	60	Sets vertical spacing from 5 to 128 lines for the default media size. Type the value by using the numeric keypad.
ORIENTATION	PORTRAIT LANDSCAPE	Use this item to select default page orientation. Note It is best to set the page orientation in the printer driver or software program. (Printer driver and software settings override control panel settings.)
FONT NUMBER	INTERNAL SOFT SLOT 1 SLOT 2 SLOT 3	INTERNAL: Internal fonts. SOFT: Permanent soft fonts. SLOT 1, 2, or 3: Fonts stored in one of the three DIMM slots.
FONT SOURCES	0-999	The printer assigns a number to each font and lists them on the PCL Font List. The font number appears in the Font # column of the printout.
FONT POINT SIZE= 12.00	4.00 to 999.75	Use the numeric keypad or ▲ or ▼ to specify a value. This item might not appear, depending on the font selected.
SYMBOL SET=PC-8	PC-8	Select any one of several available symbol sets at the printer control panel. A symbol set is a unique grouping of all the characters in a font. PC-8 or PC-850 is recommended for line-drawn characters.
APPEND CR TO LF=NO	YES NO	Select YES to append a carriage return to each line feed encountered in some text print jobs. Some environments, such as UNIX, indicate a new line by using only the line feed control code. Use this option to append the required carriage return to each line feed.
SUPPRESS BLANK PAGES	YES NO	Use this item for customers creating their own PCL that might include extra form feeds which print blank pages. Select YES to ignore form feeds if the page is blank.

Print Quality submenu

Table 26. Print Quality menu

Item	Values	Explanation
ADJUST COLOR CYAN DENSITY MAGENTA DENSITY YELLOW DENSITY RESTORE COLOR VALUES	-5 TO +5	<p>Use this item to control the midtones (solid and very light color fills are <i>not</i> affected) for each color plane. The default for each color is zero. A larger negative number can result in lighter or less dense midtones for a particular color plane, and a larger positive number can result in darker or more dense midtones for a color plane. Settings can be adjusted, for each color plane (cyan, magenta, yellow, and black), individually as primary transfer biases are charged.</p> <p>Note The changes are universal, and apply to all printed pages regardless of the media type selected.</p> <p>Note The <code>RESTORE COLOR VALUES</code> menu returns the values to the default.</p>
SET REGISTRATION	PRINT TEST PAGE SOURCE ADJUST TRAY 1 ADJUST TRAY 2 ADJUST TRAY 3 ADJUST TRAY 4 (IF INSTALLED)	Use this item to set the printed image at the center of a single-page or duplexed print job. The <code>PRINT TEST</code> option prints a test page. Use the <code>SOURCE</code> option to print a test page from all trays or from specified trays. Use the <code>ADJUST TRAY X</code> options to adjust the image alignment using values between -20 and +20.
PRINT MODES	PLAIN PREPRINTED LETTERHEAD TRANSPARENCY PREPUNCHED LABELS BOND RECYCLED COLOR LIGHT<75 g/m ² HEAVY 106-163 g/m ² CARDSTOCK>164 g/m ² GLOSSY 75-105 g/m ² HP HEAVY GLOSSY NON HP HVY GLOSSY TOUGHPAPER ENVELOPE RESTORE MODES	<p>Use this item to associate print modes with individual media types in order to optimize print quality. For this menu option, the print mode can only be changed at the control panel.</p> <p>See the “Description” column in</p>

Table 26. Print Quality menu (continued)

Item	Values	Explanation
OPTIMIZE	TRANSFER DOWN 1 TRANSFER DOWN 2 TRANSFER UP 1 TRANSFER UP 2 LEADING EDGE DOWN LEADING EDGE UP HIGH COVERAGE 1 HIGH COVERAGE 2 HIGH COVERAGE 3 RESTORE OPTIMIZE	<p>Use this item to optimize a number of engine parameters for all jobs rather than by media type. Each item can be set to OFF or ON. The default value of each item is OFF. Use the RESTORE OPTIMIZE option to reset all options to the factory default position (OFF).</p> <p>TRANSFER DOWN 1, TRANSFER DOWN 2, TRANSFER UP 1, and TRANSFER UP 2: These settings control T2 current to correct for media types that show poor secondary transfer when a predefined media type setting is used. Try the DOWN 1 and DOWN 2 settings first. This might result in a darker image. If it does not, some medias require that the value is set to UP 1 or UP 2. It is possible to set these ON at the same time. If multiple bits are set, the default (all OFF) is used. Using smoother media results in better transfer; exceptionally rough media can show problems that will not be addressed by these settings.</p> <p>LEADING EDGE DOWN and LEADING EDGE UP: Use these settings to compensate for poor transfer, missing toner, discharge marks, and mottled appearance on the leading edge of printed pages. To resolve these issues, try setting LEADING EDGE DOWN first; however depending on the media type, you might get better results using LEADING EDGE UP. LEADING EDGE UP set to ON increases the leading edge secondary transfer bias. LEADING EDGE DOWN set to ON decreases the leading edge secondary transfer bias. If the UP and DOWN settings are both set to ON, they are set to OFF.</p> <p>Note Try the other media type settings first, because this is a universal setting and applies to all pages that are printed, regardless of the selected media type.</p> <p>HIGH COVERAGE 1, HIGH COVERAGE 2, and HIGH COVERAGE 3: HIGH COVERAGE 1 and HIGH COVERAGE 2 control the setting of the yellow dot pattern that is designed to eliminate certain types of banding (47 mm) in high coverage.</p> <ul style="list-style-type: none"> HIGH COVERAGE 1: Yellow dots appear in a 10-by-10 mm pattern for half-speed printing, and an 8-by-8 mm pattern for full-speed printing. The default is OFF; when set to ON, the yellow dots are off. If the yellow dots are objectionable and the 47 mm band is acceptable (a line or band is visible once at 47 mm from the start and the stop of a strip of color), turn this item ON. Otherwise, leave this item OFF. HIGH COVERAGE 2: Yellow dots appear in an 8-by-8 mm pattern for full-speed printing, and 10-by-10 mm for half-speed printing. The default is OFF; when set to ON, the yellow dots are in an 8-by-8 mm pattern for half- and full-speed printing. If a line recurs every 47 mm from the start of a strip in half-speed printing modes, turn this item ON. Otherwise, leave this item OFF.

Table 26. Print Quality menu (continued)

Item	Values	Explanation
OPTIMIZE (continued)		<p>High coverage 3 helps with 50 mm to 100 mm bands or cardstock band (37 mm from the trailing edge of 11-by-17 [A3] or 115 mm from the trailing edge of letter [A4] on media that is heavier than 120 g/m²)</p> <ul style="list-style-type: none"> HIGH COVERAGE 3: This changes the OPC ITB speed mismatch (101.5 percent [OFF] to 102 percent [ON]). The default is OFF. If a line or band recurs at 50 or 100 mm intervals (37 mm from the trailing edge of 11-by-17 (A3) and 115 mm from the trailing edge of letter (A4) on media heavier than 120 g/m²), turn this item ON for half-speed media types. Do <i>not</i> change this setting to ON unless the bands are very objectionable. If you do this 47 mm banding might increase.
CALIBRATE NOW		Select CALIBRATE NOW to start a printer calibration (D-max, D-half, and CPR calibrations are performed).
PROCESS CLEANING PAGE		Use this item to print a single blank page that might help clean the fuser rollers after a fuser-related jam.

Table 27. Description of print modes

Print mode	Media type(s) that use this mode by default	Speed	Description	When to use
AUTO SENSE MODE	plain	trans: half opaque: full	Optimized for the media that is detected. If a transparency is detected, printing does not stop, and the correct printing attributes are used for the transparency.	If transparencies are not frequently used in the printer.
AUTO SENSE OFF	preprinted, letterhead, prepunched, bond, recycled, and color	full	Prints on whatever media is in the tray (if a transparency is detected, printing stops and the message <code>UNEXPECTED TYPE IN TRAY X</code> appears).	If transparencies are frequently used in the printer. This mode minimizes the occurrence of unintentional printing on transparencies.
LIGHT MODE	light < 75 g/m ²	full	Optimized for light media 60 to 74 g/m ² .	Use for light media.
HEAVY MODE	heavy (106 to 163 g/m ²)	half	Optimized for heavy media 106 to 163 g/m ² . The printer engine operates at half-speed to provide enough heat to correctly fuse the image because heavy media has more mass to heat.	Use for heavy media.
CARDSTOCK MODE	cardstock > 164 g/m ²	half	Optimized for card stock heavier than 164 g/m ² . The printer engine operates at half-speed to provide enough heat to correctly fuse the image because heavy media has more mass to heat.	Use for cardstock.
TRANSPARENCY MODE	transparencies	half	Optimized for transparencies. The printer engine operates at half-speed to produce a smoother, flatter image that transmits light better.	Use for transparencies.
ENVELOPE MODE	envelopes	full	Optimized for envelopes.	Use for envelopes.
LABEL MODE	labels	half	Optimized for labels. The printer engine operates at half-speed to provide enough heat to correctly fuse the image.	Use for labels.
GLOSSY MODE	glossy 75 to 105 g/m ²	full	Optimized for glossy media (75 to 105 g/m ² [20- to 28-lb bond])	Use for normal glossy media.
HP HEAVY GLOSSY MODE	HP heavy glossy	half	Optimized for heavy, glossy HP media (105 to 163 g/m ² [28- to 43-lb bond]).	Use for HP heavy glossy media.
NON HP HEAVY GLOSSY MODE	non-HP heavy glossy	half with pauses	Optimized for heavy, glossy non-HP media (105 to 163 g/m ² [28- to 43-lb bond]).	Use for non-HP heavy glossy media.
TOUGH PAPER MODE	tough paper	half with pauses	Optimized for glossy film media.	Under normal conditions.
BEST GLOSS MODE	not associated with a media type by default	full with pauses	Pauses printing if the fuser temperature decreases in order to maintain a higher fuser temperature and consistent gloss level.	If you notice changes in print quality when using glossy media, associate the <code>GLOSSY</code> type with this print mode.

Table 27. Description of print modes (continued)

Print mode	Media type(s) that use this mode by default	Speed	Description	When to use
BEST HP GLOSS MODE	not associated with a media type by default	half with pauses	Pauses printing if the fuser temperature decreases in order to maintain a higher fuser temperature and consistent gloss level.	If you notice changes in print quality when using HP heavy, glossy media, associate the HP HEAVY GLOSSY type with this print mode.
BEST NON HP GLOSS MODE	not associated with a media type by default	half with pauses	Pauses printing if the fuser temperature decreases in order to maintain a higher fuser temperature and consistent gloss level.	If you notice changes in print quality when using HP heavy glossy, media, associate the NON HP HEAVY GLOSSY type with this print mode.
BEST TOUGH PAPER MODE	not associated with a media type by default	half with pauses	Pauses printing if the fuser temperature decreases in order to maintain a higher fuser temperature and consistent gloss level.	If you notice changes in print quality when using HP heavy, glossy media, associate the TOUGH PAPER type with this print mode.
TONER MODE	not associated with a media type by default	full	Uses less toner in order to reduce toner scatter. TONER MODE uses a lower density color table for high-resistivity media to avoid toner explosions by applying less toner on a page.	If you are using rough or poor-quality media, and you have noticed toner scatter on your print jobs, associate the media type with this mode.
BLISTERS MODE	not associated with a media type by default	full with pauses	Operates at full-speed but pauses, usually during the first few pages of a print job, to keep the fuser hot. If the fuser is not hot enough gloss can drop and cause the toner to blister with light media.	Use with plain media only. If you notice changes in print quality when using HP heavy glossy media, associate the PLAIN type with this print mode.
RESTORE MODES			Resets all of the print modes to the factory defaults.	Use this setting to reset all of the print modes to the factory defaults.

System Setup submenu

Items in the System Setup submenu affect the printer function. Configure the printer according to your printing needs.

Table 28. System Setup submenu


Item and default setting	Values	Explanation
JOB STORAGE LIMIT=32	1 TO 100	Use this item to specify the number of jobs that can be stored on the printer hard-disk accessory.
JOB HELD TIMEOUT=OFF	OFF 1 HOUR 4 HOURS 1 DAY 1 WEEK	Use this item to set the amount of time that quick copy, proof and hold, private, and stored jobs are kept before being automatically deleted from the queue.
SHOW ADDRESS	AUTO OFF	Define whether or not the printer's IP address appears on the control panel with the <code>READY</code> message. If <code>AUTO</code> is selected, the IP address of the device is shown if the device is connected to a network.
OPTIMUM SPEED/COST	AUTO SPEED COST PER PAGE	Controls how the engine switches from color mode to monochrome mode. <code>AUTO</code> maps to the default option (<code>SPEED</code> for the HP color LaserJet 9500), <code>SPEED</code> maps to <code>LOOK AHEAD</code> (the printer only switches to mono mode if the next three pages are also only black), and <code>COST PER PAGE</code> maps to <code>ALWAYS SWITCH</code> (the printer switches modes for every page that is different).
TRAY BEHAVIOR	USE REQUESTED TRAY MANUALLY FEED PROMPT	<p>Use this item to specify the behavior of the trays. Each of the options opens its own submenu:</p> <p>USE REQUESTED TRAY EXCLUSIVELY. The printer does not automatically select another tray when you indicate that a specific tray should be used. FIRST. The printer pulls media from another tray if the specified tray is empty.</p> <p>MANUALLY FEED PROMPT ALWAYS. You are prompted to insert media and press  before printing begins. UNLESS LOADED. You are prompted only if tray 1 is empty.</p>
POWERSAVE TIME=1 HOUR	1 MINUTE 15 MINUTES 30 MINUTES 60 MINUTES 90 MINUTES 2 HOURS 4 HOURS	<p>Use this item to set how long the printer remains idle before it enters PowerSave mode. PowerSave mode offers the following advantages:</p> <ul style="list-style-type: none"> minimizes the amount of power consumed by the printer when it is idle reduces wear on the printer electronic components (turns off the display backlight) <p>The printer automatically exits PowerSave mode when you send a print job, press a control panel button, open a tray, or open any door.</p> <p>Note PowerSave turns off the backlight on the display, but the display is still readable.</p>

Table 28. System Setup submenu (continued)

Item and default setting	Values	Explanation
PERSONALITY= AUTO	AUTO PCL POSTSCRIPT PDF	Use this item to select the default printer language (personality). Possible values are determined by which valid languages are installed in the printer. Normally, you should not change the printer language (the default is AUTO). If you change it to a specific printer language, the printer does not automatically switch from one language to another.
CLEARABLE WARNINGS=JOB	ON JOB	Use this item to set the amount of time that a clearable warning appears on the printer control panel. ON : Warning messages appear on the control panel until ✓ is pressed. JOB : Warning messages appear on the control panel until the end of the job from which they were generated.
AUTO CONTINUE= ON	ON OFF	Use this item to determine how the printer reacts to errors. ON : If an error prevents printing, the message appears and the printer goes offline for 10 seconds before returning online. OFF : If an error prevents printing, the message remains on the display, and the printer does not print until ✓ is pressed. Note To stop printing when an installed finishing device is out of staples, set AUTO CONTINUE=OFF .
SUPPLIES LOW= CONTINUE	CONTINUE STOP	Use this item to determine how the printer functions when sensors report a low-supply situation. CONTINUE : The printer continues to print while the SUPPLIES LOW message appears. STOP : The printer goes offline and waits for further action.
JAM RECOVERY= AUTO	AUTO ON OFF	Use this item to determine how the printer functions when a jam occurs. AUTO : The printer automatically selects the best mode for the printer jam recovery (usually ON). This is the default setting. ON : The printer automatically reprints pages after a jam is cleared. OFF : The printer does not reprint pages following a jam. Printing performance might be increased with this setting.
RAM DISK=AUTO Note Appears only if the hard disk drive is installed.	AUTO OFF	Use this item to determine how the RAM disk is configured. This item appears only if no optional hard disk is installed and the printer has at least 8 MB of memory. OFF : The RAM disk is disabled. Note If the setting is changed from OFF to AUTO , the printer automatically reinitializes when it becomes idle.
LANGUAGE= ENGLISH		Includes all languages in the list. When scrolling through the languages values, LANGUAGE= should be updated so it is presented in the highlighted language.

Output Setup submenu

Table 29. Output Setup submenu

Item	Values	Explanation
OUTPUT SETUP (VARIES ACCORDING TO FINISHING DEVICE)		The Output Setup submenu appears when the printer has a 3,000-sheet stapler, 3,000-sheet stapler/stacker, or multifunction finisher attached. The menu items and values vary according to which finishing device is installed.

I/O submenu

Items in the I/O (input/output) submenu affect the communication between the printer and the computer.

Table 30. I/O submenu

Item and default setting	Values	Explanation
I/O TIMEOUT=15	5 TO 300	Select the I/O timeout period in seconds. (The I/O timeout refers to the time, measured in seconds, that the printer waits before ending a print job.) Use this setting to adjust the timeout for the best performance. If data from other ports appears in the middle of your print job, increase the timeout value.

Parallel Input submenu

Table 31. Parallel Input submenu

Item and default setting	Values	Explanation
HIGH SPEED=YES	YES NO	The printer accepts faster parallel communications that are used for connections with newer computers.
ADVANCED FUNCTIONS=ON	ON OFF	Turn the bidirectional parallel communication on or off. The default is set for a bidirectional parallel port (IEEE-1284). This setting allows the printer to send status readback messages to the computer. (Turning the parallel advanced functions on might slow the language switching.)

EIO submenu

The EIO (enhanced input/output) submenu appears only when an EIO device, such as an HP Jetdirect print server, is installed in an EIO slot on the printer. The items in the menu depend on the particular finishing device that is installed. If the printer contains an HP Jetdirect print server EIO card, you can configure basic networking parameters by using the EIO menu. These and other parameters can also be configured through HP Web Jetadmin or other network configuration tools (such as Telnet or the embedded Web server).

Table 32. EIO submenu

Item	Values	Explanation
TCP/IP	ENABLE HOST NAME CONFIG METHOD	<p>Use ENABLE to select whether the TCP/IP protocol is enabled (ON) or disabled (OFF).</p> <p>HOST NAME is an alphanumeric string, up to 32 characters in length that identifies the device. This name is listed on the Jetdirect page. The default host name is NPLxxxxxx, where xxxxxx is the last six digits of the LAN hardware (MAC) address.</p> <p>Use CONFIG METHOD submenu to select whether the TCP/IP configuration parameters are set automatically from a network server by using any of these methods:</p> <ul style="list-style-type: none">BOOTP (Bootstrap Protocol)DHCP (Dynamic Host Configuration Protocol). If selected, and if a DHCP exists, the DHCP RELEASE and DHCP RENEW menus are available to set lease options.MANUAL. Provides access to parameters that can be manually configured at the printer control panel. If selected, the MANUAL SETTINGS menu is available to configure the parameters.
IPX/SPX	ENABLE FRAME TYPE SOURCE ROUTING	<p>Use the ENABLE submenu to select whether the IPX/SPX protocol is enabled (ON) or disabled (OFF).</p> <p>Use FRAME TYPE to select the frame type setting for your network. The frame submenu includes these values:</p> <ul style="list-style-type: none">AUTO (default) automatically sets and limits the frame type to the first one detected.EN_8023, EN_II, EN_8022, and EN_SNAP are the frame type selections for Ethernet networks.TR_8022, TR_SNAP are the frame type selections for Token Ring networks. <p>The SOURCE ROUTING submenu is for a Token Ring network only. Use it to specify the NetWare Token Ring Source Routing parameter from the following options.</p> <ul style="list-style-type: none">AUTO (default): The type of source routing that is required on the network is automatically sensed.OFF: All packets are sent without source routing, and only packets from the same ring are received.ALL ROUTES and SINGLE ROUTES: All packets are sent with source routing (broadcasts and when the route is unknown).
APPLETALK	ENABLE	(Ethernet and Fast Ethernet only) Use this item to select whether the AppleTalk protocol is enabled (ON) or disabled (OFF).
DLC/LLC	ENABLE	Use this item to select whether the DLC/LLC protocol stack is enabled (ON) or disabled (OFF).

Table 32. EIO submenu (continued)

Item	Values	Explanation
LINK SPEED	AUTO 10T HALF 10T FULL 100THALF 100TFULL	<p>(For 10/100Base-TX print servers only) Use this item to select the network link speed and communication mode for the 10/100Base-TX print server. For proper communications, the Jetdirect settings must match the network.</p> <p>AUTO (default): The print server will automatically configure itself to match the network's link speed and communication mode. If it fails, 100TX HALF is set.</p> <p>10T HALF: 10Mbps, half-duplex operation</p> <p>10T FULL: 10 Mbps, full-duplex operation</p> <p>100T HALF: 100 Mbps, half-duplex operation</p> <p>100T FULL: 100 Mbps, full-duplex operation</p>
SECURE WEB	HTTPS REQUIRED HTTPS OPTIONAL	<p>For configuration management, specify whether the embedded Web server will accept communications using HTTPS (Secure HTTP) only, or both HTTP and HTTPS.</p> <p>HTTPS REQUIRED (default): For secure, encrypted communications, only HTTPS access is accepted. The print server will appear as a secure site.</p> <p>HTTPS OPTIONAL: Access using either HTTP or HTTPS is permitted.</p>
RESET SECURITY	NO YES	<p>Specify whether the current security settings on the print server will be saved or reset to factory defaults.</p> <p>NO (default): The current security settings are maintained.</p> <p>YES: Security settings are reset to factory defaults.</p>

Resets submenu

The items in the Resets submenu clear all memory in the printer, while

clears only the

Reset the printer only under the following circumstances:

- you want to restore the printer default settings
- communications between the printer and computer has been interrupted
- you are having problems with a port

Use this menu with caution. You can lose buffered page data or printer configuration settings when you select these items.

Table 33. Resets submenu

Item	Explanation
RESTORE FACTORY SETTINGS	This item restores most of the factory (default) settings. This item also clears the input buffer for the active I/O. Resetting memory during a print job can result in data loss. This items does not affect network settings that are stored on the HP Jetdirect print server (if installed).
CHARGER CLEANED	This item notifies the printer that the post charger is cleaned.
POWERSAVE	Use this item to turn POWERSAVE ON and OFF. If POWERSAVE is OFF, the printer never enters PowerSave mode, and no asterisk appears next to any item when you use the POWERSAVE TIME menu item. The default value for POWERSAVE is ON.
RESET SUPPLIES	This item notifies the printer that a new supply kit is installed. Only supplies that the printer cannot detect as changed appear (new cleaning kit, new transfer kit, and new fuser kit).

You can use this submenu to isolate parts, and to troubleshoot jam and print-quality issues. See “Engine diagnostic tools” on page 309 in chapter 7 for more information about using these diagnostic tools.

Table 34. Diagnostics menu

Item	Values	Explanation
PRINT EVENT LOG	Prints a page that indicates the most recent printer errors.	Use this item to generate a localized FIFO (first in, first out) list of the 50 most recent entries in the error log. The printed event log shows the error number, page count, error code, and description or personality.
SHOW EVENT LOG	Displays on the control panel a list of the most recent printer errors.	Use this item to scroll through the contents of the event log at the control panel, and to show the 50 most recent events. Use ▲ and ▼ to scroll through the event log contents.
PQ TROUBLESHOOTING	Prints a series of pages that are useful to identify print quality problems (follow the printed instructions).	Use this item to print eight pages to help you identify print-quality problems. The eight pages consist of two pages of instructions, one page for each color (cyan, magenta, yellow, and black), one demo page, and one configuration page.
DISABLE CARTRIDGE CHECK	Prints with one or more image drums removed.	Use this item to isolate defective cartridges by first removing specific image drums, and then printing internal pages or a print job using the remaining image drums.
PAPER PATH TEST	PRINT TEST PAGE SOURCE DESTINATION DUPLEX COPIES SENSORS	<p>Use this item to generate a test page that is useful for troubleshooting the printer's paper-handling features.</p> <p>Define the test based on the media source, the output destination, duplex ON or OFF, the number of copies, or if the paper-path sensor status appears on the control panel during the test by selecting any of the options, and then select PRINT TEST PAGE to perform the test.</p> <p>If the SENSORS value is selected, the status of the following sensors appears on the control panel:</p> <ul style="list-style-type: none"> A: Tray 2 feed A B: Tray 2 feed B C: Tray 3 feed A D: Tray 3 feed B E: Pre-registration F: Pre-T2 G: Pre-fuser H: Fuser outlet I: Duplex reverse J: Duplex feed K: Face-down output

Table 34. Diagnostics menu (continued)

Item	Values	Explanation
SENSOR TEST (Interactive)	<p>Note A through K appear on the control panel.</p> <p>A: Pre-registration B: T2 C: Paper path D: Fuser outlet E: Face-down outlet F: Face-down capacity full G: Tray 1 media presence H: Tray 2 media presence I: Tray 2 feed sensor A and B J: Tray 2 X dimension (cross feed direction) K: Tray 2 Y dimension (cross feed direction) L: Tray 3 media presence M: Tray 3 feed sensor A and B N: Tray 3 X dimension (cross feed direction) O: Tray 3 Y dimension (feed direction) P: Lower right door Q: Right front/upper right door interlock R: Left front/lower left door interlock S: Upper left door</p>	<p>Use this item to manually test paper-path sensors and switches for correct operation. When the sensors are manually toggled, the control panel displays the sensor switching from ON to OFF, and from OFF to ON.</p>
COMPONENT TEST	<p>TRANSFER MOTORS BELT ONLY IMAGE DRUM MOTORS CARTRIDGE MOTORS DEVELOPER MOTORS YELLOW LASER SCANNER MAGENTA LASER SCANNER CYAN LASER SCANNER BLACK LASER SCANNER FUSER MOTOR MP PAPER FEED DRIVE UPPER CASSETTE FEED DRIVE LOWER CASSETTE FEED DRIVE PREREGISTRATION REGISTRATION FACE UP SOLENOID REPEAT</p>	<p>Component tests exercise individual parts independently to help you isolate failures, noises, print quality problems, and other issues. The results of the test depend on your observation of the printer during the test to determine the source of the problem.</p> <p>When you select one of the components for testing, the printer goes offline and runs the test based on the REPEAT value. Depending on the component that you select, you might be prompted to remove parts from the printer. If you do not remove the correct parts or if you press the button, the display returns to the Diagnostics menu. When the test is complete, the control panel also returns to the Diagnostics menu. The REPEAT value allows the test to operate once continuously.</p> <p>Note See table 35 for more information about the COMPONENT TEST values.</p> <p>Note Several of the engine diagnostics require certain pre-conditions to operate. See in chapter 7.</p>

Table 34. Diagnostics menu (continued)

Item	Values	Explanation
PRINT/STOP TEST	<p>Note The operator is prompted to enter a stop time value.</p> <p>Suggested delay times (using letter media):</p> <p>0 to 3,000 ms: Earliest page-stop point (60 mm from the top left side of the lower access door)</p> <p>1,000 ms: T1 - Y on belt</p> <p>1,500 ms: T1 - M on belt</p> <p>2,000 ms: T1 - C on belt</p> <p>3,000 ms: T1 - K on belt</p> <p>4,000 ms: ITB image at post charger</p> <p>4,100 ms: Page at pre-registration</p> <p>4,500 ms: ITB image is complete for all colors (CMYK)</p> <p>5,000 ms: Page at registration (buckled)</p> <p>7,000 ms: ITB image and page at mid-secondary transfer</p> <p>7,500 ms: Page just prior to duplex diverter</p> <p>8,000 ms: Page at mid-fuser</p> <p>8,500 ms: Two-third of ITB image cleaned</p> <p>12,500 ms: Page partially delivered to face-down tray</p>	<p>Use this item to isolate print quality problems and media handling faults by stopping the printer in the middle of a print cycle to observe the point in the process where the image degrades, or where media jams or is damaged. The range is 0 to 60,000 milliseconds, in increments of 10.</p>
COLOR BAND TEST	PRINT TEST PAGE COPIES	<p>Use this item to identify arcing in the high-voltage paths and to isolate print-quality problems to the primary or the secondary transfer areas. The test prints a bar pattern that contains primary and secondary colors. The Color Band Test page should be printed on 11-by-17 or A3 media, if available. If not, letter or A4 media should be used (the larger media is used if it is set as the default media size).</p> <p>Evidence of arcing might not appear until a series of pages has been printed. Use the <code>COPIES</code> option to control how many copies of the internal page to print. The range is 1 to 30.</p>

Table 35. Component test values

Value	Explanation
TRANSFER MOTORS	Use this item to check the four OPC drive motors and the ITB motor without any other printer process operating.
BELT ONLY	Use this item to check the ITB motor, the ITB motor drive train, and the ITB rotation.
IMAGE DRUM MOTORS	Use this item to make sure that the drum motor(s) are turning. This item is also helpful to check the drum motors and drive assemblies when the back of the printer is removed, and to isolate problems in the image drums or the image drum drive assemblies.
CARTRIDGE MOTORS	Use this item to make sure that the cartridge motor(s) are turning. This item is also helpful to check the cartridge motors and drive assemblies when the back of the printer is removed, and to isolate problems in the print cartridges or the print cartridge drive assemblies.
DEVELOPER MOTORS	Use this item to make sure that the developer motor(s) are turning. This item is also helpful to check the developer motors and drive assemblies when the back of the printer is removed, and to isolate problems in the image drums or the image drum developer drive assemblies.
YMCK LASERS	Use this item to make sure that the four laser scanner assemblies are functioning correctly.
FUSER MOTOR	Use this item to test the fuser motor, or any mechanisms that are driven by the fuser motor.
MP PAPER FEED DRIVE	Use this item to test the tray 1 feed motor.
UPPER CASSETTE FEED DRIVE	Use this item to check the pick rollers for tray 2. Note M23 rotates clockwise to drive the tray 2 mechanism.
LOWER CASSETTE FEED DRIVE	Use this item to check the pick rollers for tray 3. Note M23 rotates counter clockwise to drive the tray 3 mechanism.
PREREGISTRATION	Use this item to test the registration motor (M11) and the associated clutch (CL1) Note This clutch can also be tested with the MP PAPER FEED MOTOR test.
REGISTRATION	Use this item to test the registration motor (M11) and the associated clutch (CL2 is ON for this test, but OFF in the MP PAPER FEED MOTOR test).
FACE UP SOLENOID	Use this item to test the face-up solenoid (SL2) for correct functionality.
REPEAT	Use this item to repeat a test continuously.

The service menu printer commands should be used only by authorized service personnel. The service menu can only be opened by using the PIN code 04950003. While in the service menu, service technicians can perform the following actions:

- clear the event log
- verify and set the page counts and serial number (these are displayed on the configuration page)
- change the maintenance intervals
- set the cold reset media size

If a stapler/stacker is installed:

- calibrate the staple position
- review and edit the serial number of the output device
- review and edit the page count of the output device

Table 36. Service menu

Item	Explanation
CLEAR EVENT LOG	Clear the event log after maintenance or repairs are accomplished.
TOTAL MONO PAGES	Set the total monochrome page count if the formatter is replaced.
TOTAL COLOR PAGES	Set the total color page count if the formatter is replaced.
REFURBISH PAGE COUNT	Set to retain the page count of a refurbished printer. This allows the regular page count to be set to zero after the printer is refurbished. The refurbished page count number is zero for new printers.
CLEANING KIT COUNT	Set the total cleaning kit page count if the formatter is replaced.
TRANSFER KIT COUNT	Set the total transfer kit page count if the formatter is replaced.
FUSER KIT COUNT	Set the total fuser kit page count if the formatter is replaced.
SERIAL NUMBER	Reset the printer serial number if the formatter is replaced.
SERVICE ID	Establishes the first power-on date for warranty determination.
COLD RESET PAPER	Sets the printer default media size to A4 or letter.
STAPLER/STACKER	Perform a staple position calibration (if the stapler/stacker is attached).

Service ID

This item allows the date that the printer was first used to be shown through the control panel, eliminating the need for customers to keep paper receipts for proof of warranty. Because the printer does not have an internal clock, the service ID date's availability is dependent on the printer being connected to a source that can provide the date, such as the installer, the driver, or the embedded Web server. In cases where the printer is not connected to a date source, the service ID will not be available, and the control panel will display 000000.

Restoring the Service ID

If you replace the formatter, the date is lost. Use this menu item to reset the date to the original date the printer was first used. The date format is YYDDD. Calculate the date as follows:

- 1 To calculate YY, subtract 1990 from the calendar year. For instance, if the printer was first used in 2002, calculate YY as follows: $2002 - 1990 = 12$. $YY = 12$.
- 2 To calculate DDD, use the following formula:
 $30(\text{calendar month} - 1) + \text{calendar day} = \text{DDD}$. If the calendar day is 31, use 30 instead. For instance, if the printer was first used on October 17, calculate DDD as follows:
 - a Subtract 1 from 10 (October is the tenth month of the year): $10 - 1 = 9$.
 - b Multiply 9 by 30: $9 \times 30 = 270$.
 - c Add 17 to 270: $270 + 17 = 287$. Thus, $DDD = 287$.

Converting the Service ID to an actual date

You can use the printer's Service ID number to determine whether the printer is still under warranty. Convert the Service ID into the installation date as follows:

- 1 Add 1990 to YY to get the actual year that the printer was installed.
- 2 Divide DDD by 30. If there is a remainder, add 1 to the result. This is the month.
- 3 The remainder from the calculation in step 2 is the date.

Using the Service ID 12287 as an example, the date conversion is as follows:

- 1 $12 + 1990 = 2002$, so the year is 2002.
- 2 $287 \text{ divided by } 30 = 9 \text{ with a remainder of } 17$. Since there is a remainder, add 1 to 9 to get 10, which represents October.
- 3 The remainder in step 2 is 17, so that is the date.
- 4 The complete date is 17-October-2002.

Most of the settings that you send from software programs override printer defaults.

Temporary settings are the values that are set through your software program for the current print job. Temporary settings remain in effect until the current print job is complete.

Control panel defaults are the values that are set by selecting a control panel item and pressing ✓. An asterisk (*) next to the item name indicates that it is now the default. The printer retains default settings even when power is turned off.

Factory defaults are preset at the factory and are the default values for each menu item.

Configure the control panel display language

You can set the printer to show messages and print configuration pages in another supported language. The following are supported languages:





Czech	Korean
Danish	Norwegian
Dutch	Portuguese (Brazilian)
English	Polish
Finnish	Russian
French	Simplified Chinese
German	Spanish Catillian
Greek	Swedish
Hungarian	Traditional Chinese
Italian	Turkish
Japanese	

You have the option to change the control panel language when the printer is turned on for the first time. If you did not change the control panel language when the printer was turned on for the first time, you can use either of the following procedures to select a new control panel language.

To configure the control panel language (using menus)

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to `CONFIGURE DEVICE`, and then press ✓.
- 3 Use ▲ or ▼ to scroll to `SYSTEM SETUP`, and then press ✓.
- 4 Use ▲ or ▼ to scroll to `LANGUAGE`, and then press ✓.
- 5 Use ▲ or ▼ to scroll to the appropriate language, and then press ✓.
- 6 Press `ESC` to close the menus.

To configure the control panel language (power-on sequence)

- 1 Press and hold down  while turning on the printer power.
- 2 Use  or  to scroll to LANGUAGE, and then press .

For Japanese, Turkish, Czech, Russian, Hungarian, and Polish, the language selection changes the default symbol set for the specific language. For all other languages, the default symbol set is PC-8.

Configure the input trays


















You can configure the HP color LaserJet 9500 series printer input trays by type and size. You can load different media in each of the input trays and then request media by type or size.

If you have used previous HP LaserJet printers, you might be accustomed to configuring tray 1 to first mode or cassette mode. To duplicate the settings for first mode, configure tray 1 for Size = ANY and Type = ANY. To duplicate the settings for cassette mode, set either the size or type for tray 1 to a setting other than ANY.

The following instructions are used to configure the trays at the printer control panel.

Configuring trays for standard size media

Setting a standard media size and type for tray 1






- 1 Press  to open the menus.
- 2 Use  or  to scroll to PAPER HANDLING, and then press .
- 3 Use  or  to scroll to TRAY 1 SIZE, and then press .
- 4 Use  or  to scroll to the media size that you want, and then press .
- 5 The media type is set to Plain by default. If you want to change this setting, use  or  to scroll to TRAY 1 TYPE, and then press . Use  or  to scroll to the media type that you want, and then press .
- 6 Press  to close the menus.

Setting a standard media size and type for tray 2, tray 3, or tray 4

When you open and close tray 2, tray 3, or tray 4, the printer detects the media size for that tray, and the printer control panel prompts you to select the media type for that tray. If the printer cannot detect the media size, the printer control panel will prompt you to select a custom size and type. Follow these instructions to set the media size and type for tray 2, tray 3, or tray 4.

- 1 Open the tray.
- 2 Make sure that the media guides rest against the stack of media in the tray.
- 3 Set the custom/standard switch to Standard if both guides are set to the same Standard marking. Otherwise, set the switch to Custom and use the instructions in the following section.

If the media size is marked on the tray guide, it is a standard media size. If the media size is not marked on the tray guide, see "Configuring trays for custom size media" on page 83.

- 4 Close the tray.
- 5 The printer detects the size of the media in the tray and message TRAY X [TYPE] [SIZE] appears. This message alternates with the message TO CHANGE TYPE PRESS . The printer sets the media type to Plain by default. If you want to change this setting, use  or  to scroll to the media type that you want, and then press .
- 6 Press  to close the menus.

Configuring trays for custom size media

When a custom size is set for a tray, it is retained until the custom/standard switch in the tray is returned to Standard.

Setting a custom media size and type for tray 1

- 1 Press to open the menus.
- 2 Use or to scroll to PAPER HANDLING, and then press .
- 3 Use or to scroll to TRAY 1 SIZE, and then press .
- 4 Use or to scroll to CUSTOM, and then press .
- 5 The message UNIT OF MEASURE = appears, with the Inches setting selected by default. If you want to change this setting, use or to scroll to the Millimeters setting, and then press .
- 6 The message X DIMENSION = appears, with 12 inches (or 306 millimeters) selected by default. Use the numeric keypad to type the X dimension measurement of your media, and then press .

The X dimension is the width of the page as it feeds into the printer. See table 36 and table 37 for maximum and minimum dimension measurements.

- 7 The message Y DIMENSION = appears, with 18.50 inches (or 470 millimeters) selected by default. Use the numeric keypad to type the Y dimension measurement of your media, and then press .

The Y dimension is the length of the page as it feeds into the printer. See table 36 and table 37 for maximum and minimum dimension measurements.

- 8 The message TRAY 1 SIZE = [X DIMENSION] X [Y DIMENSION] [INCHES OR MILLIMETERS] SETTING SAVED appears.
- 9 The media type is set to Plain by default. If you want to change this setting, use or to scroll to TRAY 1 TYPE, and then press . Use or to scroll to the media type that you want, and then press .
- 10 Press to close the menus.

Setting a custom media size and type for tray 2, tray 3, or tray 4

- 1 Open the tray.
- 2 Make sure that the media guides rest against the stack of media in the tray.
- 3 Set the custom/standard switch to Custom.

If the media size is not marked on the tray guide, it is a custom media size. If the media is marked on the tray guide, see “Setting a standard media size and type for tray 2, tray 3, or tray 4” on page 82.

- 4 Close the tray.
- 5 The message TRAY X SIZE = appears, with the Any Custom size selected by default. Use or to scroll to the Custom setting, and then press .
- 6 The message UNIT OF MEASURE = appears, with the Inches setting selected by default. If you want to change this setting, use or to scroll to the Millimeters setting, and then press .
- 7 The message X DIMENSION = appears, with 12 inches (or 306 millimeters) selected by default. Use the numeric keypad to type X dimension measurement of your media, and then press .

The X dimension is the width of the page as it feeds into the printer. See table 36 and table 37 for maximum and minimum dimension measurements.

- 8 The message `Y DIMENSION =` appears, with 18.5 inches (or 470 millimeters) selected by default. Use the numeric keypad to type the Y dimension measurement of your media, and then press `✓`.

The Y dimension is the length of the page as it feeds into the printer. See table 36 and table 37 for maximum and minimum dimension measurements.

- 9 The message `TRAY X [X DIMENSION] X [Y DIMENSION] [INCHES OR MILLIMETERS] SIZE SPECIFIED BY USER` appears. This message alternates with the message `PRESS ✓ TO CHANGE TYPE`. The media type is set to Plain by default. If you want to change this setting, use `▲` or `▼` to scroll to the media type that you want, and then press `✓`.

- 10 Press `ESC` to close the menus.

Table 37. Maximum custom sizes

	Tray 1	Tray 2 and tray 3	Tray 4
Simplex and manual duplex	306 by 470 mm (12.05 by 18.5 inches)	297 by 432 mm (11.7 by 17 inches)	297 by 432 mm (11.7 by 17 inches)
Auto duplex	306 by 470 mm (12.05 by 18.5 inches)	297 by 432 mm (11.7 by 17 inches)	297 by 432 mm (11.7 by 17 inches)

Table 38. Minimum custom sizes

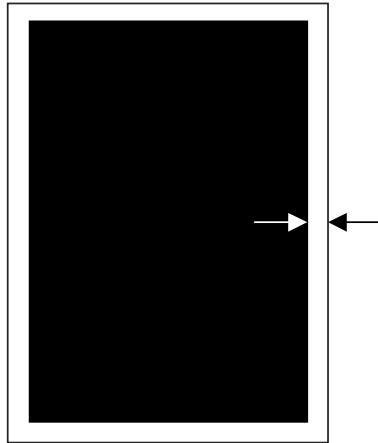
	Tray 1	Tray 2 and tray 3	Tray 4
Simplex and manual duplex	98 by 170 mm (3.9 by 6.7 inches)	148 by 210 mm (5.8 by 8.3 inches)	182 by 210 mm (7.2 by 8.3 inches)
Auto duplex	148 by 210 mm (5.8 by 8.3 inches)	148 by 210 mm (5.8 by 8.3 inches)	182 by 210 mm (7.2 by 8.3 inches)

The leading edge is listed first in the dimensions (scan direction by feed direction) for maximum custom sizes and minimum custom sizes.

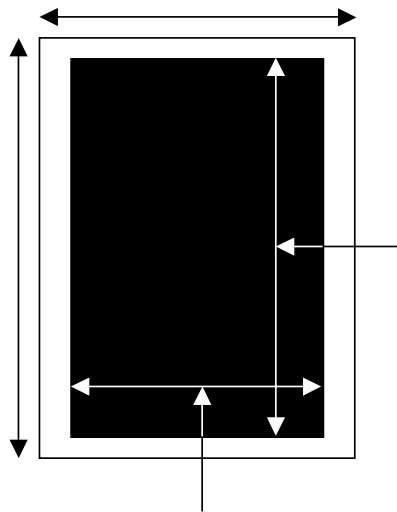
Printable area

The HP color LaserJet 9500 limits the printable area to 4.23 mm (0.17 inch) +/- 2 mm (0.01 inch) from the edges of the media, and also limits the maximum image size to 297 mm by 460 mm (11.7 by 18.1 inches).

Margins can be manipulated within a software program to print up to 2 mm (0.01 inch) from the edge of the media. However, print quality might be negatively affected within 5 mm (0.2 inch) from the edge of the media.



Printable area from edges








Maximum printable area

Hard disk reinitialization

When a hard disk is installed, it must be initialized.

Reinitialize a hard disk using the control panel

- 1 Turn the printer off.
- 2 Turn the printer on.
- 3 Press and hold  on the control panel during the memory count.
- 4 Hold  down until all three error lights illuminate steadily.
- 5 Press  until INITIALIZE DISKS appears on the display panel.
- 6 Press .
- 7 The printer begins initializing the disk (this might take a moment). The control panel displays the HP event logo and eventually displays .

Reinitialize a hard disk using PJI commands

Create the following PJI command in MS-DOS EDIT:

Esc E Esc%-12345X@PJI FSINIT VOLUME = "1:"

Copy this to the printer using the DOS command:

copy/b.

For this command to take effect, the printer must be turned off and on after sending the command.

Both of the above methods set the hard disk to the required state of "VOLUME 0."

NVRAM initialization

Initializing NVRAM will reset the serial number, the event log, the page counts, the calibration settings, and the EIO card. Use the Service menu to restore the serial number and page counts. You will also need to reconfigure any computers that print to this printer to recognize the printer. Initialize NVRAM only when absolutely necessary. In most situations, use a Cold reset to reset printer variables but still retain the needed values in the service menu.

Before initializing NVRAM, print a configuration page and a supplies status page to gather the following information:

- total page count and color page count
- transfer kit count
- fuser kit count
- serial number

To initialize NVRAM

- 1 Turn the printer on and watch the control panel display.
- 2 When the display begins showing the memory count, press and hold ▼ until all three lights on the control panel are lit.
- 3 Press ▲.
- 4 Press . The display should show SKIP DISK LOAD.
- 5 Press ▲ until NVRAM INIT is highlighted.
- 6 Press ✓. The printer will initialize NVRAM and then continue its power-on sequence.

NVRAM reset can save certain key variables and restore them when the initialization is complete. A hard disk drive must be installed to perform a NVRAM reset. Items that are saved include:

- event/error log
- model number
- model name
- printer name
- printer serial number
- formatter serial number
- service ID (born-on date)
- control panel language
- default paper size
- cold reset paper size
- auto cleaning page size
- total duplex counts
- non-toner consumable counts
- engine page count
- color engine page count
- tray 1 size
- envelope feeder size
- default unit of measure for default custom paper size
- default unit of measure for each tray
- print offset registration settings
- left margin offset (for each media size)
- leading edge margin offset (default)
- usage meter date (count and charges, detail and totals)
- usage page data not related to page counts
- list of last five cartridges installed in the printer
- NVRAM values for pixel count and EPR
- consumables reorder url

Use the following steps to perform a NVRAM reset:

- 1** Turn the printer off and replace the formatter.
- 2** Enter the NVRAM reset key sequence when the printer is turned on for the first time.
- 3** Critical values are copied from the disk to NVRAM.

The reset only works if the key sequence is entered the first time the printer is turned on after the new board is installed. If the printer is turned on without entering the key sequence, all of the values are set to what is in the NVRAM on the new board and the backup data on the disk is lost.

The hard disk is guaranteed to have the most current data backed up, so the updated data is always accurate. Also, you do not have to wait for an automatic periodic disk sync before turning the printer off to change the formatter.

The NVRAM reset sequence resets all NVRAM values when a hard disk drive is not used.






Cold reset

The cold reset clears all data from the printer memory and returns all of the defaults to the factory settings.

Performing a cold reset resets the Jetdirect print server configuration. To avoid making changes to your network configuration, remove the HP Jetdirect print server before performing a cold reset.







If possible, print a configuration page and menu map before performing a cold reset. This documents the current settings for later reference.

To perform a cold reset





- 1 Turn off the printer, and then turn the printer on again.
- 2 Press and hold  during the memory count.
- 3 Continue to hold  until all three control panel lights illuminate steadily, and then release .
- 4 When `SELECT LANGUAGE` appears on the control panel, press .
- 5 `COLD RESET` appears.
- 6 Press  while `COLD RESET` appears on the control panel. The cold reset is complete.

To skip disk

Use the skip disk function to turn on the printer without recognizing the hard disk. This is useful for troubleshooting hard disk problems without having to remove the hard disk.

- 1 Turn off the printer, and then turn the printer on again.
- 2 Press and hold  during the memory count.
- 3 Continue to hold  until all three control panel lights illuminate steadily, and then release .
- 4 Press , and then press .
- 5 When `SKIP DISK LOAD` appears on the control panel, press .
- 6 The printer starts without recognizing the hard disk.

To skip calibration

- 1 Turn off the printer, and then turn the printer on again.
- 2 Press and hold  during the memory count.
- 3 Press , and then press .
- 4 Scroll to `SKIP CALIBRATION`, and then press .
- 5 The printer starts without calibrating.

Product maintenance

Preventative maintenance	92
Image transfer kit	92
Image cleaning kit	92
Image fuser kit	92
Cleaning the printer and accessories	93
General cleaning	93
Cleaning procedures	94
Cleaning the post charger	94
Cleaning the separation guide, feed guide, and front fuser guide	94
Cleaning the fuser input	94
Cleaning the registration roller unit	95
Cleaning the other rollers	95
Cleaning the tray 1 separation pad	95
Print cartridges	96
Non-HP print cartridges and image drums	96
Authenticating print cartridges	96
Storing print cartridges	97
Image drums	98
Storing image drums	98
Firmware upgrades	99
Downloading the new firmware from the HP Web site	99
Downloading the new firmware to the printer	99
Remote firmware update through a local Windows port	99

The image transfer, image cleaning, and image fuser kits are used in a preventative maintenance routine for the printer.

Image transfer kit

The image transfer kit (part number C8555-67901) contains the following parts: the transfer roller, the transfer belt, one charcoal filter, one toner wipe, two small tray rollers, and seven large tray rollers.

The image transfer kit should be replaced after every 200,000 pages of printing. When the counter reaches 200,000 pages, the printer stops printing until the kit is replaced and the count is reset at the control panel.

Hewlett-Packard recommends that you place an order for a replacement image transfer kit when the `ORDER TRANSFER KIT` message first appears on the control panel display.

The product number for the image transfer kit for the HP color LaserJet 9500 series printer is C8555A.

Storing the image transfer kit

Do not remove the image transfer kit from its package until you are ready to use it. Touching the belt can degrade print quality.

Store the kit in a cool, dry location. Sudden changes in temperature and humidity can cause condensation to form on the belt, which degrades print quality.

Store the kit in a horizontal position.

Image cleaning kit

The image cleaning kit (part number C8554-67901) contains one transfer cleaner, one air filter, one toner wipe, and one toner collection bottle.

The entire image cleaning kit should be replaced at or before 50,000 pages of printing. The cleaning kit will need to be replaced earlier than 50,000 pages if you are printing less than 2.5 percent or more than 5 percent toner coverage per color per page. Hewlett-Packard recommends that you place an order for a replacement cleaning kit when `ORDER CLEANING KIT` first appears on the control panel display.

The product number for the cleaning kit for the HP color LaserJet 9500 series printer is C8554A.

Image fuser kit

The image fuser kit (part number C8546-69007) contains a fuser. It should be replaced after every 100,000 pages of printing. When the counter reaches 100,000 pages, the printer stops printing until the kit is replaced and the count is reset at the control panel.

Hewlett-Packard recommends that you place an order for a replacement image fuser kit when the `ORDER FUSER KIT` message first appears on the control panel display.

The product number for the image fuser kit for the HP color LaserJet 9500 series printer is C8556A.

To maintain superior print quality and performance, use the following procedures to thoroughly clean the printer and the finishing device.

General cleaning

In order to avoid shock hazard, turn the printer off and unplug all power cords before you begin these steps.

Do not use ammonia-based cleaners on the printer or finishing device. While cleaning the printer, be careful not to touch the transfer or delivery rollers. Skin oils on the roller can cause print-quality problems.

- clean the outside of the printer with a water-dampened cloth

- clean the inside of the printer with a dry, lint-free cloth

Cleaning spilled toner

Defective print cartridges can develop leaks. After a jam has occurred, some toner might remain on the rollers and guides inside of the printer. The pages that print immediately after the jam can pick up this toner. A blank cleaning page is printed after a jam occurs in the fuser area.

To clean skin and clothing of toner spills, remove as much toner as possible with dry tissue, and then wash the clothing in cold water. Hot water causes toner to permanently set into clothing.

Vacuum specifications

Do not vacuum the printer or any spilled toner with a conventional vacuum. Toner particles used in this printer might be too fine for effective vacuuming and could result in damage to the conventional vacuum cleaner.

A vacuum cleaner specifically designed for cleaning toner can be used if it is capable of filtering fine particles (5 microns in diameter).

Dispose of waste toner in accordance with local requirements. Do not discharge toner particles in drains.

First aid measures

Ingestion—If toner is ingested, rinse your mouth thoroughly with water and drink several glasses of water. If irritation occurs, consult a physician.

Inhalation—If toner particles are inhaled, move to fresh air immediately. If irritation occurs, consult a physician.

Eye contact—If toner comes in contact with the eyes, immediately flush them with plenty of water for at least 15 minutes. If irritation occurs, consult a physician.

Skin contact—If toner spills on skin, remove as much toner as possible using dry tissue (more than one might be needed), and then wash the affected area of the skin with cold water. If irritation occurs, consult a physician.

Some print-quality problems can be resolved by cleaning certain printer components rather than replacing a printer part.

Cleaning the post charger

- 1 Open the right side door.
- 2 Locate the blue handle of the post charger cleaner on the front left of the image transfer belt.
- 3 Gently slide the post charger cleaner to the right until it stops. The spring should be compressed.
- 4 Slide the cleaner to the left back into place.
- 5 Repeat steps 3 and 4 to clean the post charger a second time.
- 6 Close the upper right door. If the door does not close, make sure that the blue handle of the post charger cleaner is positioned at the far left of the image transfer belt.

Cleaning the separation guide, feed guide, and front fuser guide

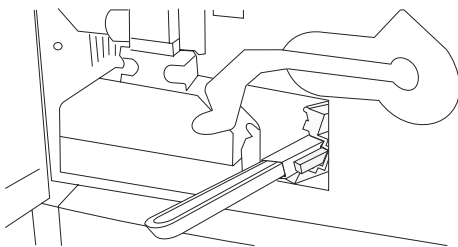
Clean these guides with lint-free cloth. If any dirt or dust cannot be removed, use alcohol on the lint-free cloth.

Cleaning the fuser input

- 1 Open the front doors of the printer, and then swing the large green lever down.
- 2 On the front of the printer, locate the blue transfer-roller handle beneath the large green lever. Grasp the handle and pull the roller out of the printer. Set the roller on a clean, flat surface.

Do not touch the black foam roller, and be careful not to scratch the underside of the image transfer belt as you remove the roller from the printer.

- 3 Remove the green tongs and blue brush mounted on the inside of the right front door.
- 4 Slide the open end of the brush onto the tongs until it snaps into place.
- 5 Hold the tongs so that the brush is at a 45-degree angle and align the brush with the transfer roller slot. Insert the brush into the slot.



Cleaning the fuser input (step 5)

- 6 Slide the brush into the transfer roller slot until it stops, and then slide the brush toward you until the brush is almost out of the transfer roller slot.

Do not pull up or sideways on the brush. Push and pull the brush straight in and out of the printer.

- 7 Repeat step 6 three times, and then remove the brush from the printer.

- 8 Remove the brush from the tongs by raising the snap on the back of the brush and pulling the brush away from the tongs.
- 9 Replace the tongs and brush on the inside of the right door.
- 10 Using one hand to support the underside of the transfer roller, turn the roller to a 45-degree angle and align the roller with the slot. Slide the roller into the slot until it stops.

Do not touch the black foam roller, and be careful not to scratch the underside of the image transfer belt as you insert the roller into the printer.

- 11 Swing the green lever up, and then close the front doors.

Cleaning the registration roller unit

Registration roller: Clean the registration roller by using a lint-free cloth. If any dirt or dust cannot be removed, use alcohol on the lint-free cloth.

Pre-registration roller: Clean the registration roller by using a lint-free cloth. If any dirt or dust cannot be removed, use alcohol on the lint-free cloth.

Cleaning the other rollers

Clean these rollers by using a lint-free cloth. If any dirt or dust cannot be removed, use alcohol on the lint-free cloth.

Cleaning the tray 1 separation pad

Clean the tray 1 separation pad by using a lint-free cloth.

When you use an authentic HP print cartridge, you can obtain the following types of supplies information throughout the cartridge life:

- the amount of cartridge life remaining
- the estimated number of pages remaining
- the number of pages printed
- other supplies information

Authentic HP print cartridges for the HP color LaserJet 9500 series printer have the following part numbers:

Print cartridge	Product number	Part number
Black	C8550A	C8550-67901
Cyan	C8551A	C8551-67901
Yellow	C8552A	C8552-67901
Magenta	C8553A	C8553-67901

Print cartridge life is directly proportional to the coverage of toner on the page. Each color print cartridge prints approximately 25,000 pages of letter-size or A4-size media at 5 percent toner coverage (a full page of text).

Hewlett-Packard recommends that you place an order for a replacement print cartridge when the `ORDER <COLOR> CARTRIDGE` message first appears on the control panel display.

Non-HP print cartridges and image drums

Hewlett-Packard Company cannot recommend the use of non-HP print cartridges and image drums, either new or remanufactured. Because they are not HP products, HP cannot influence their design or control their quality. Service or repairs that are required as a result of using a non-Hewlett-Packard print cartridge are *not* covered under the printer warranty.

When a non-HP cartridge is installed, the `NON HP CARTRIDGE DETECTED` message appears on the printer control panel display. You must press the `OK` button to continue printing. The message remains on the control panel display until all of the non-HP cartridges are replaced with authentic HP cartridges. The non-HP cartridge cannot report on the status of the print cartridge, such as the amount of cartridge life remaining, the estimated number of pages remaining, the number of pages printed, and other supplies information.

Non-HP cartridges do not report the `ORDER <COLOR> CARTRIDGE` and `REPLACE <COLOR> CARTRIDGE` messages.

Authenticating print cartridges

When you insert a print cartridge in the printer, the printer informs you if the cartridge is not a HP print cartridge. If you insert a used HP cartridge from another HP printer, the printer might print as many as 40 pages before it identifies the cartridge as a genuine HP cartridge and then reactivates the supply-status features. You can override the `NON HP CARTRIDGE DETECTED` message by pressing the `OK` button.

If the printer control panel message states that this is not a genuine HP print cartridge, and you believe you purchased an HP cartridge, call the HP fraud hotline at (1) (887) 219-3183 (toll-free in North America).

Storing print cartridges

Follow these guidelines for storing print cartridges:

- Do not remove the print cartridge from its package until you are ready to use it.

- Store the cartridge in a horizontal position.

- Store the cartridge in a location within a temperature range of 0° to 35° C (32° to 95° F) and a relative humidity range of 35 percent to 85 percent.

If the print cartridge must be removed from the printer, always store the cartridge under the following condition:

- inside the protective bag in which it was originally packaged

- in a dark cabinet, away from direct sunlight

- with the correct side up, and in a horizontal position (not standing on end)

- in a temperature that is listed above

- away from ammonia or other organic-solvent fumes

Never ship the printer with print cartridges or image drums installed. Excessive vibration during shipping can cause toner to leak, contaminating the printer.

Each color image drum prints approximately 40,000 pages of letter-size or A4-size media. When you use a new HP image drum, you can obtain the following types of supply information throughout its life:

- the amount of image-drum life remaining
- the estimated number of pages remaining
- the number of pages printed
- the other supply information

Authentic HP image drums for the HP color LaserJet 9500 series printer have the following part numbers:

Image drum	Product number	Part number
Black	C8560A	C8560-67901
Cyan	C8561A	C8561-67901
Yellow	C8562A	C8562-67901
Magenta	C8563A	C8563-67901

Hewlett-Packard recommends that you place an order for a replacement image drum when the ORDER <COLOR> DRUM message first appears on the control panel display.

Storing image drums

Follow these guidelines for storing image drums:

- Do not remove the drum from its package until you are ready to use it.

Never expose the image drum to direct sunlight, or to room light. Bright light and direct sunlight can permanently damage a print cartridge or image drum.

- Store the drum in a horizontal position.

Store the drum in a dark, dry location with a temperature range of 0° to 35° C (32° to 95° F) and a relative humidity range of 35 percent to 85 percent.

- Avoid exposing the drum to magnetic sources.

Handling instructions

- Do not touch the surface of the photosensitive drum.

- Do not set the drum on carpet. Set the drum on a flat, clean, dust-free surface.

- Do not expose the drum to unnecessary vibrations or shock.

Do not expose the photosensitive drum to strong light. Blurred areas on the page might indicate that the drum has been exposed to light for too long. This causes permanent damage to the photosensitive drum. If this occurs, replace the drum.

Never manually rotate the drum, especially in the reverse direction; it can cause internal damage and toner spills.

Downloading the new firmware from the HP Web site

For support information about downloading new firmware from the Web, go to:
http://www.hp.com/go/clj9500_firmware

Downloading the new firmware to the printer

The printer can receive an .rfu update to a printer as long as it is in a **READY** state. The printer waits for all of the I/O channels to become idle before performing the update.

The firmware update involves a change in the format of nonvolatile random-access memory (NVRAM). Any menu settings that are changed from the default settings return to default settings and must be changed again if you want settings that are different from the defaults. Examples of settings that are affected in this way are tray types, default symbol sets, and Web access alerts.

The elapsed time for an update depends on the I/O transfer time, as well as the time that it takes for the printer to reinitialize. The I/O transfer time depends on a number of things, including the speed of the host computer that is sending the update and the I/O method (Fast InfraRed Connect [FIR], parallel, or network). The reinitialization time depends on the specific hardware configuration of the printer, such as the number of EIO devices installed, the presence of external paper-handling devices, and the amount of memory installed.

If the remote firmware update process is interrupted before the firmware is downloaded (when **RECEIVING UPGRADE** appears on the control panel), the firmware file must be sent again. If power is lost during the flash DIMM update (when **UPGRADING PRINTER** appears on the control panel), the update is interrupted and the message **RESEND UPGRADE** appears (in English only) on the control panel. The update must be sent only by a computer that is attached to the parallel port of the printer.

Finally, any print jobs ahead of the .rfu job in the queue are printed before the update is processed.

The printer automatically turns off and then on again after processing the update.

Remote firmware update through a local Windows port

If the printer is connected through a local port (USB or parallel), then you can send the .rfu file directly to the printer by using a **Copy** command from a command prompt or an MS-DOS (R) window. At the command prompt, perform the following steps for your operating system.

Windows 95, Windows 98, or Windows Me

- 1 From a command prompt or in an MS-DOS window, type:
Mode lpt1:,,p

If the printer is attached to a parallel port other than LPT1, then substitute the proper LPT port number in the mode command.

- 2 Press .
- 3 The response you receive should be similar to these examples:
LPT1 Not Rerouted
Resident portion of MODE loaded
Infinite retry on parallel printer time-out
- 4 At a command prompt, type:
copy /b <FILENAME> <PORTNAME>

where <FILENAME> is the name of the .rfu file (including the path) and <PORTNAME> is the name of the appropriate printer port (such as LPT1). For example, C:\>copy/b c:\9500fw.rfu lpt1

If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type C:\>copy/b "c:\My Documents\9500fw.rfu" lpt1

- 5 Press . A message appears on the control panel. See "Printer messages during firmware update" on page 105. At the end of the upgrade process, **READY** appears on the control panel.
- 6 Print a configuration page and verify that the firmware revision number matches the revision of the current upgrade.
- 7 Type the word "exit" at the command prompt to close the command window.

Windows NT 4.0, Windows 2000, Windows XP, or Windows Server 2003

The .rfu file can be sent directly to the printer by typing a copy command at a command prompt or in an MS-DOS window.

- 1 At a command prompt, type:
copy /b <FILENAME> <PORTNAME>

where <FILENAME> is the name of the .rfu file (including the path) and <PORTNAME> is the name of the appropriate printer port (such as LPT1). For example, C:\>copy/b c:\9500fw.rfu lpt1

If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type: C:\>copy/b "c:\My Documents\9500fw.rfu" lpt1

- 2 Press . A message appears on the control panel. See "Printer messages during firmware update" on page 105. At the end of the upgrade process, **READY** appears on the control panel.
- 3 At the command prompt, type the word "exit" to close the command window.

Remote firmware update through a Windows network

If the printer is shared on a Windows network, follow these instructions.

- 1 From a command prompt or in an MS-DOS window, type:
copy /B <FILENAME> \\<COMPUTERNAME>\<SHARENAME>

where <FILENAME> is the name of the .rfu file (including the path), <COMPUTERNAME> is the name of the computer from which the printer is being shared, and <SHARENAME> is the printer share name. For example, C:\>copy /B c:\9500fw.rfu \\your_server\your_computer

If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type C:\>copy/b "c:\My Documents\9500fw.rfu" \\your_server\your_computer

- 2 Press . A message appears on the control panel. See "Printer messages during firmware update" on page 105. At the end of the upgrade process, **READY** appears on the control panel. The message "1 file(s) copied" appears on the computer screen.

Remote firmware update for UNIX systems

For UNIX systems, any command method that delivers the .rfu file to the printer is acceptable, including the following:

- 1 At the command prompt, type:
\$cp </home/yourmachine/FILENAME/dev/parallel>

where </home/yourmachine/FILENAME> contains the .rfu file.

Remote firmware update using FTP on a direct network connection

If the HP color LaserJet 9500 series printer uses a direct network connection, use file transfer protocol (FTP) to update your HP LaserJet firmware. Complete the following steps for your operating system.

Windows operating systems

- 1 Take note of the TCP/IP address on the EIO Jetdirect page. The HP Jetdirect page is the second page of the configuration page printout.

Before connecting to the printer, make sure that the printer is not in PowerSave mode. Also, make sure that any error messages are cleared from the control panel.

- 2 Open a command window on your computer.

- 3 Type:
ftp <TCP/IP PRINTER ADDRESS>

For example, if the TCP/IP address is 192.168.0.90, type ftp 192.168.0.90

- 4 Press `.`
- 5 When prompted for the user name, press `.`
- 6 When prompted for the password, press `.`
- 7 Type the word "bin" at the command prompt.
- 8 Press `.` The message "200 Types set to I, Using binary mode to transfer files" appears in the command window.
- 9 Type:
put <FILENAME>

where <FILENAME> is the name of the .rfu file that was downloaded from the Web, including the path. For example, type:
put C:\LJ\9500FW.RFU

and then press `.`

If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type put "c:\My Documents\LJ\9500fw.rfu"

- 10 The following series of messages appears in the command window:

```
200 PORT command successful
150 Opening BINARY mode data connection
226 Ready
226 Processing Job
226 Transfer complete
```

A message containing transfer speed information appears.

- 11 The download process begins and the firmware is updated on the printer. This can take about five minutes. Let the process finish without further interaction with the printer or computer.

The printer automatically turns off and then on again after processing the upgrade.

- 12 At the command prompt, type the word "bye" to exit the ftp command.
- 13 At the command prompt, type the word "exit" to return to the Windows interface.

Mac operating systems

- 1 Take note of the TCP/IP address on the EIO Jetdirect page. The Jetdirect page is the second page of the configuration page printout.
- 2 Open a Terminal window on your Macintosh. You can find the Terminal application on the computer hard drive under the Applications/Utilities folder.
- 3 Type:
FTP <TCP/IP PRINTER ADDRESS>

For example, if the TCP/IP address is 192.168.0.90, type FTP 192.168.0.90.

- 4 Press `.`
- 5 When prompted for a user name and password, press `.`
- 6 Type put:
<path>

where <path> is the location where the .rfu file was downloaded from the Web, including the path. For example type put C:\LJ\9500FW.RFU, and then press `.`

If the file name or path includes a space, you must enclose the file name or path in quotation marks. For example, type put "c:\My Documents\LJFW.RFU"

To ensure that the entire proper path to the .rfu file is placed in the **Put** command, type the word "put", then type a space, and then click and drag the .rfu file on to the terminal window. The complete path to the file will be automatically placed after the **Put** command.

- 7 The download process begins and the firmware is updated on the printer. This can take about five minutes. Let the process finish without further interaction with the printer or computer.

The printer automatically turns off and then turns on again to activate the update.

Remote firmware update using FTP through a browser

Follow the instructions below to use FTP through a browser to update the printer firmware remotely.

The following instructions can be used on Windows or Mac operating systems.

- 1 Open a browser window.
- 2 In the address line of the browser, type:
ftp://<IPADDRESS>

where <IPADDRESS> is the TCP/IP address of your printer. For example, if the TCP/IP address is 192.168.0.90, type FTP 192.168.0.90

- 3 Locate the .rfu file for the printer.
- 4 Drag and drop the .rfu file onto the PORT1 icon in the browser window.

Remote firmware update using Fetch (Mac OS 8.6 and OS 9. x only)

For Mac OS 8.6 through 9.x OSs, a shareware program called Fetch provides FTP control for a **Put** command. Download and install the program from:

<http://download.cnet.com/downloads/0-10207-100-5250613.html>

Follow these instructions to use Fetch.

- 1 Start the program by clicking on the Fetch icon.
- 2 Type the IP address of the printer in the Host: box

- 3 Click the **Put Files** button and browse to the location of the .rfu file.
- 4 Double-click the file to select it and download it to the printer. A confirmation message appears in the main window.
- 5 Click **OK**.

Remote firmware update using the HP LaserJet utility (Mac OS 8.6 and OS 9. x only)

Follow these instructions to update the firmware using the HP LaserJet utility.

- 1 The first step is to make sure you have the tools and files necessary for the update. You will need the HP LaserJet utility and the 9500fw.rfu file, which is the firmware file for the printer.

The HP LaserJet utility can be found on the HP color LaserJet 9500 printing-system software CD-ROM that came with the printer. If you do not have the software CD-ROM, you can obtain the HP LaserJet utility by downloading the latest printer installer from <http://www.hp.com>

The firmware file (9500fw.rfu) can be downloaded from
http://www.hp.com/go/clj9500_firmware

When you have the firmware file and the HP LaserJet utility, you are ready to begin the upgrade process.

- 2 Launch the HP LaserJet utility.
- 3 Click **Select Printer** and locate the printer you would like to upgrade on the network.
- 4 Select the printer on the right side of the dialog box, and click **OK**. An information dialog box for the HP color LaserJet 9500 printer appears.
- 5 On the left side of the information dialog box, click **Files**. A dialog box appears that allows you to choose a file to be downloaded to the printer.
- 6 Click **Select File**.
- 7 Locate the 9500fw.rfu file on your hard disk, and click the file name to highlight it. Then click **Select**. The **Files** dialog box updates showing the 9500fw.rfu file under **File to download**.
- 8 Click **Download**.

The HP LaserJet utility starts downloading the file to the printer. A progress bar keeps you updated on how much of the file has been downloaded. When the file is downloading, **RECEIVING UPGRADE** appears on the control panel. After the file downloads to the printer, **PERFORMING UPGRADE** appears on the control panel.

The printer automatically turns off and then turns back on again after processing the upgrade.

- 9 After the printer turns on again and finishes initializing, print a configuration page to make sure that the new firmware is installed. Press 22 on the control panel to print a configuration page.

Remote firmware update using the LPR command

This remote firmware update method is for use in Windows NT 4.0, Windows 2000, Windows XP, and Windows Server 2003.

Follow the instructions below to update the printer software remotely by using the LPR command.

- 1 From a command window, type:
lpr -P <IPADDRESS> -S <IPADDRESS> -o l <FILENAME>
or
lpr -S <IPADDRESS> -Pbinps <FILENAME>

where <IPADDRESS> can be either the TCP/IP address or the hostname of the printer, and where <FILENAME> is the filename of the .rfu file.

The parameter (-o l) consists of a lowercase "O", not a zero, and a lowercase "L", not the numeral 1. This parameter sets the transport protocol to binary mode.

- 2 Press . A message appears on the control panel. See "Printer messages during firmware update" on page 105. At the end of the upgrade process, **READY** appears on the control panel.
- 3 Type the word "exit" at the command prompt to close the command window.

Using HP Web JetAdmin to download the firmware to the printer

This procedure requires that you install HP Web JetAdmin version 7.0 or later on your computer. Complete the following steps to update a single printer through HP Web JetAdmin after downloading the .rfu file from the HP Web site.

- 1 Start HP Web JetAdmin.
- 2 Type the TCP/IP address or IP host name of the printer in the **Quick Device Find** field, and then click **Go**. The printer Status window appears.
- 3 Open the Device Management folder in the drop-down list in the Navigation panel. Navigate to the Device Lists folder.
- 4 Expand the Device Lists folder and select All Devices. Locate the printer you wish to update in the list of printer and click to select it.
- 5 Locate the drop-down box for **Device Tools** in the upper right corner of the window. Select **Update Printer Firmware** from the **Choose Action** list.
- 6 If the name of the .rfu file is not listed in the **All Available Images** box, click **Browse** in the **Upload New Firmware Image** dialog box and navigate to the location of the .rfu file you downloaded from the web at the start of this procedure. If the filename is listed, select it.
- 7 Click **Upload** to move the .rfu file from your hard drive to the HP Web JetAdmin server.
- 8 Refresh the browser.
- 9 Select the .rfu file from the **Printer Firmware Update** drop-down menu.
- 10 Click **Update Firmware**. HP Web JetAdmin sends the selected .rfu file to the printer. A message appears on the control panel. See "Printer messages during firmware update" on page 105. At the end of the upgrade process, **READY** appears on the control panel.

HP Web Jetadmin 6.5 can be used to perform multiple or unattended installations.

- 1 Start HP Web Jetadmin.
- 2 Create a device group. A simple way to do this is to follow these steps:
 - a Click **Device Management**, and then click **All Devices**.

- b** Shift-click to select printers that you want to be included in the group, and then click **OK**.
 - c** When prompted, type a name for the new device group, and then click **OK**.
- 3** To modify several printers in a group, click the group name, and then click **Open**.
- 4** The drop-down menu for **Device Group Tools** appears in the right side of the window. Scroll if necessary to view it.
- 5** In the **Device Group Tools** drop-down box, choose an action. Type in the appropriate information, and then click **Return to Device Group** when you are finished.

Printer messages during firmware update

The printer shows three messages that appear during a normal update process.

Table 39. Update messages

Printer message	Explanation
RECEIVING UPGRADE	Appears when the printer recognizes the start of an .rfu update until the printer verifies the validity and integrity of the .rfu update.
UPGRADING PRINTER	Appears when the printer is reprogramming the firmware.
WAIT FOR PRINTER TO REINITIALIZE	Appears from when the printer finishes reprogramming the DIMM until the printer reinitializes.

To verify that the firmware update succeeded, print a new configuration page from the control panel and make sure that the firmware date code on the configuration page has changed.

Troubleshooting a firmware update

The following table lists the causes and results of possible interruptions to the firmware update.

Table 40. Troubleshooting a firmware update

Cause	Result
Control panel cancelled a job.	No update occurred.
A break in the I/O stream occurred during a send.	No update occurred.
A power cycle occurred during RECEIVING UPGRADE.	No update occurred.
A power cycle occurred during UPGRADING PRINTER.	No update occurred (resend the update through a parallel port).
A power cycle occurred during WAIT FOR PRINTER TO REINITIALIZE.	The update is complete.

Print jobs sent to the printer while an update is in process do not interrupt the update.

The following table lists possible reasons for the failure of a remote firmware update and the corrective action required for each situation.

Table 41. Troubleshooting a firmware update failure

Cause	Action
The .rfu file is corrupted.	The printer recognizes that the file is corrupted and rejects the update. Download the file again and send the new file to the printer. Download the file from: http://www.hp.com/go/clj9500_firmware
The .rfu file contains the wrong printer model.	The printer recognizes the model mismatch and rejects the update. Download the correct file and send it to the printer. Download the file from: http://www.hp.com/go/clj9500_firmware

Table 41. Troubleshooting a firmware update failure

Cause	Action
The upgrade is interrupted.	See table 40.
A flash hardware failure occurred.	The device might have a hardware failure.

Theory of operation

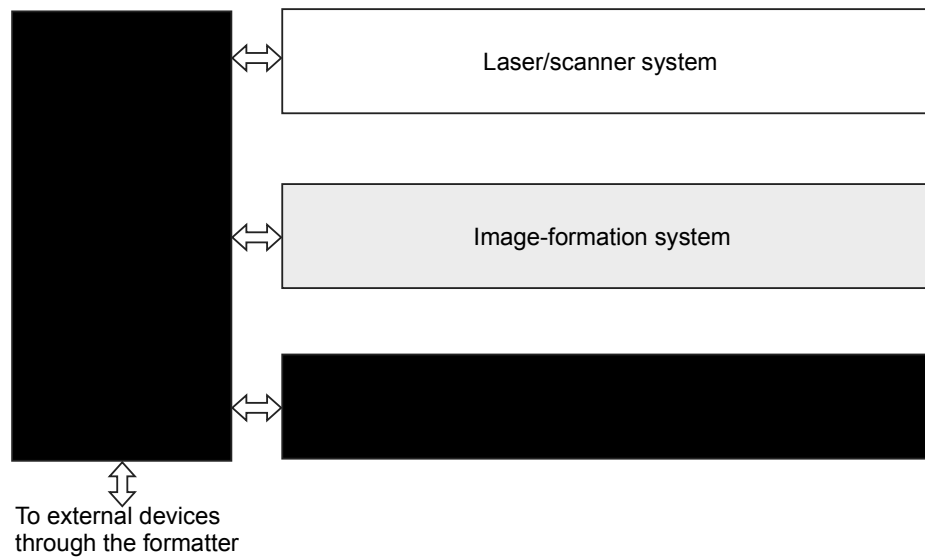
Basic operation	108
Major printer systems	108
Printer block diagram	109
Sequence of operation	110
Timing charts	112
Wiring diagrams	114
Flat flexible cable signals	118
Engine-control system	130
DC controller circuit	131
DC controller operations	134
T driver circuit	135
Fuser control circuit	136
Low-voltage power supply	137
High-voltage power supply circuits	138
Post charger power supply unit	138
Motors and fans	139
Switches, solenoids, clutches, and sensors	142
Formatter	146
DIMM slots	146
Formatter heartbeat LED	147
Laser/scanner system	148
Dual-beam method	149
Laser control	150
Scanner-motor control	154
Image formation system	158
Electrophotographic process	158
Image stabilization control	166
Paper-path system	169
Pickup/feed unit	171
Jam detection	178

Major printer systems

This chapter provides information about the following systems:

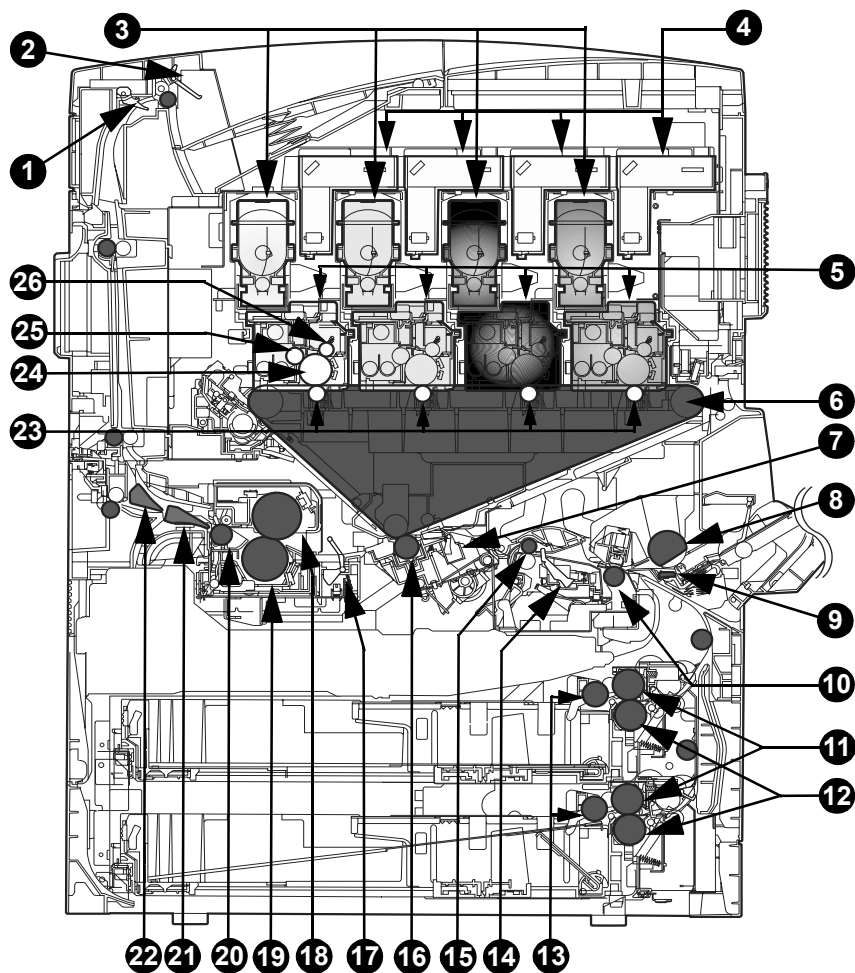
- engine control (page 130)
- formatter (page 146)
- laser/scanner (page 148)
- image formation (page 158)
- paper pickup (page 169)

Relationships among the four systems are represented in figure 15:



Printer systems

Printer block diagram



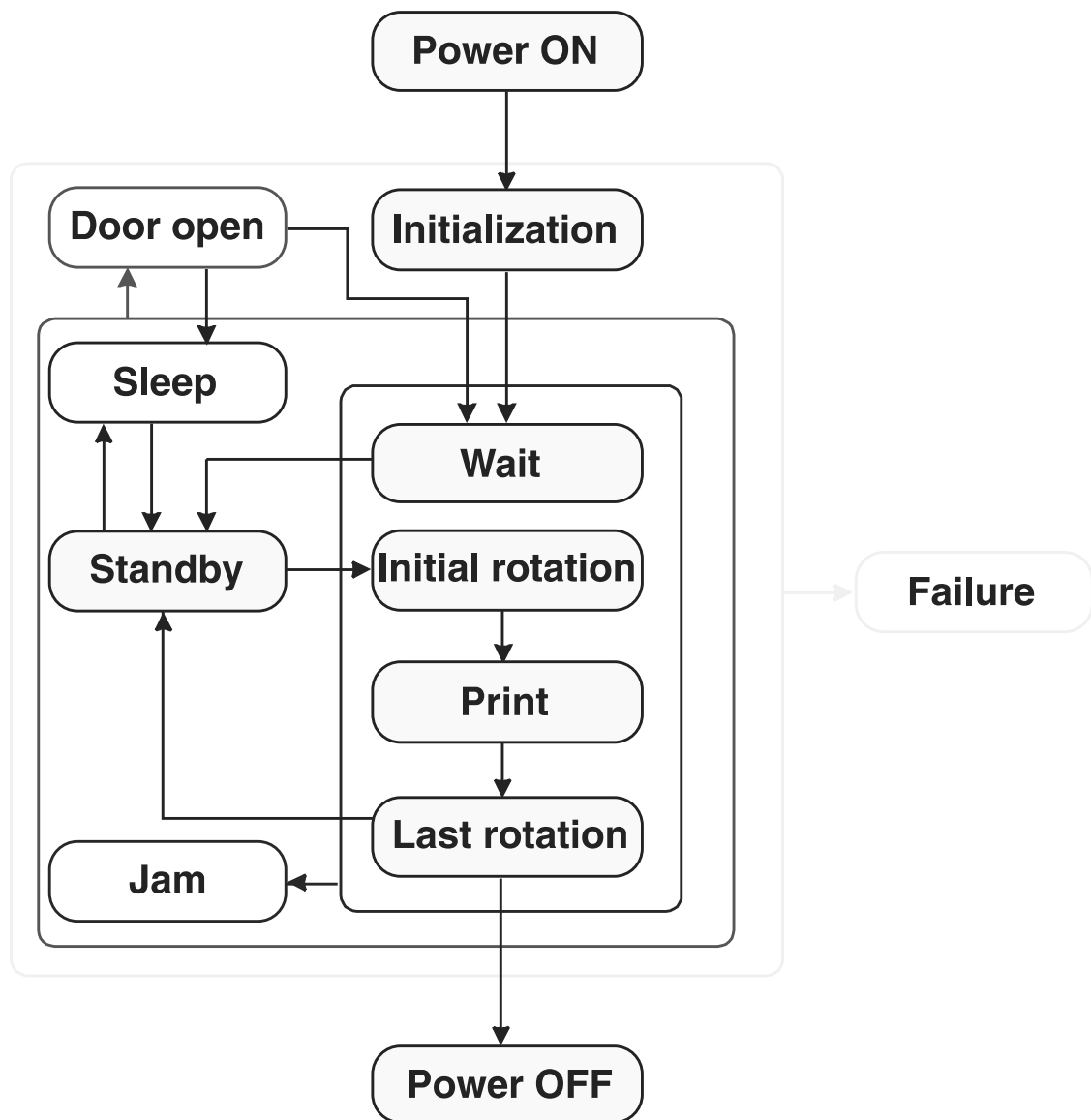
Printer components

Table 42. Printer components

Key	Description	Key	Description
	Face-down tray delivery sensor flag		Registration paper sensor flag
	Face-down tray paper-full sensor flag		Registration roller
	T cartridges (T-CRG; print cartridges)		Secondary transfer roller (T2)
	Laser/scanner assemblies		Fusing front paper sensor flag
	P cartridges (P-CRG; image drums)		Fusing roller
	Intermediate transfer belt (ITB assembly)		Pressure roller
	Secondary transfer assembly		Fusing delivery roller
	Tray 1 pickup roller		Duplex deflector
	Separation pad		Face-up deflector
	Pre-registration roller		Primary transfer roller (T1)
	Feed roller		Photosensitive drum
	Separation roller		Developing cylinder
	Pickup roller		Primary charging roller

Sequence of operation

The engine-control system controls the operational sequences. Table 44 describes the sequences. The sequence of operation from the time power is turned on until the printer enters the standby state is described in table 43.



Power-on block diagram

Table 43. Power-on sequence

Order	Description	Order	Description
	Power is turned on		Memory tag initializes
	Main CPU initializes		Cartridge memory check occurs
	Sub-CPU initializes		Standby temperature adjustment starts
	ASIC initializes		Residual-paper-jam check occurs
	All fans turn on		High-voltage control check occurs
	Formatter communication starts		Standby mode begins

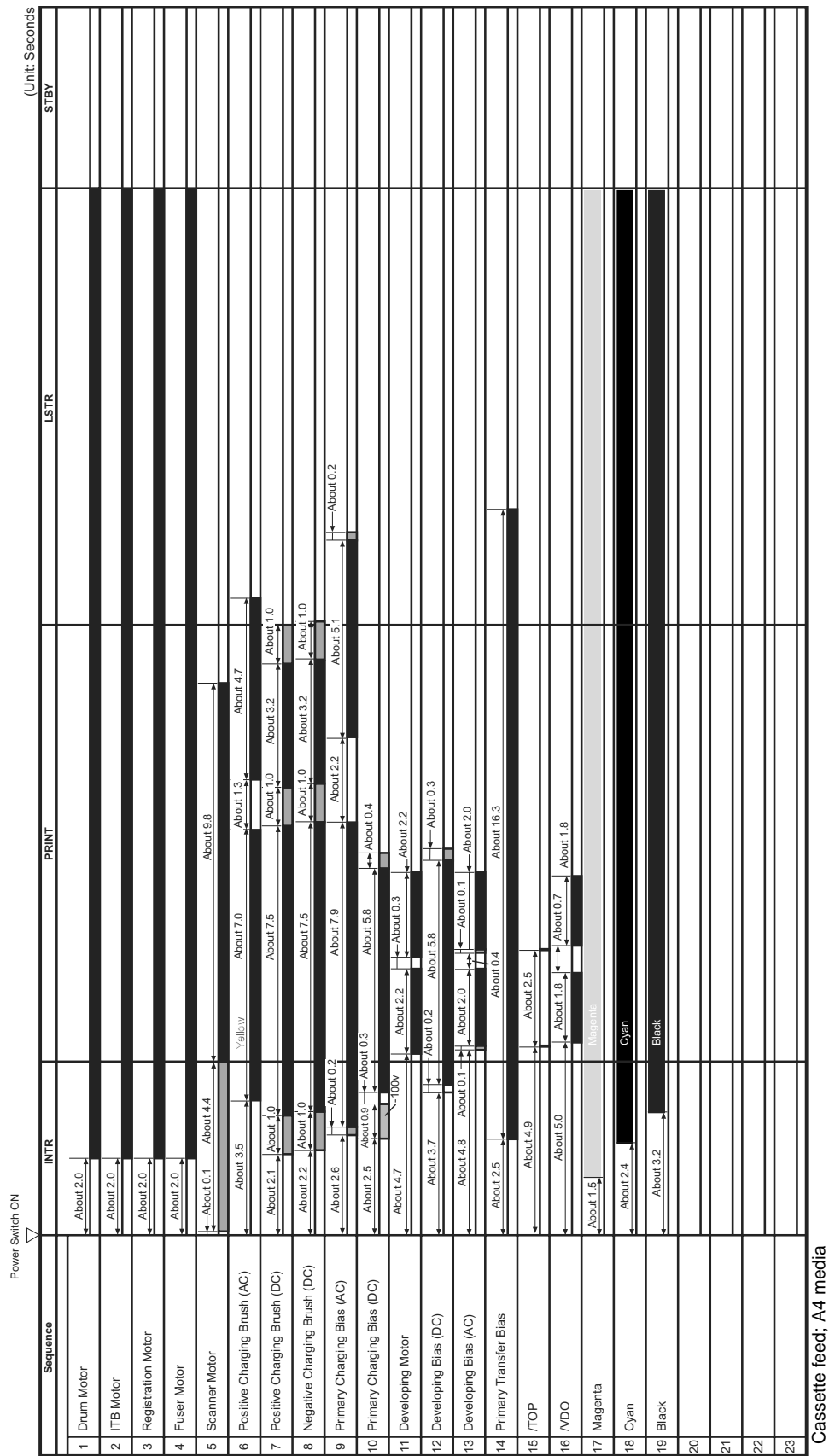
Table 44. Normal sequence of operation

State	Period	Operation
WAIT	From the time the power is turned on or a door is closed until the secondary transfer roller cleaning is complete	power on main CPU, sub CPU, and ASIC initialize power-supply-fan rotates memory tags are checked formatter interface communication starts high-voltage control sequence (values are set and the secondary transfer roller is cleaned) adjustment is made to reach the standby temperature calibrations are performed (D-max, D-half, CPR) jam/door-open/failure/emergency-stop check is performed
STBY (standby)	From the end of the WAIT or LSTR period until either the print command is sent from the formatter, or the power is turned off	print-start check is performed (search for print command) automatic delivery-request check is performed (the formatter commands the feed rollers to eject residual pages in the paper path, and the ITB, fuser, registration, and pickup rollers turn on) calibrations are performed door open/failure check is performed
INTR (initial rotation)	From the input of a print reservation command from the formatter until start-up of the primary transfer bias	motor rotates fan motors rotate at full speed laser scanner motor rotates automatic power control (APC) is adjusted initial-rotation final check is performed (OPC pre-ghost sequence occurs) jam/door-open/failure/sleep check is performed
PRINT	From the end of the INTR period until the secondary transfer bias is turned off	fuser temperature control occurs TOP signal turns on (engine to formatter output signal) image control occurs high-voltage control occurs paper pickup control occurs next-page-pickup timing is coordinated toner is supplied to the drum cartridge jam/door-open/failure/emergency-stop check
LSTR (last rotation)	From the end of the print operation until the drum motor and the ITB motor stop	paper pickup control occurs scanner motor stops high-voltage control stops fuser control reverts to standby fan-motor control occurs

Table 45. Failure sequence of operation

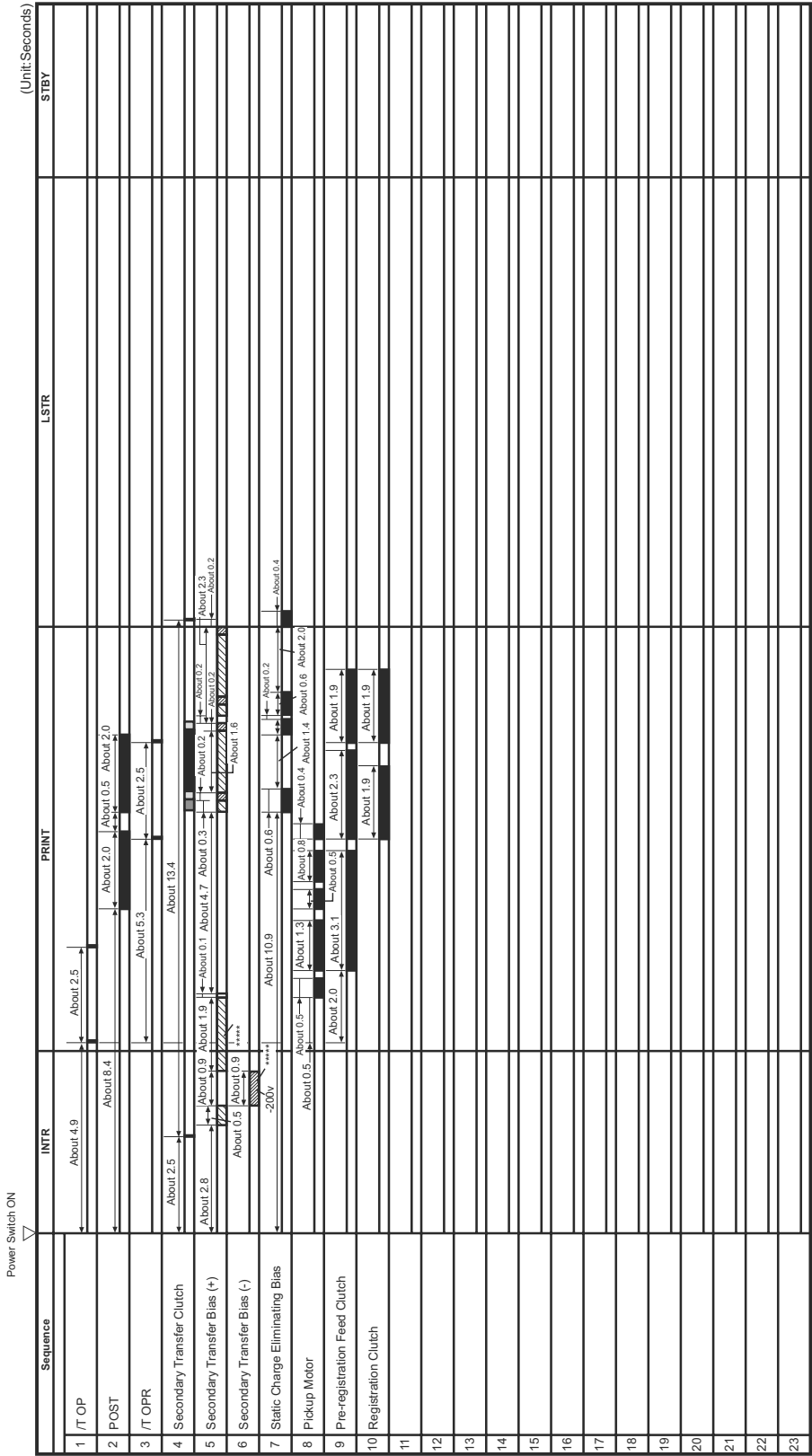
State	Period	Operation
JAM DOOR OPEN FAILURE	From the time the power is turned on until the end of the LSTR period	TOP signal turns off emergency stops occur: <ul style="list-style-type: none"> • scanner motor • high-voltage control • fuser control • all motors door-open check occurs

Timing charts

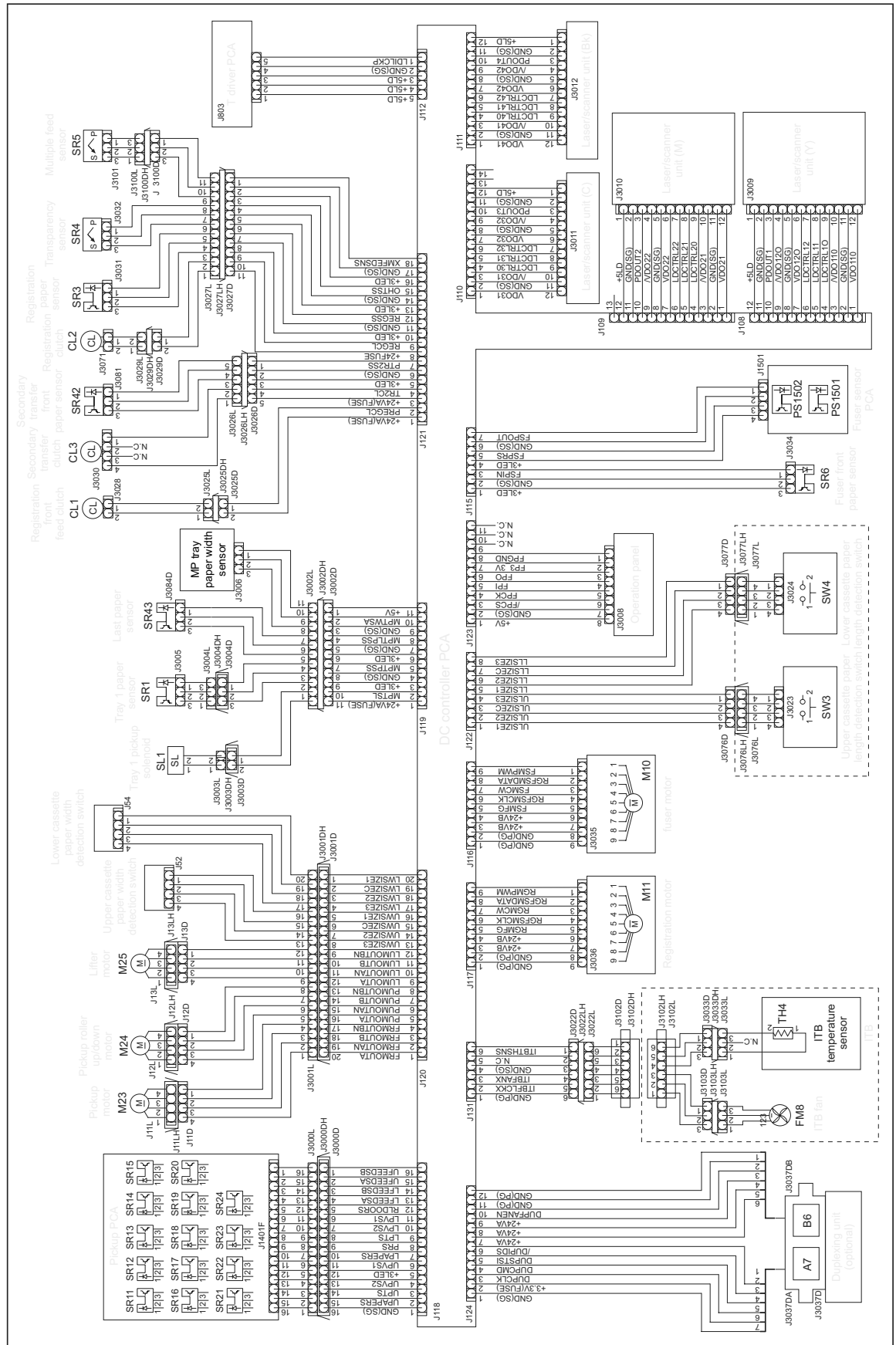


Timing chart (1 of 2)

Timing chart (2 of 2)



Wiring diagrams



Wiring diagram (1 of 4)

Flat flexible cable signals

This table provides information about DC controller connectors, pinouts, and signals. It is also useful for understanding flat flexible cable (FFC) signals that are not detailed on the wiring diagrams.

Table 46. FFC input/output signals on the DC controller

Connector	Pin	Signal name	I/O	Logic	Signal description
J101	1	+3.3 V			
	2	+24 VB			
	3	+24 VB			
	4	GND(PG)			
	5	GND(PG)			
	6	+24 VA			
	7	GND(PG)			
	8	+24 VA			
	9	GND(PG)			
	10	+5 V			
	11	GND(SG)			
	12	GND(SG)			
	13	LDILCKP	O		INTERLOCK RELAY DRIVE signal
J102	1	PSFNLCK	I	High	POWER SUPPLY FAN LOCK DETECTION signal
	2	P24VEN	O		+24 V OUTPUT ENABLE signal
	3	PSFNSPD	O		POWER SUPPLY FAN SPEED SWITCHING signal
	4	PSSSOPN	I	High	SOFT SWITCH OPEN DETECTION signal
	5	/POFF	O	Low	POWER OFF signal
	6	GND(SG)			

Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J103	1	FP3_3V			
	2	FPO	O	High	OPERATIONAL PANEL SERIAL DATA OUTPUT signal
	3	FPI	I	High	OPERATIONAL PANEL SERIAL DATA INPUT signal
	4	FPCCK	I		OPERATIONAL PANEL SERIAL CLOCK signal
	5	/FPCS	I	Low	OPERATIONAL CONTROLLER CHIP SELECT signal
	6	FPGND			
	7	+5V			
	8	+5V			
	9	GND(SG)			
	10	VDO41	I	High	VIDEO signal
	11	/VDO41	I	High	VIDEO signal
	12	VDO42	I	High	VIDEO signal
	13	/VDO42	I	Low	VIDEO signal
	14	VDO31	I	High	VIDEO signal
	15	/VDO31	I	Low	VIDEO signal
	16	VDO32	I	High	VIDEO signal
	17	/VDO32	I	Low	VIDEO signal
	18	VDO21	I	High	VIDEO signal
	19	/VDO21	I	Low	VIDEO signal
	20	VDO22	I	High	VIDEO signal
	21	/VDO22	I	Low	VIDEO signal
	22	VDO11	I	High	VIDEO signal
	23	/VDO11	I	Low	VIDEO signal
	24	VDO12	I	High	VIDEO signal
	25	/VDO12	I	Low	VIDEO signal
	26	/VDOEN	O	Low	VDO OUTPUT ENABLE signal
	27	GND(SG)			
	28	/TOP	O	Low	VERTICAL SYNCHRONOUS signal
	29	GND(SG)			
	30	/BDO1	O	Low	BD OUTPUT signal
	31	/BDO2	O	Low	BD OUTPUT signal
	32	/BDO3	O	Low	BD OUTPUT signal
	33	/BDO3	O	Low	BD OUTPUT signal
	34	GND(SG)			
	35	/CCRT	O	Low	STATUS CHANGE NOTIFY signal
	36	SC	I/O	High	STATUS COMMAND signal
	37	SCLK	I		SERIAL CLOCK
	38	/PFED	O	Low	PAPER FEED signal
	39	/TOPR	O	Low	TOP OF PAPER signal
	40	/PDVL	O	Low	PAPER DELIVERY signal
	41	JLPWRON	O	High	PAPER DECK POWER ON signal
	42	JLCANH	I/O	High	PAPER DECK COMMUNICATION signal
	43	JLCANL	I/O	Low	PAPER DECK COMMUNICATION signal
	44	GND(SG)			
	45	/VCRST	O	Low	VIDEO CONTROLLER RESET signal

Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J104	1	GND(SG)			
	2	+5V			
	3	+5V			
	4	DVM1PHB	O	High	DEVELOPING MOTOR DRIVE signal
	5	DVM1VRB	O	High	DEVELOPING MOTOR DRIVE signal
	6	DVM1VRA	O	High	DEVELOPING MOTOR DRIVE signal
	7	DVM1PHA	O	High	DEVELOPING MOTOR DRIVE signal
	8	DRM1PHB	O	High	DRUM MOTOR DRIVE signal
	9	DRM1VRB	O	High	DRUM MOTOR DRIVE signal
	10	DRM1VRA	O	High	DRUM MOTOR DRIVE signal
	11	DRMPHA	O	High	DRUM MOTOR DRIVE signal
	12	DVM2PHB	O	High	DEVELOPING MOTOR DRIVE signal
	13	DVM2VRB	O	High	DEVELOPING MOTOR DRIVE signal
	14	DVM2VRA	O	High	DEVELOPING MOTOR DRIVE signal
	15	DVM2PHA	O	High	DEVELOPING MOTOR DRIVE signal
	16	DRM2PHB	O	High	DRUM MOTOR DRIVE signal
	17	DRM2VRB	O	High	DRUM MOTOR DRIVE signal
	18	DRM2VRA	O	High	DRUM MOTOR DRIVE signal
	19	DRM2PHA	O	High	DRUM MOTOR DRIVE signal
	20	DVM3PHB	O	High	DEVELOPING MOTOR DRIVE signal
	21	DVM3VRB	O	High	DEVELOPING MOTOR DRIVE signal
	22	DVM3VRA	O	High	DEVELOPING MOTOR DRIVE signal
	23	DVM3PHA	O	High	DEVELOPING MOTOR DRIVE signal
	24	DRM3PHB	O	High	DRUM MOTOR DRIVE signal
	25	DRM3VRB	O	High	DRUM MOTOR DRIVE signal
	26	DRM3VRA	O	High	DRUM MOTOR DRIVE signal
	27	DRM3PHA	O	High	DRUM MOTOR DRIVE signal
	28	DVM4PHB	O	High	DEVELOPING MOTOR DRIVE signal
	29	DVM4VRB	O	High	DEVELOPING MOTOR DRIVE signal
	30	DVM4VRA	O	High	DEVELOPING MOTOR DRIVE signal
	31	DVM4PHA	O	High	DEVELOPING MOTOR DRIVE signal
	32	DRM4PHB	O	High	DRUM MOTOR DRIVE signal
	33	DRM4VRB	O	High	DRUM MOTOR DRIVE signal
	34	DRM4VRA	O	High	DRUM MOTOR DRIVE signal
	35	DRM4PHA	O	High	DRUM MOTOR DRIVE signal
	36	ITBMPHB	O	High	ITB MOTOR DRIVE signal
	37	ITBMVRB	O	High	ITB MOTOR DRIVE signal
	38	ITBMVRA	O	High	ITB MOTOR DRIVE signal
	39	ITBMPHA	O	High	ITB MOTOR DRIVE signal
J105	1	ENC21	I		DRUM ENCODER signal
	2	ENC22	I		DRUM ENCODER signal
	3	ENC31	I		DRUM ENCODER signal
	4	ENC32	I		DRUM ENCODER signal
	5	ENC41	I		DRUM ENCODER signal
	6	ENC42	I		DRUM ENCODER signal
	7	GND(SG)			
	8	GND(SG)			
	9	ENCLON	O		DRUM ENCODER ON signal
	10	ENC11	I	High	DRUM ENCODER signal
	11	ENC12	I	High	DRUM ENCODER signal
J106	1	/DEC1	O	Low	SCANNER MOTOR DECELERATION signal
	2	/ACC1	O	Low	SCANNER MOTOR ACCELERATION signal
	3	/DEC2	O	Low	SCANNER MOTOR DECELERATION signal
	4	/ACC2	O	Low	SCANNER MOTOR ACCELERATION signal
	5	/DEC3	O	Low	SCANNER MOTOR DECELERATION signal
	6	/ACC3	O	Low	SCANNER MOTOR ACCELERATION signal
	7	/DEC4	O	Low	SCANNER MOTOR DECELERATION signal
	8	/ACC4	O	Low	SCANNER MOTOR ACCELERATION signal
	9	/BDI1	I	Low	HORIZONTAL SYNCHRONOUS signal

Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J106 continued	10	/BDI2	I	Low	HORIZONTAL SYNCHRONOUS signal
	11	/BDI3	I	Low	HORIZONTAL SYNCHRONOUS signal
	12	/BDI4	I	Low	HORIZONTAL SYNCHRONOUS signal
	13	CPRSL	I		LEFT CPR signal
	14	CPRSR	I		RIGHT CPR signal
	15	+5V			
	16	+5V			
	17	+5V			
	18	GND(SG)			
	19	GND(SG)			
	20	TCCLK	O		T DRIVER SERIAL CLOCK signal
	21	GND(SG)			
	22	TCSTS	1	High	T DRIVER SERIAL DATA signal
	23	/TCTMG	O	Low	T DRIVER TIMING signal
	24	TCCMD	O	High	T DRIVER SERIAL DATA signal
	25	MEMCLK	I		MEMORY CONTROLLER SERIAL CLOCK signal
	26	/MEMSTART	O	Low	MEMORY CONTROLLER OUTPUT START signal
	27	/MEMSTOP	O	Low	MEMORY CONTROLLER OUTPUT STOP signal
	28	MEMSEL1	O		MEMORY CONTROLLER CHANNEL SELECT signal
	29	MEMRDATA	O	High	MEMORY CONTROLLER DATA signal
	30	MEMSEL2	O		MEMORY CONTROLLER CHANNEL SELECT signal
	31	MEMTDATA	O	High	MEMORY CONTROLLER DATA signal
	32	MEMSEL3	O		MEMORY CONTROLLER CHANNEL SELECT signal
	33	/MEMCAE	O	Low	MEMORY CONTROLLER OUTPUT CONTROL signal
	34	DNSS	I		TONER DENSITY SENSOR OUTPUT signal
	35	DNSP	I		TONER DENSITY SENSOR OUTPUT signal
	36	CPRSR	I		RIGHT CPR SENSOR ANALOG signal
	37	CPRSL	I		LEFT CPR SENSOR ANALOG signal
J107	1	DCCLK	O		INVETER TRANSFORMER CLOCK signal
	2	GND(SG)			
	3	FBTCLK	O		FLASHBACK TRANSFORMER CLOCK signal
	4	GND(SG)			
	5	CHCLK	O		PRIMARY CHARGING AC BIAS CLOCK signal
	6	GND(SG)			
	7	DEVCLKA	O		DEVELOPING AC BIAS CLOCK signal
	8	DEVCLKB	O		DEVELOPING AC BIAS CLOCK signal
	9	DEVCLKC	O		DEVELOPING AC BIAS CLOCK signal
	10	GND(SG)			
	11	DADATA	O	High	SERIAL D / A CONVERTER DATA signal
	12	DALD	O	Low	SERIAL D / A CONVERTER LOAD signal
	13	DACLK	O		SERIAL D / A CONVERTER CLOCK signal
	14	GND(SG)			
	15	/HVENBL	O	Low	HIGH-VOLTAGE OUTPUT ENABLE signal
	16	CHISNS1	I		PRIMARY CHARGING CURRENT MONITOR signal
	17	CHISNS2	I		PRIMARY CHARGING CURRENT MONITOR signal
	18	CHISNS3	I		PRIMARY CHARGING CURRENT MONITOR signal
	19	CHISNS4	I		PRIMARY CHARGING CURRENT MONITOR signal
	20	TR1ISNS1	I		PRIMARY TRANSFER CURRENT MONITOR signal
	21	TR1ISNS2	I		PRIMARY TRANSFER CURRENT MONITOR signal
	22	TR1ISNS3	I		PRIMARY TRANSFER CURRENT MONITOR signal
	23	TR1ISNS4	I		PRIMARY TRANSFER CURRENT MONITOR signal
	24	GND(SG)			
	25	TR2ISNS	I		SECONDARY TRANSFER CURRENT MONITOR signal

Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J108	1	VDO11O	O	High	VIDEO signal
	2	GND(SG)			
	3	/VDO11O	O	Low	VIDEO signal
	4	LDCTRL10	O		LASER CONTROL signal
	5	LDCTRL11	O		LASER CONTROL signal
	6	LDCTRL12	O		LASER CONTROL signal
	7	VDO12O	O	High	VIDEO signal
	8	GND(SG)			
	9	/VDO12O	O	Low	VIDEO signal
	10	PDOOUT1	I		LASER INTENSITY MONITOR signal
	11	GND(SG)			
	12	+5LD			
J109	1	VDO21	O	High	VIDEO signal
	2	GND(SG)			
	3	/VDO21	O	Low	VIDEO signal
	4	LDCTRL20	O		LASER CONTROL signal
	5	LDCTRL21	O		LASER CONTROL signal
	6	LDCTRL22	O		LASER CONTROL signal
	7	VDO22	O	High	VIDEO signal
	8	GND(SG)			
	9	/VDO22	O	Low	VIDEO signal
	10	PDOUT2	I		LASER INTENSITY MONITOR signal
	11	GND(SG)			
	12	+5LD			
J110	1	VDO31	O	High	VIDEO signal
	2	GND(SG)			
	3	/VDO31	O	Low	VIDEO signal
	4	LDCTRL30	O		LASER CONTROL signal
	5	LDCTRL31	O		LASER CONTROL signal
	6	LDCTRL32	O		LASER CONTROL signal
	7	VDO32	O	High	VIDEO signal
	8	GND(SG)			
	9	/VDO32	O	Low	VIDEO signal
	10	PDOUT3	I		LASER INTENSITY MONITOR signal
	11	GND(SG)			
	12	+5LD			
J111	1	VDO41	O	High	VIDEO signal
	2	GND(SG)			
	3	/VDO41	O	Low	VIDEO signal
	4	LDCTRL40	O		LASER CONTROL signal
	5	LDCTRL41	O		LASER CONTROL signal
	6	LDCTRL42	O		LASER CONTROL signal
	7	VDO42	O	High	VIDEO signal
	8	GND(SG)			
	9	/VDO42	O	Low	VIDEO signal
	10	PDOUT4	I		LASER INTENSITY MONITOR signal
	11	GND(SG)			
	12	+5LD			
J112	1	LDILCKP	I		LEFT DOOR SWITCH signal
	2	GND(SG)			
	3	+5LD			
	4	+5LD			
	5	+5LD			
J113	1	FSUTH20	I		FIXING ROLLER TEMPERATURE DETECTION signal
	2	FSLTH10	I		FIXING ROLLER TEMPERATURE DETECTION signal
	3	FSHCT	I		HEATER CURRENT signal
	4	/FSRLDSNS	I	Low	RELAY DRIVE signal
	5	FSRLD	O	High	RELAY DRIVE signal

Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J113 continued	6	/FSSULONG	O	Low	SLOW-UP CIRCUIT DRIVE signal
	7	/FSLHD	O	Low	PRESSURE ROLLER TEMPERATURE CONTROL signal
	8	/FSUHD	O	Low	FIXING ROLLER TEMPERATURE CONTROL signal
	9	FSHDE	O		INVERTER OUTPUT ENABLE signal
	10	FSRLL	I		RELAY TEST signal
	11	+5V			
	12	GND(SG)			
	13	GND(PG)			
J114	14	FSTHSWI	I	High	THERMOSWITCH INPUT signal
	1	FSTHSWI	I		THERMOSWITCH INPUT signal
	2	GND(SG)			
	3	FSUTH1AI	I		FIXING ROLLER TEMPERATURE DETECTION signal
	4	FSUTH1BI	I		FIXING ROLLER TEMPERATURE DETECTION signal
	5	FSTHSWO	O		THERMOSWITCH OUTPUT signal
	6	GND(SG)			
	7	FSUTH2I	I		FIXING ROLLER TEMPERATURE DETECTION signal
J115	8	GND(SG)			
	9	FSLTH1I	I		PRESSURE ROLLER TEMPERATURE DETECTION signal
	1	+3LED			
	2	GND(SG)			
	3	FSPIN	I	High	FRONT FIXING PAPER DETECTION signal
	4	+3LED			
	5	FSPRS	I	High	FIXING PRESSURE DETECTION signal
J116	6	GND(SG)			
	7	FSPOUT	I	High	FIXING DELIVERY PAPER DETECTION signal
	1	GND(PG)			
	2	GND(PG)			
	3	+24VB			
	4	+24VB			
	5	FSMFG	I		FIXING MOTOR SPEED signal
	6	RGFSMCLK	O		MOTOR COMMAND CLOCK signal
	7	FSMCW	O	Low	FIXING MOTOR SELECT signal
J117	8	RGFSMDATA	O	High	MOTOR COMMAND DATA signal
	9	FSMPWM	O		FIXING MOTOR PWM signal
	1	GND(PG)			
	2	GND(PG)			
J117	3	+24VB			
	4	+24VB			
	5	RGMFG	I		REGISTRATION MOTOR SPEED signal
	6	RGFSMCLK	O		MOTOR COMMAND CLOCK signal
	7	RGMCW	O		REGISTRATION MOTOR SELECT signal
	8	RGFSMDATA	O	High	MOTOR COMMAND DATA signal
	9	RGMPWM	O		REGISTRATION MOTOR PWM signal

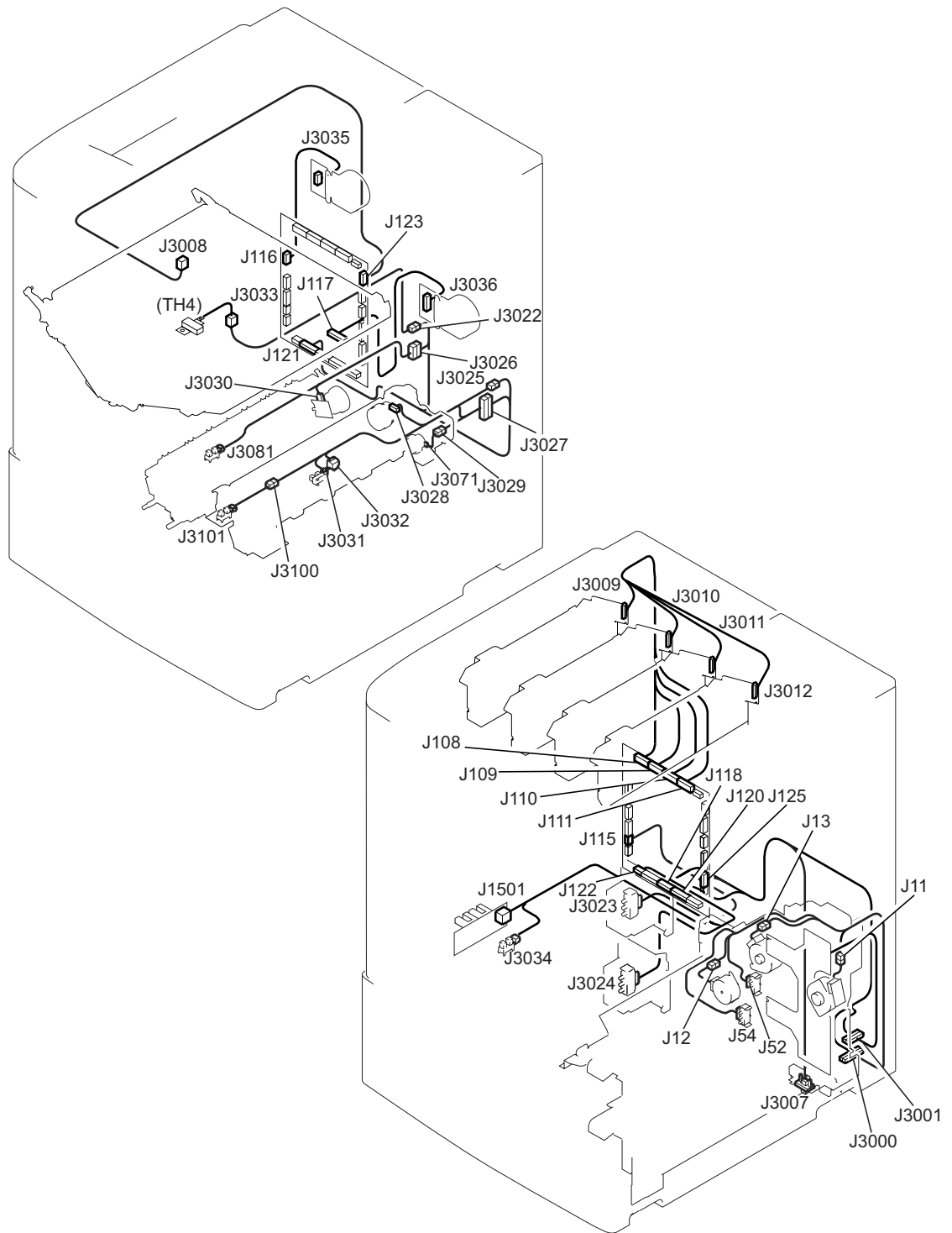
Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J118	1	GND(SG)			
	2	UPAPERS	I	High	UPPER CASSETTE PAPER OUT DETECTION signal
	3	UPTS	I	High	UPPER CASSETTE PAPER SURFACE LEVEL signal
	4	UPVS2	I	High	UPPER CASSETTE PAPER LEVEL DETECTION signal
	5	+3LED			
	6	UPVS1	I	High	UPPER CASSETTE PAPER LEVEL DETECTION signal
	7	LPAPERS	I	High	LOWER CASSETTE PAPER OUT DETECTION signal
	8	PRS	I	High	PICKUP SHAFT HOME POSITION DETECTION signal
	9	LPTS	I	High	LOWER CASSETTE PAPER SURFACE LEVEL signal
	10	LPVS2	I	High	LOWER CASSETTE PAPER LEVEL DETECTION signal
	11	LPVS1	I	High	LOWER CASSETTE PAPER LEVEL DETECTION signal
	12	RLDOORS	I	High	RIGHT DOOR OPEN DETECTION signal
	13	LFEEDSA	I	High	LOWER CASSETTE PAPER FEED DETECTION signal
	14	LFEEDSB	I	High	LOWER CASSETTE PAPER FEED DETECTION signal
	15	UFEEDSA	I	High	UPPER CASSETTE PAPER FEED DETECTION signal
	16	UFEEDSB	I	High	UPPER CASSETTE PAPER FEED DETECTION signal
J119	1	+24VA(FUSE)			
	2	MPTSL	O		MULTIPURPOSE TRAY PICKUP SOLENOID DRIVE signal
	3	+3LED			
	4	GND(SG)			
	5	MPTPSS			
	6	+3LED			
	7	GND(SG)			
	8	MPTLPSS	I	High	LAST PAPER DETECTION signal
	9	GND(SG)			
	10	MPTWSA	I	High	MULTIPURPOSE TRAY PAPER WIDTH signal
	11	+5V			
J120	1	FRMOUTA	O		PICKUP MOTOR DRIVE signal
	2	FRMOUTAN	O		PICKUP MOTOR DRIVE signal
	3	FRMOUTB	O		PICKUP MOTOR DRIVE signal
	4	FRMOUTBN	O		PICKUP MOTOR DRIVE signal
	5	PUMOUTA	O		PICKUP ROLLER UP / DOWN MOTOR DRIVE signal
	6	PUMOUTAN	O		PICKUP ROLLER UP / DOWN MOTOR DRIVE signal
	7	PUMOUTB	O		PICKUP ROLLER UP / DOWN MOTOR DRIVE signal
	8	PUMOUTBN	O		PICKUP ROLLER UP / DOWN MOTOR DRIVE signal
	9	LUMOUTA	O		LIFTER MOTOR DRIVE signal
	10	LUMOUTAN	O		LIFTER MOTOR DRIVE signal
	11	LUMOUTB	O		LIFTER MOTOR DRIVE signal
	12	LUMOUTBN	O		LIFTER MOTOR DRIVE signal
	13	UWSIZE3	O		UPPER CASSETTE PAPER WIDTH DETECTION signal
	14	UWSIZE2	O		UPPER CASSETTE PAPER WIDTH DETECTION signal
	15	UWSIZEC	I		UPPER CASSETTE PAPER WIDTH DETECTION signal
	16	UWSIZE1	O		UPPER CASSETTE PAPER WIDTH DETECTION signal
	17	LWSIZE3	O		UPPER CASSETTE PAPER WIDTH DETECTION signal
	18	LWSIZE2	O		LOWER CASSETTE PAPER WIDTH DETECTION signal
	19	LWSIZEC	I		LOWER CASSETTE PAPER WIDTH DETECTION signal
	20	LWSIZE1	O		LOWER CASSETTE PAPER WIDTH DETECTION signal
J121	1	+24VA(FUSE)			
	2	PREGCL	O		PRE-REGISTRATION FEED CLUTCH DRIVE signal
	3	+24VA(FUSE)			
	4	TR2CL	O		SECONDARY TRANSFER CLUTCH DRIVE signal
	5	+3LED			
	6	GND(SG)			
	7	PTRSS	I	High	SECONDARY TRANSFER FRONT PAPER DETECT signal
	8	+24FUSE			
	9	REGCL	O		REGISTRATION CLUTCH DRIVE signal
	10	+3LED			
	11	GND(SG)			
	12	REGSS	I		REGISTRATION PAPER DETECTION signal

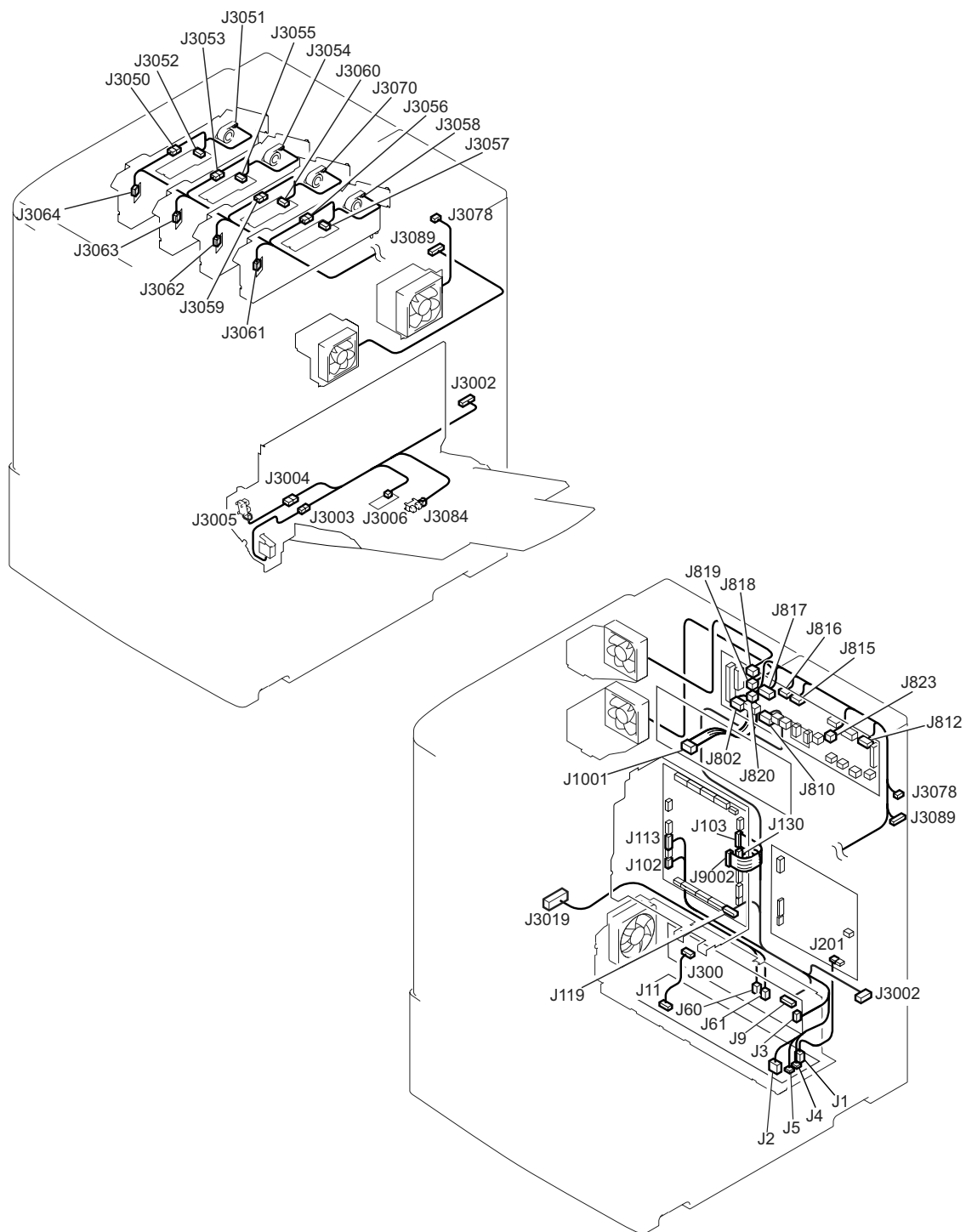
Table 46. FFC input/output signals on the DC controller (continued)

Connector	Pin	Signal name	I/O	Logic	Signal description
J121 continued	13	+3LED			
	14	GND(SG)			
	15	OHTSS	I		TRANSPARENCY DETECTION signal
	16	+3LED			
	17	GND(SG)			
	18	XMFEDSNS	I		MULTIPLE FEED DETECTION signal
J122	1	ULSIZE1	I		UPPER CASSETTE PAPER LENGTH DETECTION signal
	2	ULSIZE2	I		UPPER CASSETTE PAPER LENGTH DETECTION signal
	3	ULSIZEC	I		UPPER CASSETTE PAPER LENGTH DETECTION signal
	4	ULSIZE3	I		UPPER CASSETTE PAPER LENGTH DETECTION signal
	5	LLSIZE1	I		LOWER CASSETTE PAPER LENGTH DETECTION signal
	6	LLSIZE2	I		LOWER CASSETTE PAPER LENGTH DETECTION signal
	7	LLSIZEC	I		LOWER CASSETTE PAPER LENGTH DETECTION signal
	8	LLSIZE3	I		LOWER CASSETTE PAPER LENGTH DETECTION signal
J123	1	+5V			
	2	GND(SG)			
	3	/FPCS	O	Low	OPERATION PANEL CONTROLLER CHIP SELECT signal
	4	FPCK	O		OPERATION PANEL SERIAL CLOCK signal
	5	FPI	O	High	OPERATION PANEL SERIAL DATA signal
	6	FPO	I	High	OPERATION PANEL SERIAL DATA signal
	7	FP3_3V			
	8	FPGND			
	9	N.C.			
	10	N.C.			
	11	N.C.			
J124	1	GND(SG)			
	2	+3.3V(FUSE)			
	3	DUPCLK	O		DUPLEXING UNIT STATUS CLOCK signal
	4	DUPCMD	O	High	DUPLEXING UNIT SERIAL DATA signal
	5	DUPSTSI	I	High	DUPLEXING UNIT SERIAL DATA signal
	6	/DUPIDS	I	Low	DUPLEXING UNIT DETECTION signal
	7	+24VA			
	8	+24VA			
	9	+24VA			
	10	DUPFANEN	O	High	DUPLEXING UNIT FAN ENABLE signal
	11	GND(PG)			
	12	GND(PG)			
J125	1	JLCANH	I/O	High	PAPER DECK SERIAL DATA signal
	2	JLCANL	I/O	Low	PAPER DECK SERIAL DATA signal
	3	JLPWRON	O	High	PAPER DECK POWER ON signal
	4	GND(SG)			
J130	1	GND(SG)			
	2	GND(SG)			
	3	GND(SG)			
	4	GND(SG)			
	5	GND(SG)			
	6	+3.3V			
	7	+3.3V			
	8	+5V			
	9	+5V			
	10	+5V			
J131	1	GND(PG)			
	2	ITBFLCKX	I	High	ITB FAN LOCK DETECTION signal
	3	ITBFANX	O		ITB FAN DRIVE signal
	4	GND(SG)			
	5	N.C.			
	6	ITBTHSNS	I	High	ITB TEMPERATURE DETECTION signal

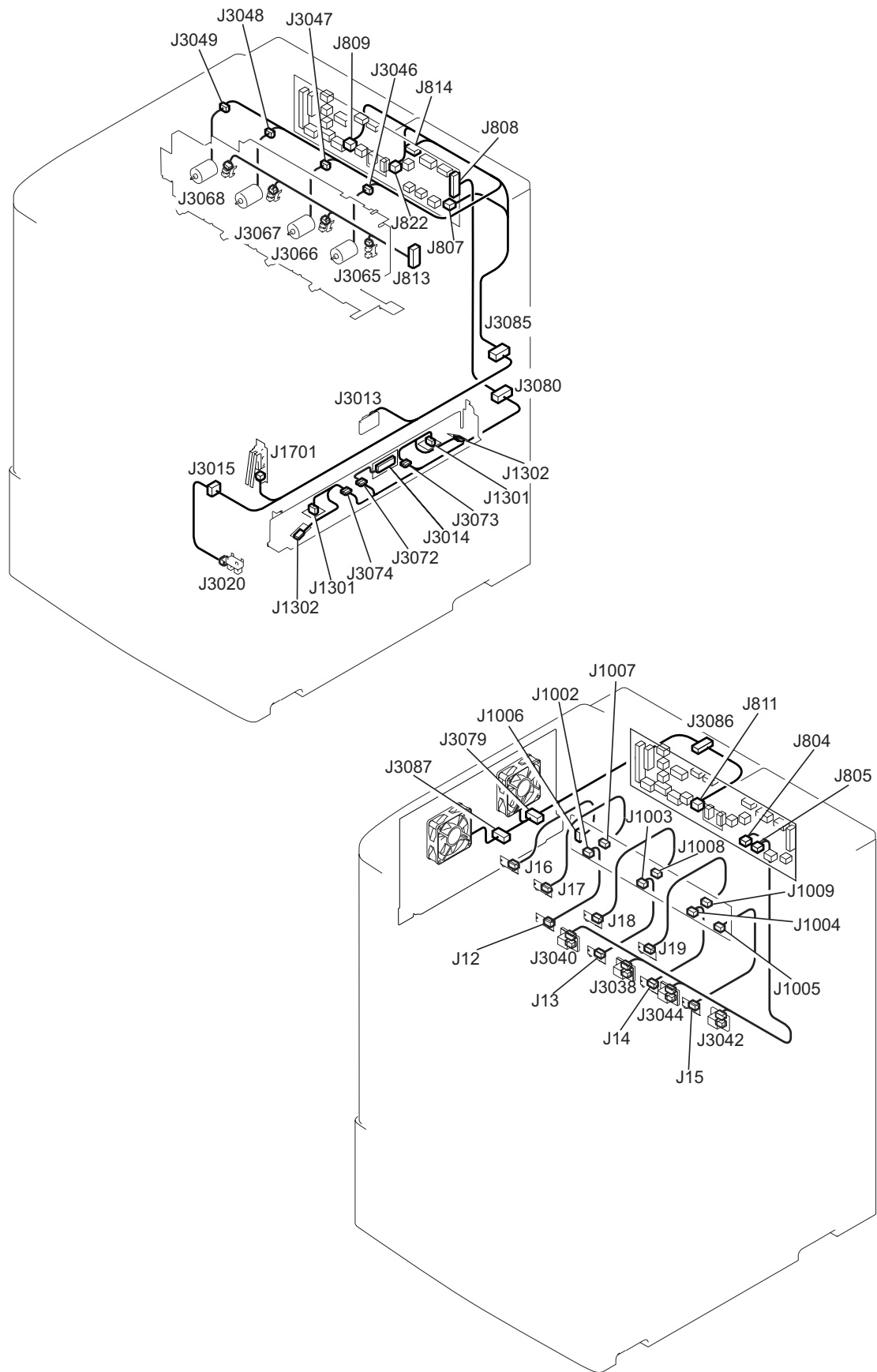
Connector location



Connector location (1 of 4)

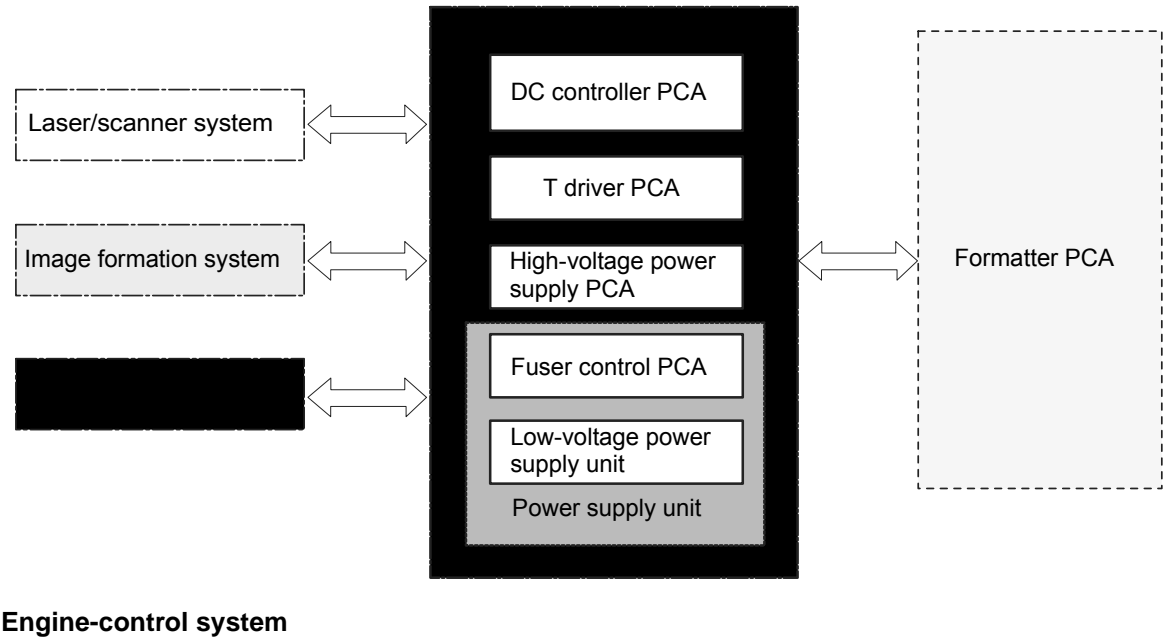


Connector location (2 of 4)



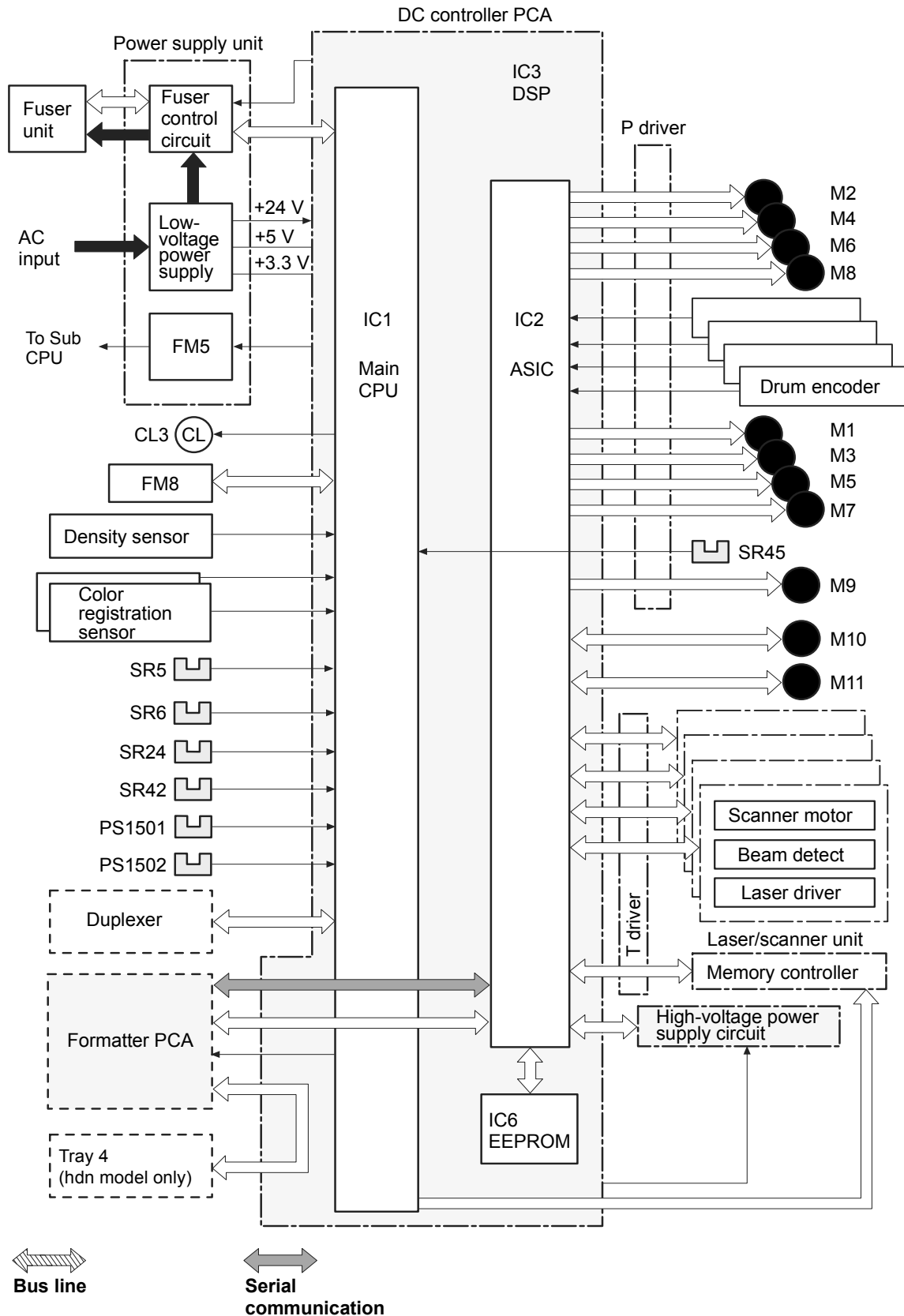
Connector location (3 of 4)

The engine-control system coordinates the laser/scanner, image-formation, and paper-pickup systems according to the instructions it receives from the formatter. The engine-control system consists of the DC controller printed circuit assembly (PCA), the T driver PCA, the high-voltage power-supply PCA, the fuser power supply PCA, and the low-voltage power-supply unit.

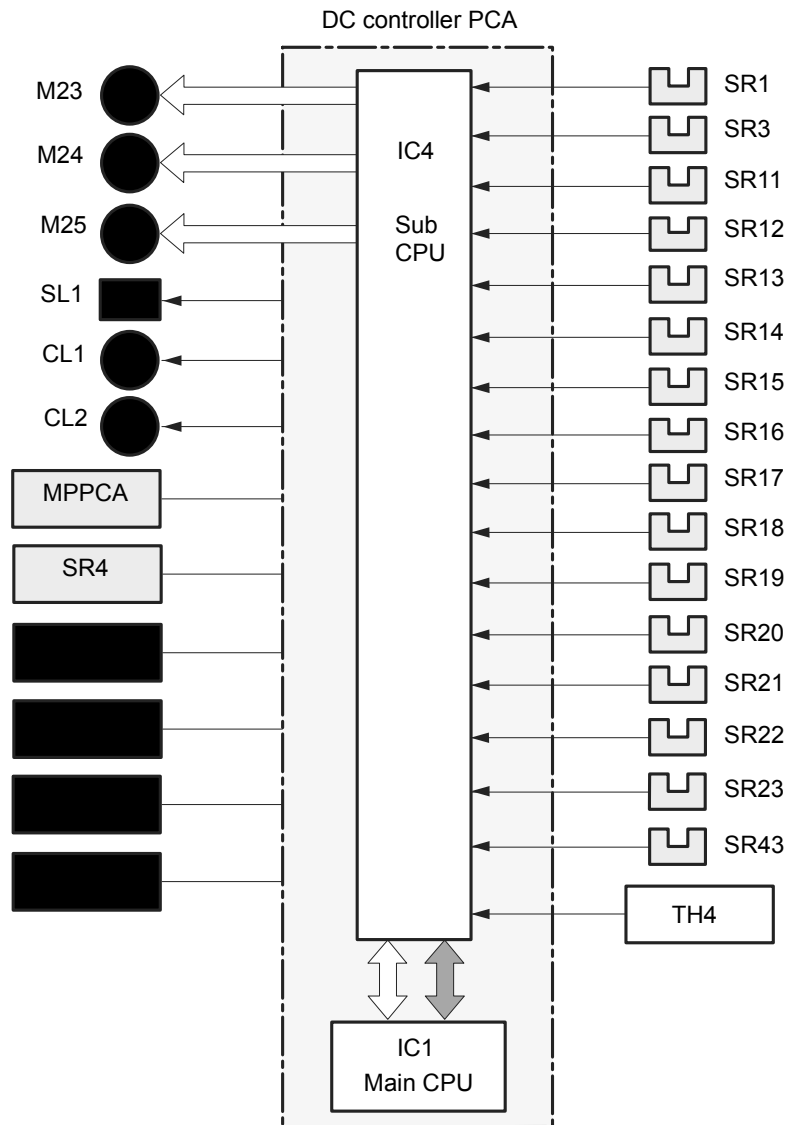


DC controller circuit

The DC controller circuit controls the printer operational sequences. Motors, fans, clutches, solenoids, and sensors are listed in table 47.



DC controller circuit (1 of 2)



DC controller circuit (2 of 2)

Table 47. Motors, fans, clutches, solenoids, and sensors

Number	Description
M1	Drum motor (yellow)
M3	Drum motor (magenta)
M5	Drum motor (cyan)
M7	Drum motor (black)
M2	Developing motor (yellow)
M4	Developing motor (magenta)
M6	Developing motor (cyan)
M8	Developing motor (black)
M9	ITB motor
M10	Registration motor
M11	Fusing motor
M23	Pickup roller up/down motor

Table 47. Motors, fans, clutches, solenoids, and sensors (continued)

Number	Description
M24	Pickup motor
M25	Lifter motor
FM5	Power supply fan
FM8	ITB fan
CL1	Pre-registration feed clutch
CL2	Registration clutch
CL3	Secondary transfer clutch
SL1	Tray 1 pickup solenoid
SR1	Tray 1 paper sensor
SR3	Registration paper sensor
SR4	Transparency sensor
SR5	Multifeed sensor
SR6	Front fusing paper sensor
SR11	Tray 2 feed sensor A
SR12	Tray 2 feed sensor B
SR13	Tray 3 feed sensor A
SR14	Tray 3 feed sensor B
SR15	Tray 2 paper level sensor 1
SR16	Tray 2 paper level sensor 2
SR17	Tray 3 paper level sensor 1
SR18	Tray 3 paper level sensor 2
SR19	Tray 2 paper surface sensor
SR20	Tray 2 paper sensor
SR21	Tray 3 paper surface sensor
SR22	Tray 3 paper sensor
SR23	Pickup roller shaft home-position sensor
SR24	Lower right door sensor
SR42	Front secondary transfer paper sensor
SR43	Last paper sensor
SR45	ITB rotation sensor
PS1501	Fuser delivery paper sensor
PS1502	Engaging/disengaging sensor
SW3	Tray 2 paper length detection switch
SW5	Tray 2 paper width detection switch
SW4	Tray 3 paper length detection switch
SW6	Tray 3 paper width detection switch
MPPCA	Multipurpose tray (tray 1) paper width sensor
TH4	ITB temperature sensor

DC controller operations

The main CPU (IC1) on the DC controller PCA controls the following printer operations:

- sequence of the printer
- communication with the formatter
- high-voltage power-supply circuit operation
- fuser control circuit operation
- loading and sensor operation
- communication with the duplexer (if installed)
- communication with the memory tag
- communication with the ASIC, sub CPU, and t-CPU

The ASIC (IC2) on the DC controller PCA controls the following printer operations, according to instructions from the main CPU:

- laser/scanner operation
- communication with the formatter
- high-voltage power-supply circuit operation
- rotation of the fuser/delivery motor and drum motor
- operation of the motors and sensors
- communication with the memory tag
- communication with the DSP

The DSP (IC3) controls the following printer operations, through the ASIC:

- operation of the developing motors (Y, M, C, K)
- operation of the drum motor (Y, M, C, K)
- operation of the ITB motor
- operation of the registration motor
- operation of the fuser motor
- operation of the drum encoder

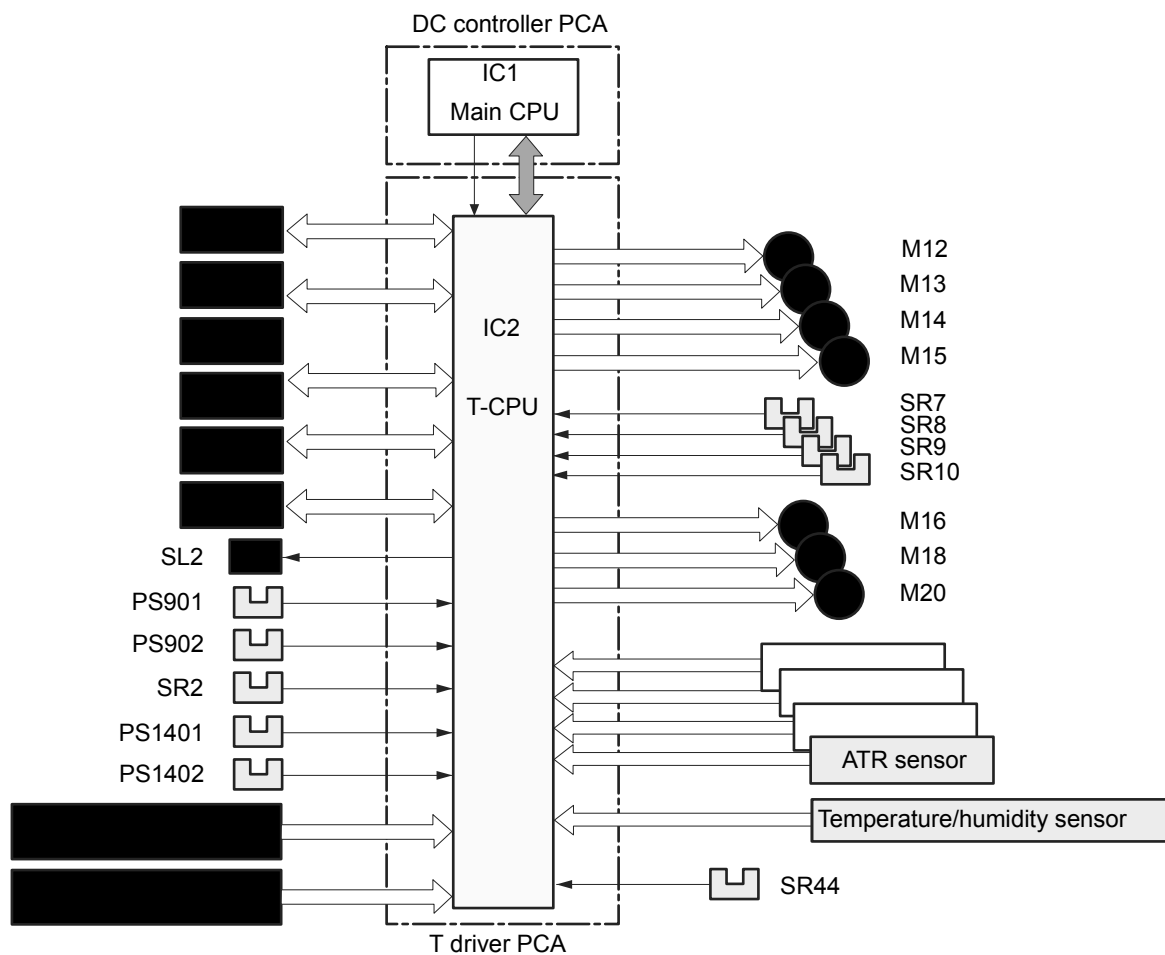
The sub CPU (IC4) controls the following printer operations, according to instructions from the main CPU:

- loading
- operation of the sensors and switches

The EEPROM (IC6) stores backup data.

T driver circuit

The T driver circuit controls motors and fans according to the main CPU in the DC controller.



T driver circuit

Fuser control circuit

The fuser control circuit consists of the following components:

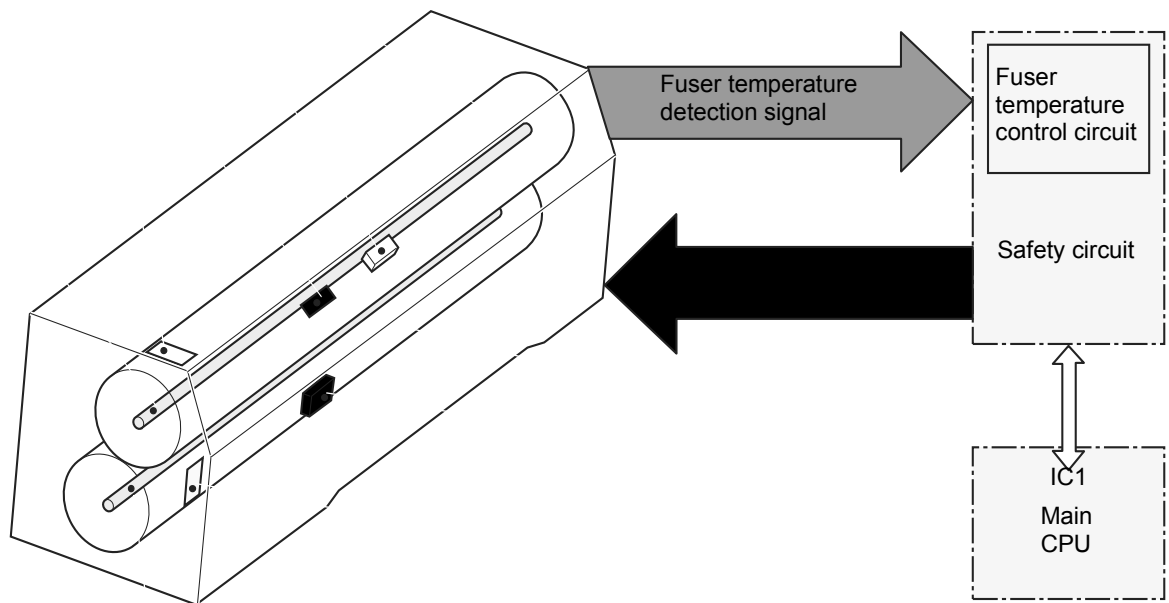
- two heaters (H1 and H2)
- three thermistors (TH1, TH2, and TH3)
- two thermostats (TP1 and TP2)

The fuser temperature control circuit and safety circuit control the temperature of the fuser control circuit.

Heater H1 heats the fuser roller and H2 heats the pressure roller. The upper-center thermistor (TH1) monitors the fuser roller surface temperature, the lower-edge thermistor (TH2) monitors the pressure roller surface temperature, and the upper-edge thermistor (TH3) detects temperature increases at one end of the fuser roller.

Two thermal switches guard against the two heaters overheating by turning off power to the heaters when the temperature increases abnormally. The upper thermostat (TP1) is in the center of the fuser roller, and the lower thermostat (TP2) is in the center of the pressure roller.

After turning off the printer, wait a few seconds before unplugging the power cord to allow fuser-roller alienation. If the printer is running hot, wait at least five minutes before unplugging the power cord. This allows the fans to cool the fuser control circuit.



Fuser control circuit

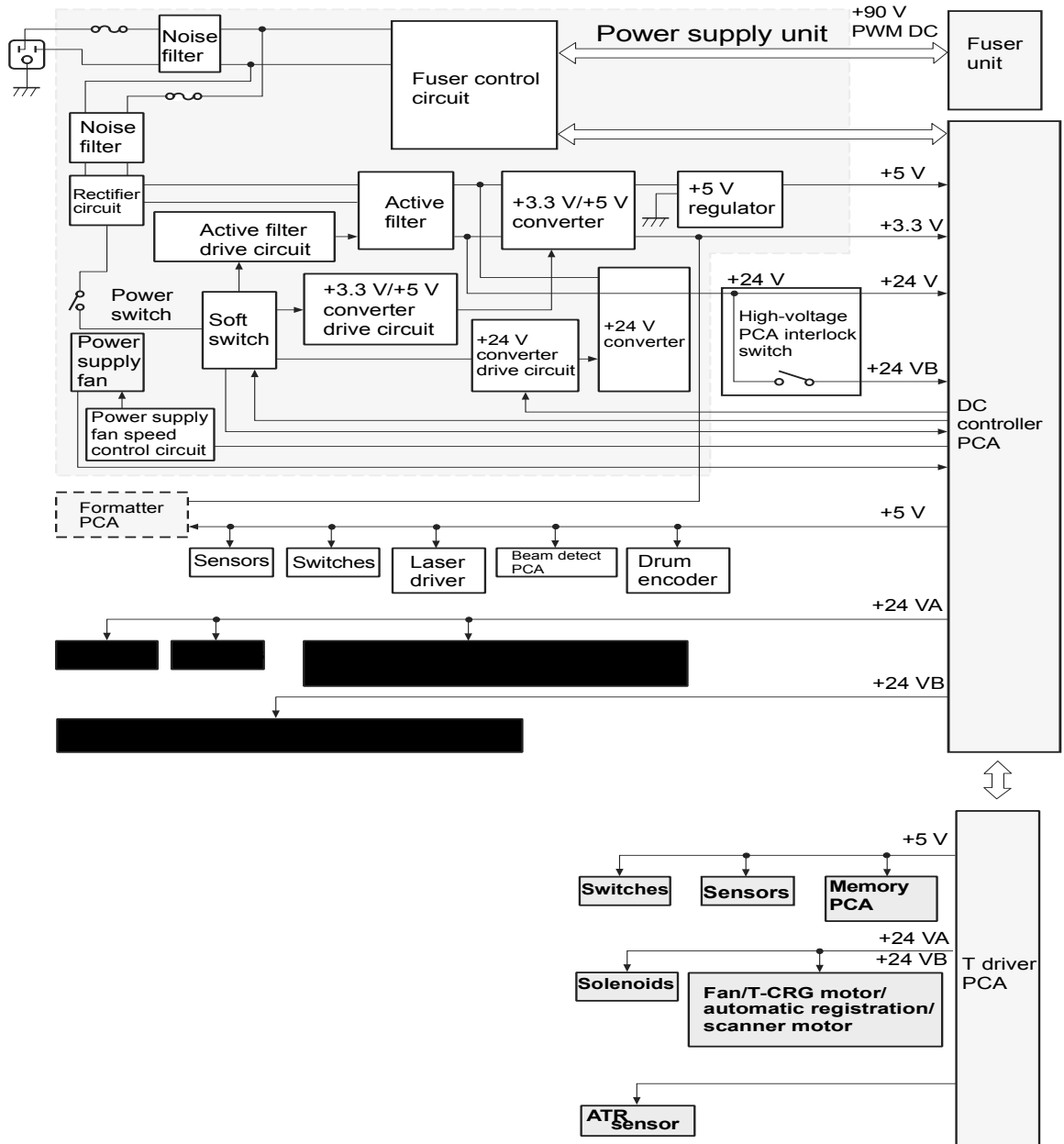
Low-voltage power supply

The low-voltage power supply converts AC voltage from the power source to DC voltage when the printer is turned on. The AC power is converted as follows:

- +24 VDC for motors, solenoids, clutches, and the high-voltage power-supply circuit
- +5 VDC for the laser/scanner PCA, the Beam detect PCA, and the formatter
- +3.3 VDC for the formatter, sensors, and the ICs on the DC controller PCA

The +24 VDC consists of the following voltages:

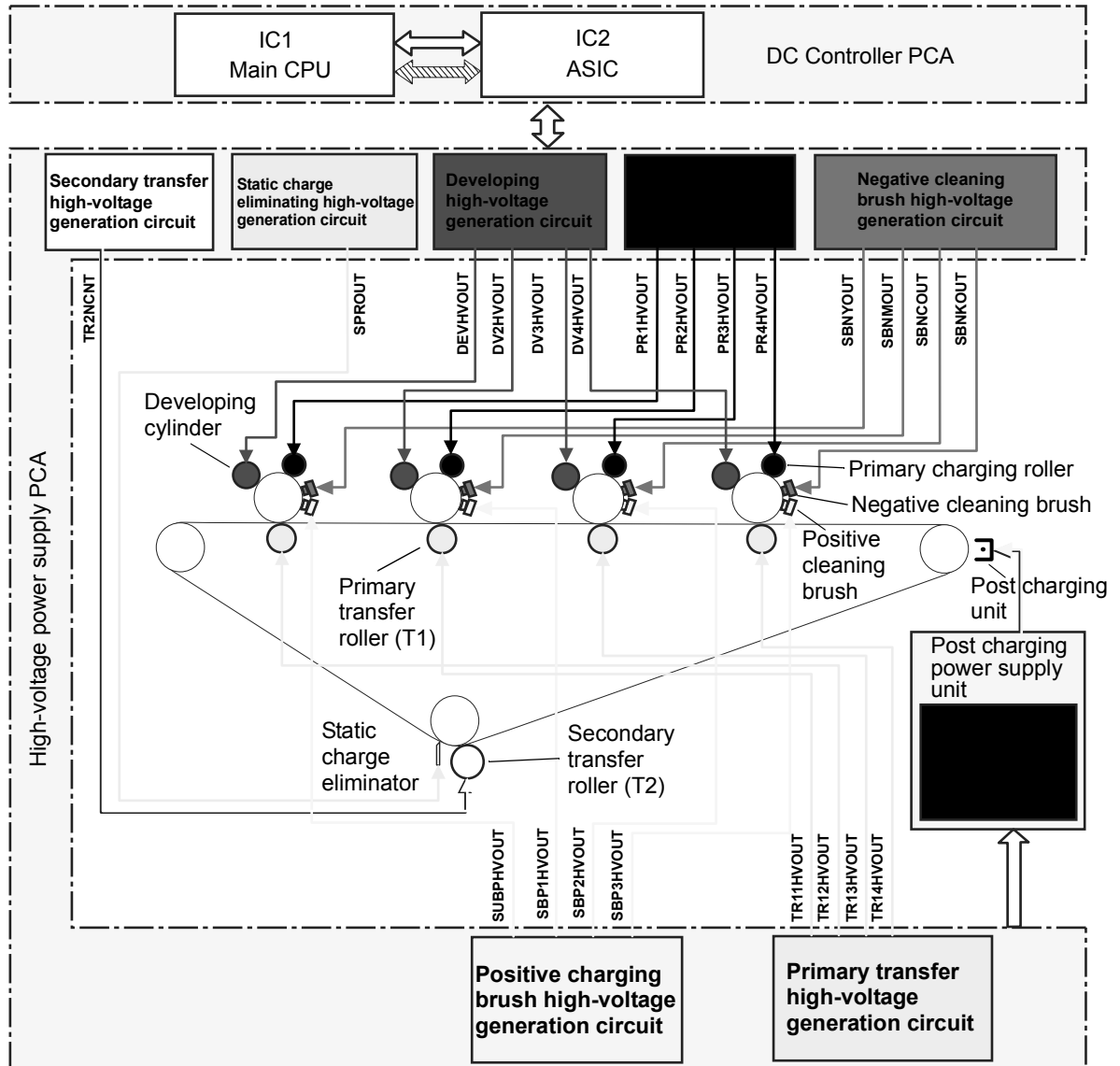
- +24 VA (is constantly supplied from the low-voltage power-supply circuit)
- +24 VB (stops the power supply when the interlock switch is turned off)



Low-voltage power supply circuit

High-voltage power supply circuits

The high-voltage power supply applies a high-voltage bias to the four positive cleaning brushes, the four negative cleaning brushes, the four primary charging rollers, the post charging unit, the four developing cylinders, the four primary transfer rollers, the secondary transfer roller, and the static charge eliminator. The main CPU (IC1) in the DC controller PCA generates the high-voltage bias by controlling the high-voltage power supply PCA through the ASIC (IC2).

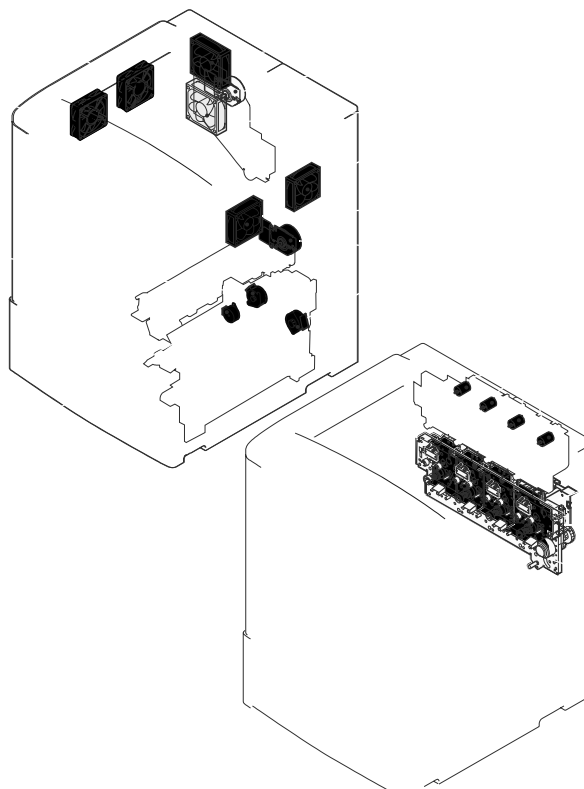


High-voltage power supply circuit

Post charger power supply unit

The corona power supply provides high-voltage power to the post charger power supply unit.

Motors and fans



Motors and fans

Table 48. Motors and fans

Number	Description	Function	Type	Direction/ speed	Controlled by	Failure detection	Service part number
M1	Y drum motor	Drive the photosensitive drum, primary charging roller, charging brushes, and primary charging roller cleaner.	Stepping motor	Clockwise Half- and full-speed	DC controller	By encoder	RG5-6188-000CN
M3	M drum motor						
M5	C drum motor						
M7	K drum motor						
M2	Y developing motor	Drive the developing cylinder and screw.	Stepping motor	Clockwise Half- and full-speed	DC controller	By ATR sensor	RG5-6188-000CN
M4	M developing motor						
M6	C developing motor						
M8	K developing motor						
M9	ITB motor	Drives the ITB.	Stepping motor	Clockwise Half- and full-speed	DC controller	By encoder	RG5-6188-000CN

Table 48. Motors and fans (continued)

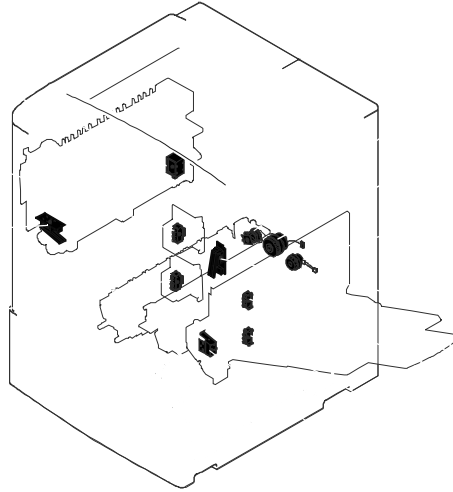
Number	Description	Function	Type	Direction/ speed	Controlled by	Failure detection	Service part number
M10	Fuser motor	Drives the fuser rollers and the delivery roller. Also releases the fuser roller pressure by reversing, which makes a cracking noise.	DC motor	Clockwise and counter-clockwise Half- and full-speed	DC controller	Yes	RH7-1519-000CN
M11	Registration motor	Drives the secondary transfer roller and the registration roller.	DC motor	Clockwise Half- and full-speed	DC controller	Yes	RH7-1518-000CN
M12	Y print cartridge motor	Drive the print cartridges.	DC motor	Clockwise One speed	T driver	By rotation sensor	RG5-6022-000CN
M13	M print cartridge motor						
M14	C print cartridge motor						
M15	K print cartridge motor						
M16	Y automatic registration laser motor	Drive cam for the automatic registration adjustment of the four laser assemblies.	Stepping motor	Clockwise and counter-clockwise One speed	T driver	No	RG5-6181-000CN
M18	M automatic registration laser motor						
M20	K automatic registration laser motor						
M30	C automatic registration laser motor (not used because it is the reference color)						
M23	Pickup roller up/down motor	Drives the pickup and feed rollers.	Stepping motor	Clockwise and counter-clockwise One speed	DC controller	No	RG5-6097-000CN

Table 48. Motors and fans (continued)

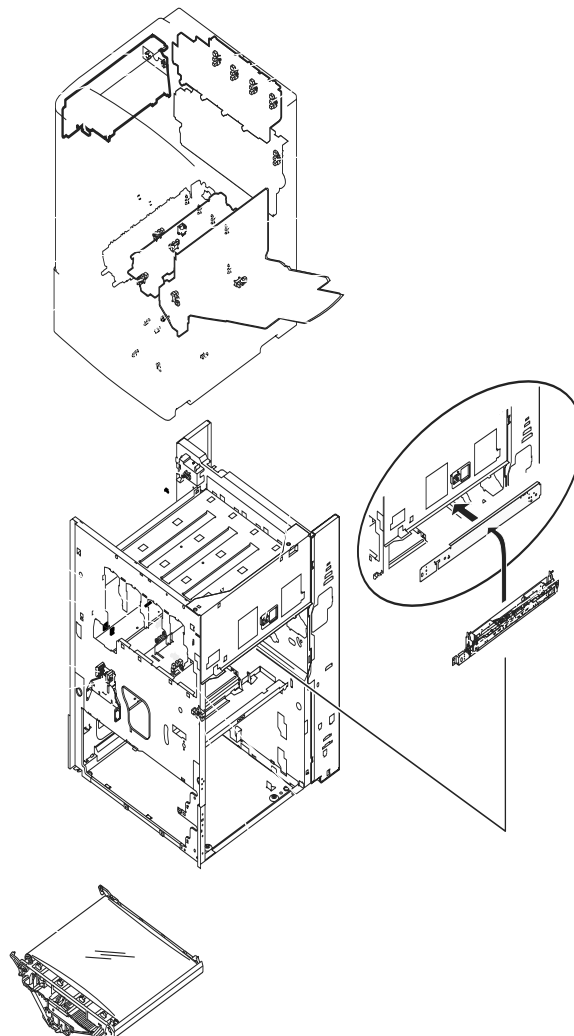
Number	Description	Function	Type	Direction/ speed	Controlled by	Failure detection	Service part number
M24	Pickup motor	Drives the pickup roller up-and-down arm.	Stepping motor	Clockwise and counter-clockwise One speed	DC controller	No	RG5-6097-000CN
M25	Lifter motor	Drives the tray lifter.	Stepping motor	Clockwise and counter-clockwise One speed	DC controller	No	RG5-6097-000CN
FM1	Back face-up delivery fan	Cools the face-up delivery unit.	DC motor		T driver	Yes	RG5-6151-000CN
FM2	Delivery fan	Cools the delivery unit and the scanner area.	DC motor		T driver	Yes	RH7-1521-000CN
FM3	Upper right fan	Cools the ITB unit.	DC motor		T driver	Yes	RH7-1544-000CN
FM4	Fusing fan	Cools the fuser and print cartridge area.	DC motor		T driver	Yes	RH7-1522-000CN
FM5	Power supply fan	Cools the low-voltage power supply.	DC motor	Half- and full-speed	DC controller	Yes	RH3-2236-000CN (110 V) RH3-2237-000CN (220 V)
FM6	Front face-up delivery fan	Cools the face-up delivery.	DC motor		T driver	Yes	RH7-1546-000CN
FM7	Ozone fan	Ventilation for the post charger unit.	DC motor		T driver	Yes	RH7-1564-000CN
FM8	ITB fan	Cools the ITB.	DC motor	One speed		No	RG5-6180-000CN

The HP color LaserJet 9500 duplex unit does *not* have a fan even though it has a fan housing.

Switches, solenoids, clutches, and sensors



Switches, solenoids, and clutches



Sensors

Table 49. Switches, solenoids, clutches, and sensors

Number	Description	Controlled by	Service part number
SW3	Tray 2 paper length detection switch	DC controller	RG5-6097-000CN Paper pickup assy.
SW4	Tray 3 paper length detection switch	DC controller	RG5-6097-000CN Paper pickup assy.
SW5	Tray 2 paper width detection switch	DC controller	RG5-6097-000CN Paper pickup assy.
SW6	Tray 3 paper width detection switch	DC controller	RG5-6097-000CN Paper pickup assy.
SL1	Tray 1 pickup solenoid	DC controller	RG5-6090-00CN Manual feed paper pickup assy.
SL2	Face-up deflector solenoid	T driver	RG5-6150-000CN Delivery feed assy.
CL1	Pre-registration feed clutch	DC controller	RG5-6016-000CN Registration assy.
CL2	Registration clutch	DC controller	RG5-6016-000CN Registration assy.
CL3	Secondary transfer clutch	DC controller	RG5-6179-000CN Secondary transfer assy.
MPPCA	Multipurpose tray (tray 1) paper width sensor	DC controller	RG5-6090-00CN Manual feed paper pickup assy.
PS901	Face-down bin paper delivery sensor	T driver	RG5-6017-000CN Face-down delivery assy.
PS902	Face-down bin paper-full sensor	T driver	RG5-6017-000CN Face-down delivery assy.
PS1401	Waste toner-full notice sensor	DC controller	RG5-6038-000CN Waste sensor assy.
PS1402	Waste toner-full warning sensor	DC controller	RG5-6038-000CN Waste sensor assy.
PS1501	Fuser delivery paper sensor	DC controller	RG5-6038-000CN Waste sensor assy.
PS1502	Engaging/disengaging sensor	DC controller	RG5-6038-000CN Waste sensor assy.
SR1	Tray 1 paper sensor	DC controller	RG5-6090-000CN M-feed paper pickup assy.
SR2	Upper left door sensor	DC controller	RG5-6152-000CN Paper delivery sensor assy
SR3	Registration paper sensor	DC controller	RG5-6016-000CN Registration assy
SR4	Transparency sensor	DC controller	RG5-6016-000CN Registration assy

Table 49. Switches, solenoids, clutches, and sensors (continued)

Number	Description	Controlled by	Service part number
SR5	Multifeed sensor	DC controller	RG5-6016-000CN Registration assy
SR6	Front fusing paper sensor	DC controller	WG8-5362-00CN Photo interrupter
SR7 SR8 SR9 SR10	Print cartridge motor rotation sensor	DC controller	RG5-6022-000CN Toner cartridge drive assy. OR WG8-5362-000CN Photo interrupter
SR11	Tray 2 feed sensor A	DC controller	RG5-6097-000CN Paper pickup assy.
SR12	Tray 2 feed sensor B	DC controller	RG5-6097-000CN Paper pickup assy.
SR13	Tray 3 feed sensor A	DC controller	RG5-6097-000CN Paper pickup assy.
SR14	Tray 3 feed sensor B	DC controller	RG5-6097-000CN Paper pickup assy.
SR15	Tray 2 paper level sensor 1	DC controller	RG5-6097-000CN Paper pickup assy.
SR16	Tray 2 paper level sensor 2	DC controller	RG5-6097-000CN Paper pickup assy.
SR17	Tray 3 paper level sensor 1	DC controller	RG5-6097-000CN Paper pickup assy.
SR18	Tray 3 paper level sensor 2	DC controller	RG5-6097-000CN Paper pickup assy.
SR19	Tray 2 paper surface sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR20	Tray 2 paper sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR21	Tray 3 paper surface sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR22	Tray 3 paper sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR23	Pickup roller shaft home-position sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR24	Lower right door sensor	DC controller	RG5-6097-000CN Paper pickup assy.
SR42	Front secondary transfer paper sensor	DC controller	RG5-6179-000CN Secondary transfer assy.
SR43	Last paper sensor	DC controller	RG5-6090-000CN Manual feed paper pickup assy.
SR44	ITB sensor	DC controller	WG8-5362-000CN Photo interrupter
SR45	ITB rotation sensor	DC controller	RG5-6188-000CN Process cartridge drive assy.

Table 49. Switches, solenoids, clutches, and sensors (continued)

Number	Description	Controlled by	Service part number
TH4	ITB temperature sensor	DC controller	RG5-6180-000CN ITB assy.
N/A	Temperature/humidity sensor	DC controller	RG5-6153-000CN Humidity sensor assy.
N/A	Density sensor	DC controller	RG5-6123-000CN Registration assy.
N/A	Color registration sensor	DC controller	RG5-6123-000CN Registration assy.

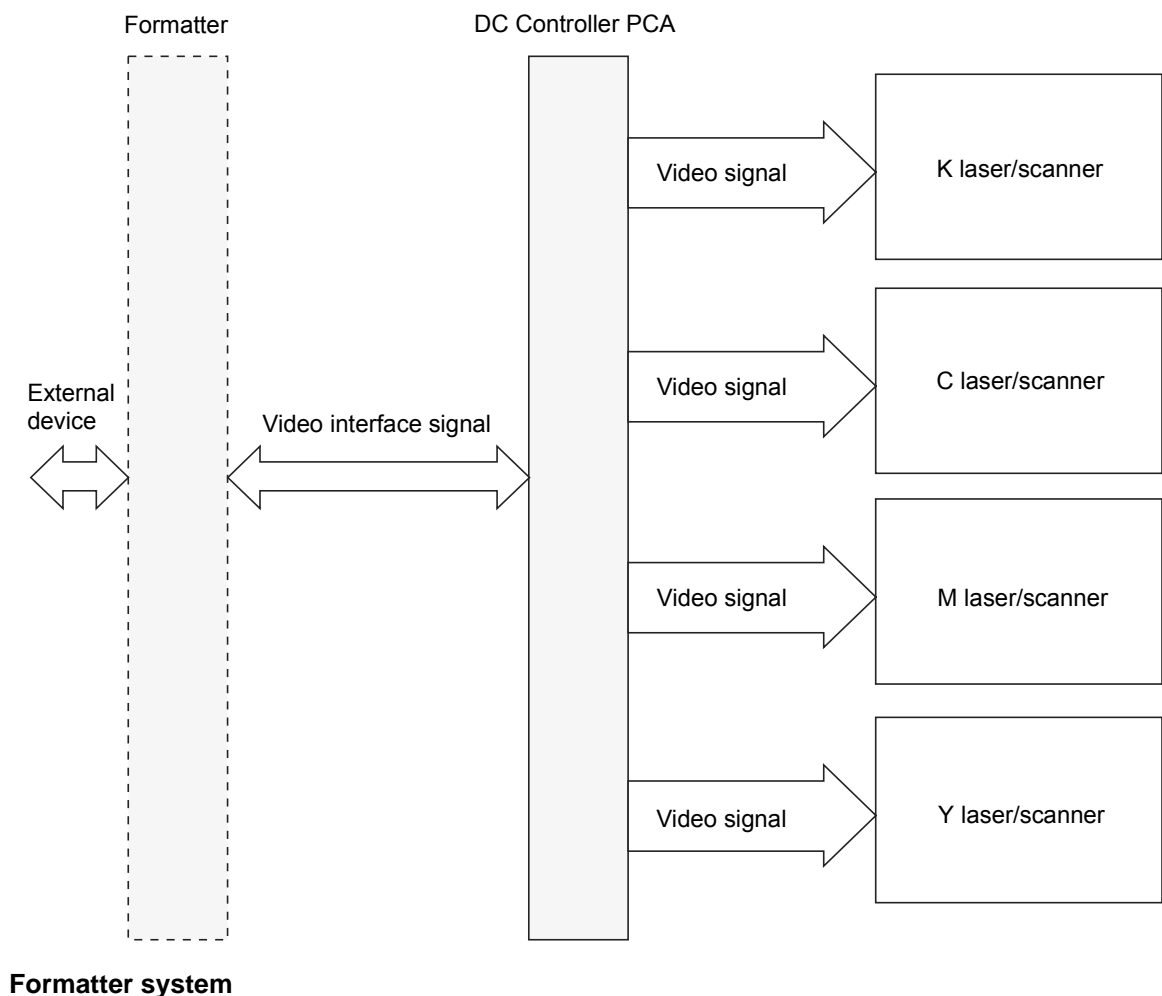
The formatter is responsible for the following functions:

- receiving and processing print data from the various printer interfaces
- monitoring control panel inputs and relaying printer status and error information (through the control panel and the bidirectional I/O)
- developing and coordinating data placement and timing with the print engine
- storing font information
- communicating with the host computer through the bidirectional interface
- controlling the PowerSave mode

The formatter continuously monitors the printer through the video interface. When the printer is ready to print, the formatter sends a signal to the DC controller, which turns the laser on or off based on the signal.

DIMM slots

The formatter has five dual inline memory module (DIMM) slots: J1 (firmware DIMM); J2, J3, and J4 (available for memory upgrades); and J5 (available only for forms and fonts, not memory upgrade). Four of these are 168-pin slots, and one is a 100-pin slot. Only four DIMMs can be loaded at a time, and the fifth DIMM slot (100-pin) is equivalent to the fourth slot (168-pin). If all five slots are filled, a 53.10.05 error appears on the control panel.



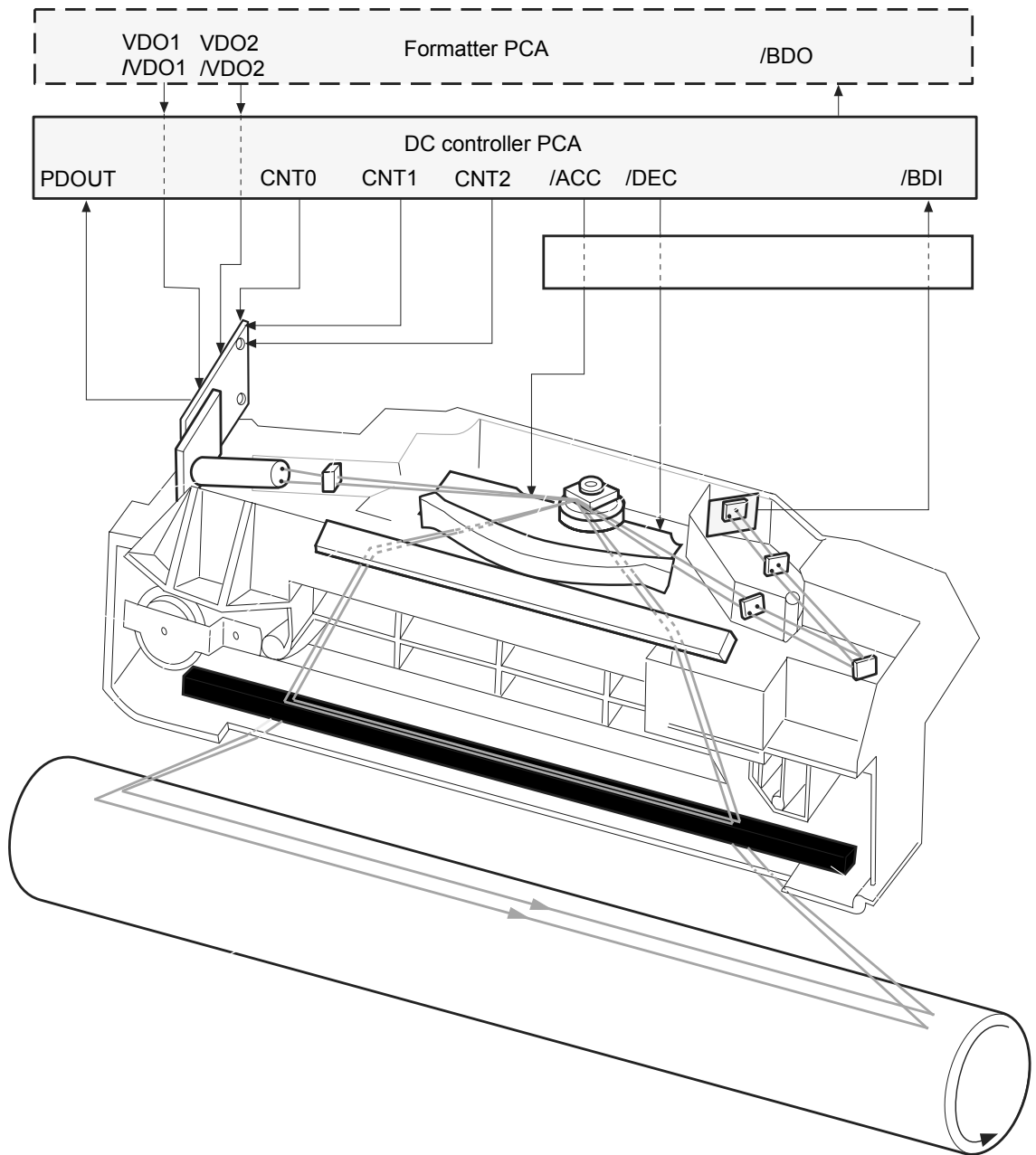
Formatter heartbeat LED

The formatter heartbeat LED indicates that the formatter hardware passed its own initial tests and is operating correctly. See “Formatter heartbeat LED” on page 322 for more information.

The formatter heartbeat LED does not indicate that the firmware is operating correctly.

If the formatter heartbeat LED is visible, check other printer systems for problems and consider performing a firmware upgrade. See “Firmware upgrades” on page 99.

The laser/scanner system is the laser/scanner unit that forms a latent image on the photosensitive drum based on the VDO and /VDO signals sent from the formatter. This printer contains four laser/scanner units (one for each color), and each laser/scanner unit is structured the same.



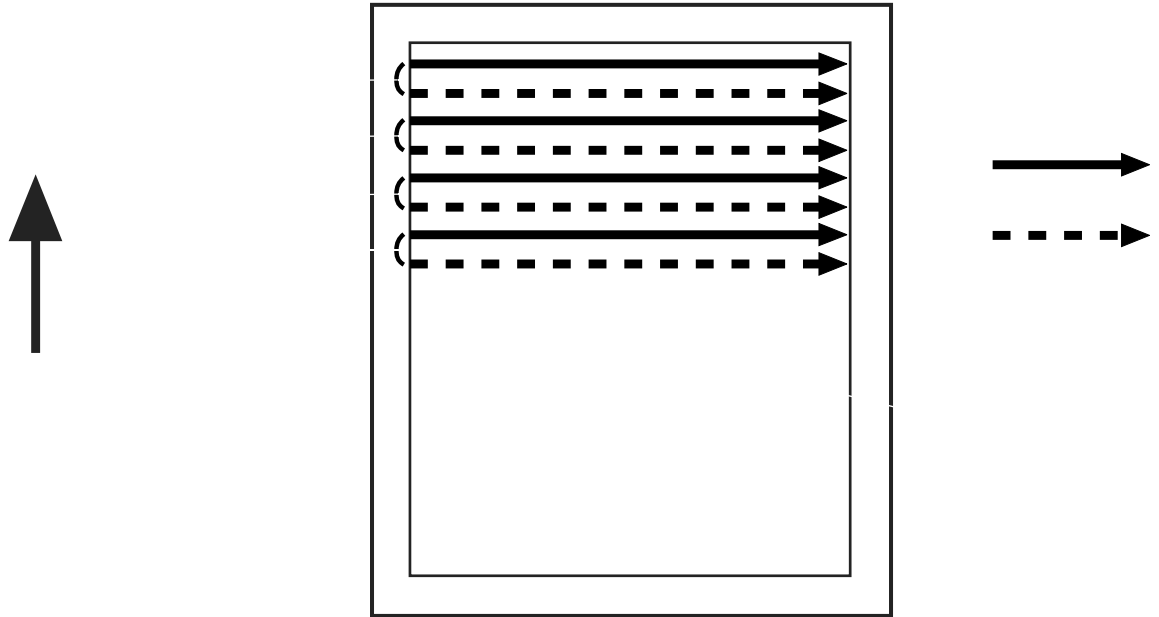
Laser/scanner system

Dual-beam method

The laser/scanner unit of this printer contains two laser diodes in the laser unit. The printer employs the “dual-beam method,” which scans two lines simultaneously.

Based on signals it receives from the DC controller and the formatter, the laser/scanner PCA in turn signals the two laser diodes to emit laser beams. The beams strike a four-sided mirror that rotates at a constant speed through the collimator lens and cylindrical lens. The beams reflect off of the mirror, pass through a focusing lens and a reflective mirror, and focus on the photosensitive drum.

The scanning mirror, rotating at a constant speed, reflects the laser beams, which scan across the drum at a constant speed. Then, a latent image is formed on the drum surface by constant-speed rotation of the photosensitive drum and constant-speed scanning of the laser beams.



Dual-beam method

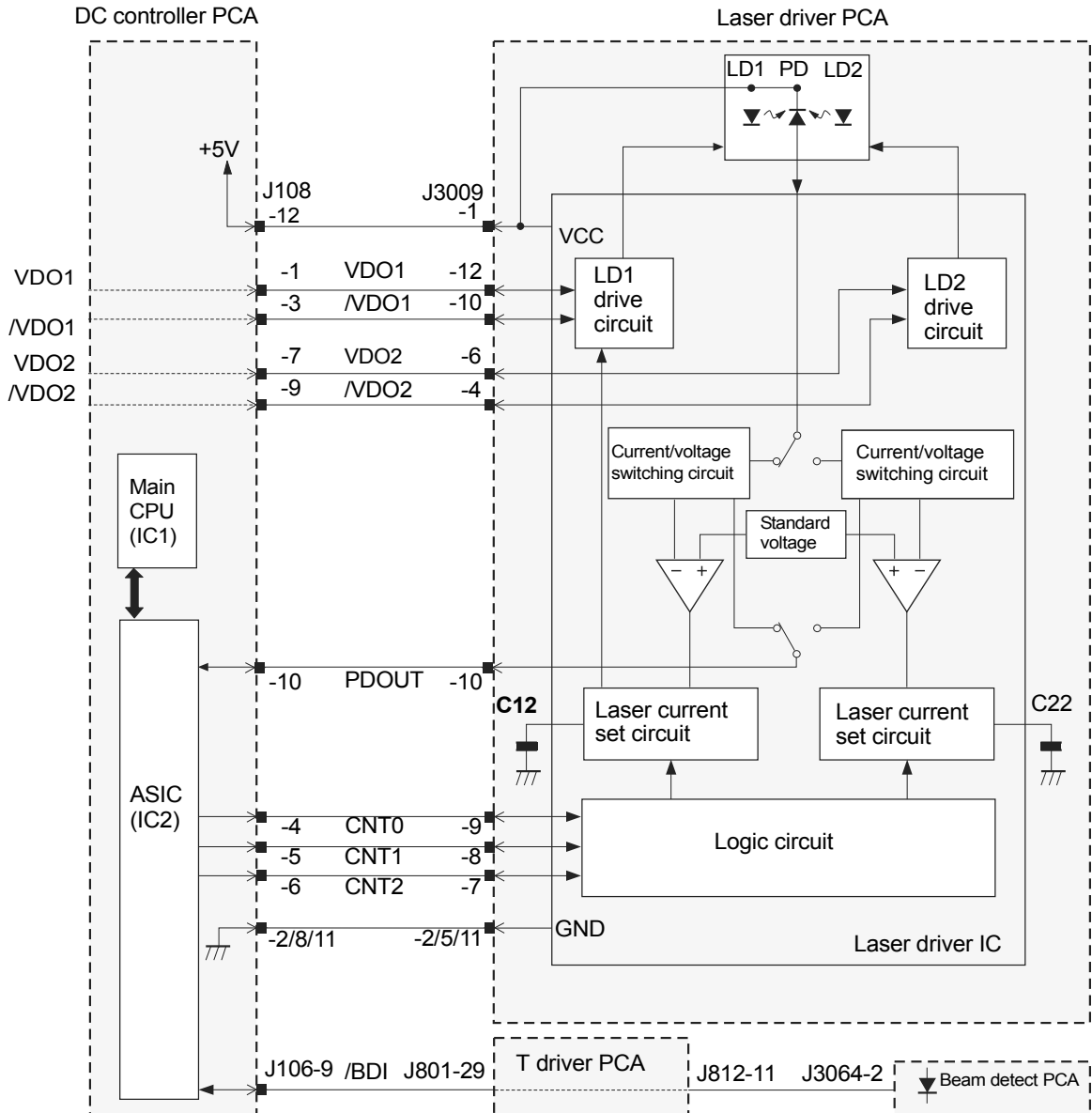
Laser control

The laser control turns the two laser diodes (LD1 and LD2) on and controls the specific amount of light. The amount of light is based on the video (VDO1, /VDO1, VDO2, and /VDO2) signals that the formatter sends through the DC controller to the laser drive circuit in the laser driver IC.

The laser control (CNT0, CNT1, and CNT2) sends the ASIC (IC2) signals to the logic circuit in the laser driver IC. The laser driver IC then performs the automatic emission control of the laser diodes (APC), the image mask control, and a forced light emission of each laser diode.

The logic circuit performs the following functions:

- starts the print mode when all of the laser control signals are “high”
- turns on or turns off the laser diodes according to the video signals



Laser control

Laser diode automatic light emission control

The laser diode automatic light emission control (APC) emits a specified amount of light from the laser diodes. This is performed in the laser driver IC, and is based on the laser control signals that the DC controller sends.

Two types of APCs are involved:

initial APC

- is performed during primary rotation
- adjusts the amount of laser light
- detects laser failures

between-lines APC

- is performed during printing
- performs the laser light amount adjustment for one line before the line begins printing

When the CNT0 signal is low, the CNT1 signal is high, and the CNT2 signal is low, the laser driver IC goes into sample mode for laser diode 1 (LD1) which forces LD1 to emit light. When the CNT0 signal is high, the CNT1 signal is low, and the CNT2 signal is L, the laser driver IC goes into the sample mode for laser diode 2 (LD2), which forces LD2 to emit light. The photo diode (PD) detects the amount of emitted light from each laser diode, and the amount is compared to the standard voltage through the current/voltage convert circuit.

If the amount of light that the laser diodes emit is larger than the standard voltage, the condensers (C12 and C22) discharge to decrease the laser current. If the amount of light that the laser diodes emit is smaller than the standard voltage, C12 or C22 charges to increase the laser current. When the laser light voltage amount equals the standard voltage amount, the emitted laser diode-light amount equals the target laser-light amount.

When the CNT0 signal is high, the CNT1 signal is high, and the CNT2 signal is low, LD1 and LD2 are automatically turned off and the sample hold circuit enters the hold state (image mask state). Also, the laser driver IC converts the controlled laser light amount to the C12 and C22 voltages and stores the amounts.

Image mask control

The image mask control is used to avoid the laser beam emission on a non-image area during periods other than the unblanking period.

When the CNT0 and the CNT1 signals are high, and the CNT2 signal is low, all of the signals from the CPT to the laser driver IC, LD1, and LD2 are turned off automatically. The sample-hold circuit then enters the image mask state. During the image mask state, LD1 and LD2 do not emit light even if the VDO1, /VDO1, VDO2, and /VDO2 signals are sent.

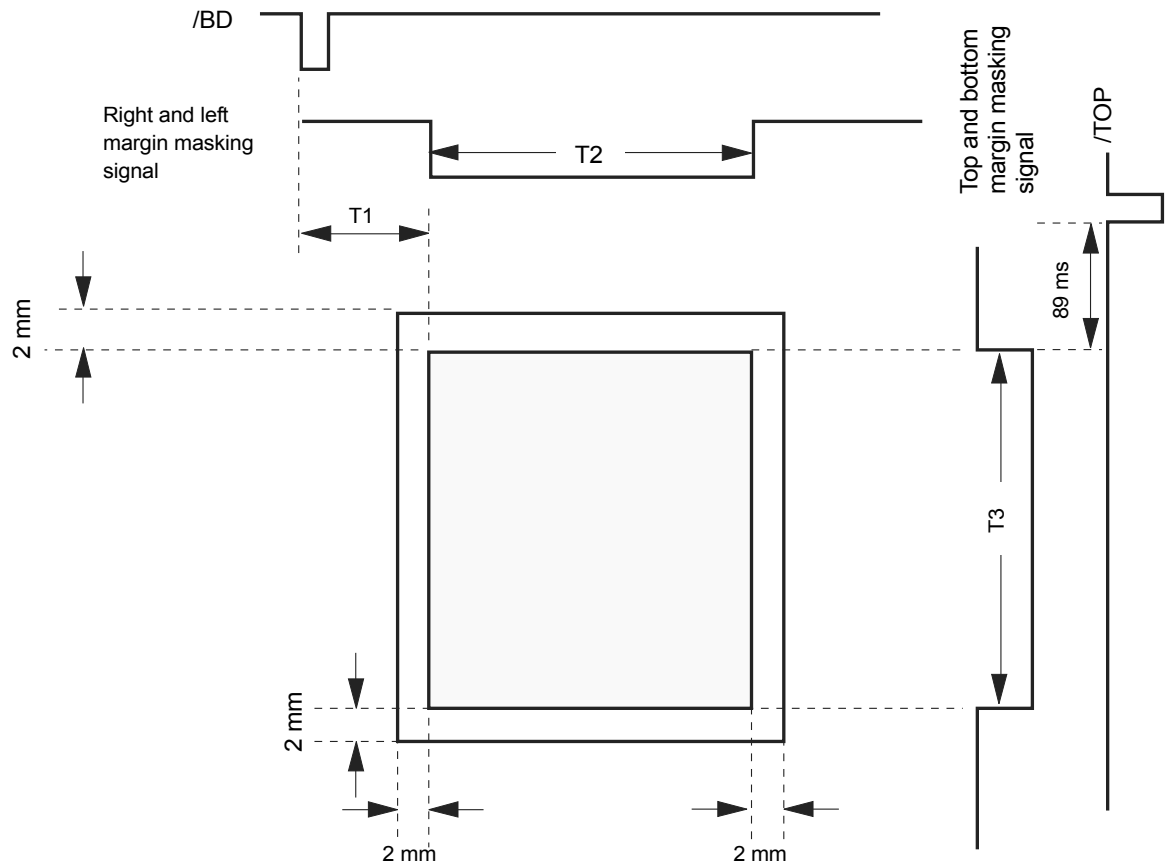


Image mask control

Horizontal synchronous control

The horizontal synchronous control aligns the writing position in the image horizontal direction. The ASIC generates the unblanking signal in the main CPU based on the BD input (/BDI) signal that the Beam detect PCA sends. Then, the ASIC controls the laser control signals and forcefully emits light from LD1 and LD2 during the unblanking period.

A small, fixed mirror (Beam detect mirror) is located at the scanning ending position in the optical path of the laser beam. The Beam detect mirror reflects each laser beam and the beams are sent to the Beam detect PCA in the laser/scanner unit. By detecting the laser beam, the Beam detect circuit PCA generates a /BDI signal. Based on the /BDI signal, the ASIC in the DC controller generates a horizontal sync (/BDO) signal. After inputting the /BDO signal, the formatter outputs the video signals to the DC controller to align the starting position in the image horizontal direction.

Laser failure detection

This printer performs a correct laser control by detecting the laser control status from the DC controller. The laser failure detection determines a laser failure, Beam detect failure, and Beam detect error from the ASIC in the DC controller, which monitors the laser current monitor (PDOUT) signal and the /BDI signal.

The CPU determines a laser/scanner failure if the following occur:

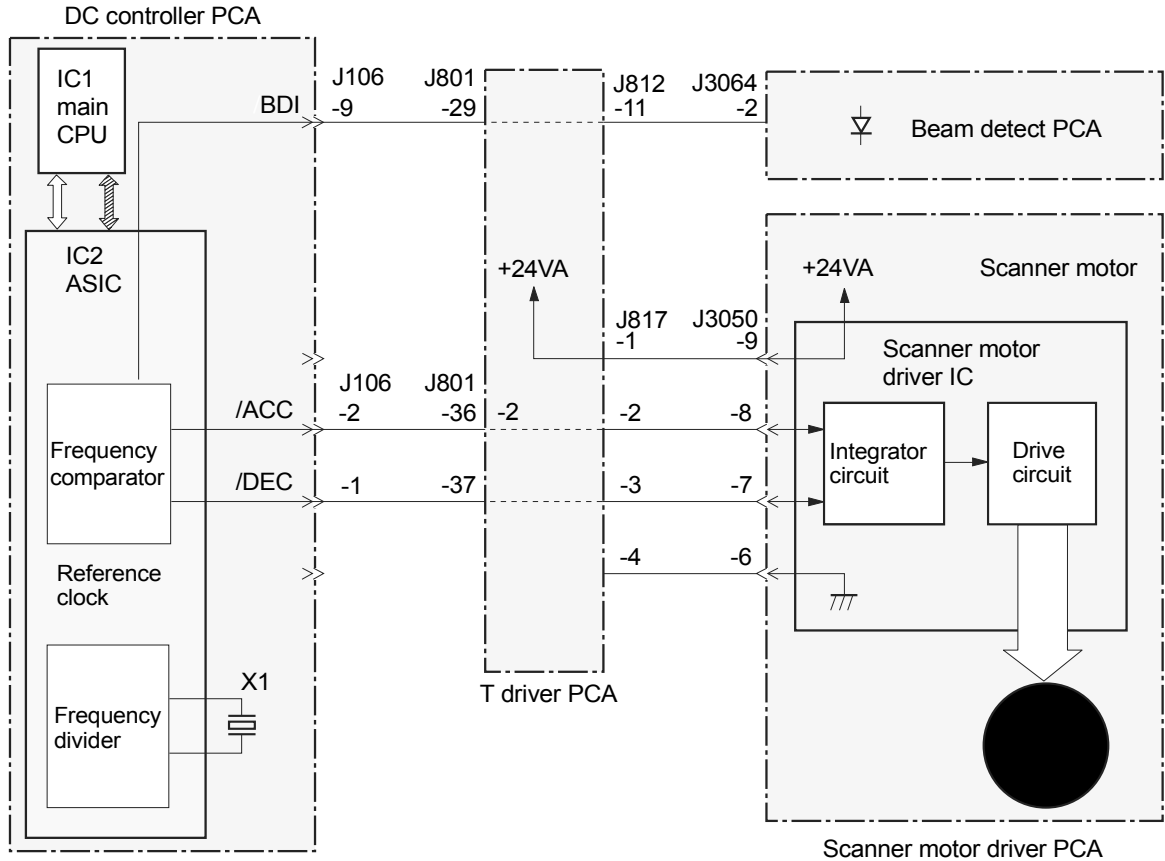
- the PDOUT signal is not detected during the APC period
- the /BDI signal is not detected during print operation

The CPU determines a Beam detect error if the following occurs:

- a determined period of the /BDI signal is out of a specified range during a print operation

Scanner-motor control

The scanner-motor control rotates the scanner motor so the laser can strike the laser beam at a correct position on the photosensitive drum.



Scanner motor control

Scanner-motor-speed control

The scanner-motor-speed control rotates the scanner motor at a constant speed. This control is a function of the DC controller controlling the scanner-motor-driver IC. The scanner motor, which is integrated with the scanner motor drive circuit, is a three-phase, 12-pole, DC, brushless motor with a built-in hall device.

The scanner motor speed control process includes the following functions:

- 1 When the printer is turned on, the ASIC on the DC controller generates the standard clock based on oscillation frequency of the oscillator through the main CPU.
- 2 When the main CPU receives a print command, the ASIC sets the scanner motor acceleration (/ACC) signal to low, and then the scanner driver IC rotates the scanner motor. The scanner motor revolutions increase while the /ACC signal is low.
- 3 When the scanner motor rotates, the DC controller forcefully emits a laser and the /BDI signal is sent from the Beam detect PCA.
- 4 By using the frequency comparator, the ASIC compares the frequency of the /BDI signal to the frequency of the reference clock.
- 5 To control the /ACC signal and /DEC signal, the ASIC controls the scanner revolution so that the scanner motor revolution reaches the set rotation counts.
- 6 The /DEC signal is set to low to decrease the motor revolutions in order for the scanner to stop.

Scanner motor failure detection

The main CPU monitors the /BDI signal that is sent from the Beam detect PCA to determine the scanner rotation speed. If the /BDI signal is not detected during print operation, the main CPU has identified a Beam detect error and stops the print engine. Then, the main CPU transfers the error information to the formatter.

Color plane registration calibration control

The color plane registration (CPR) sensors detect CPR. For each color, the DC controller adjusts the vertical scanning writing position and the vertical scanning skew, and the formatter adjusts the horizontal scanning writing position and horizontal scanning magnification.

The CPR calibration control performs the following functions:

- image CPR range adjustment
- laser-beam-skew calibration

Image CPR adjustment

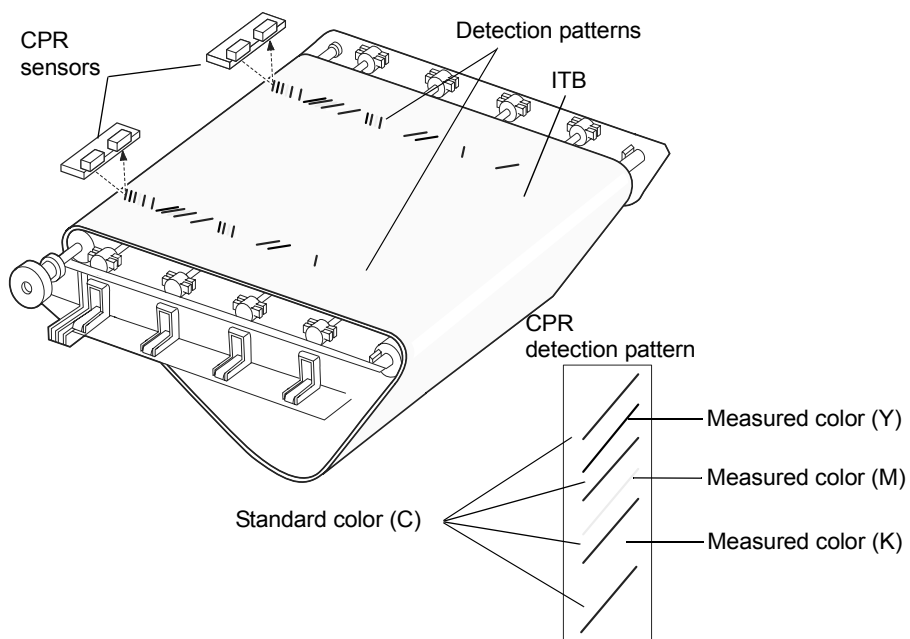
Image CPR adjustment information is adjusted for each color. This adjustment includes the following functions:

- determination of the horizontal scanning writing position
- determination of the horizontal scanning magnification
- determination of the vertical scanning writing position
- determination of the vertical scanning skew

The DC controller and formatter measure the CPR range in the horizontal and vertical scanning directions. They use the CPR sensors to adjust the CPR based on information from the measurement results. The DC controller writes CPR detection patterns in four colors on the ITB in response to the commands from the formatter when the following occur:

- the printer is turned on
- the P-crg or the ITB is inserted or removed
- temperature change inside the printer is out of the specified range.

The DC controller uses the detection pattern positions that the CPR sensors measure to calculate the CPR range. The DC controller obtains the CPR information, and sends the information for each color to the formatter.

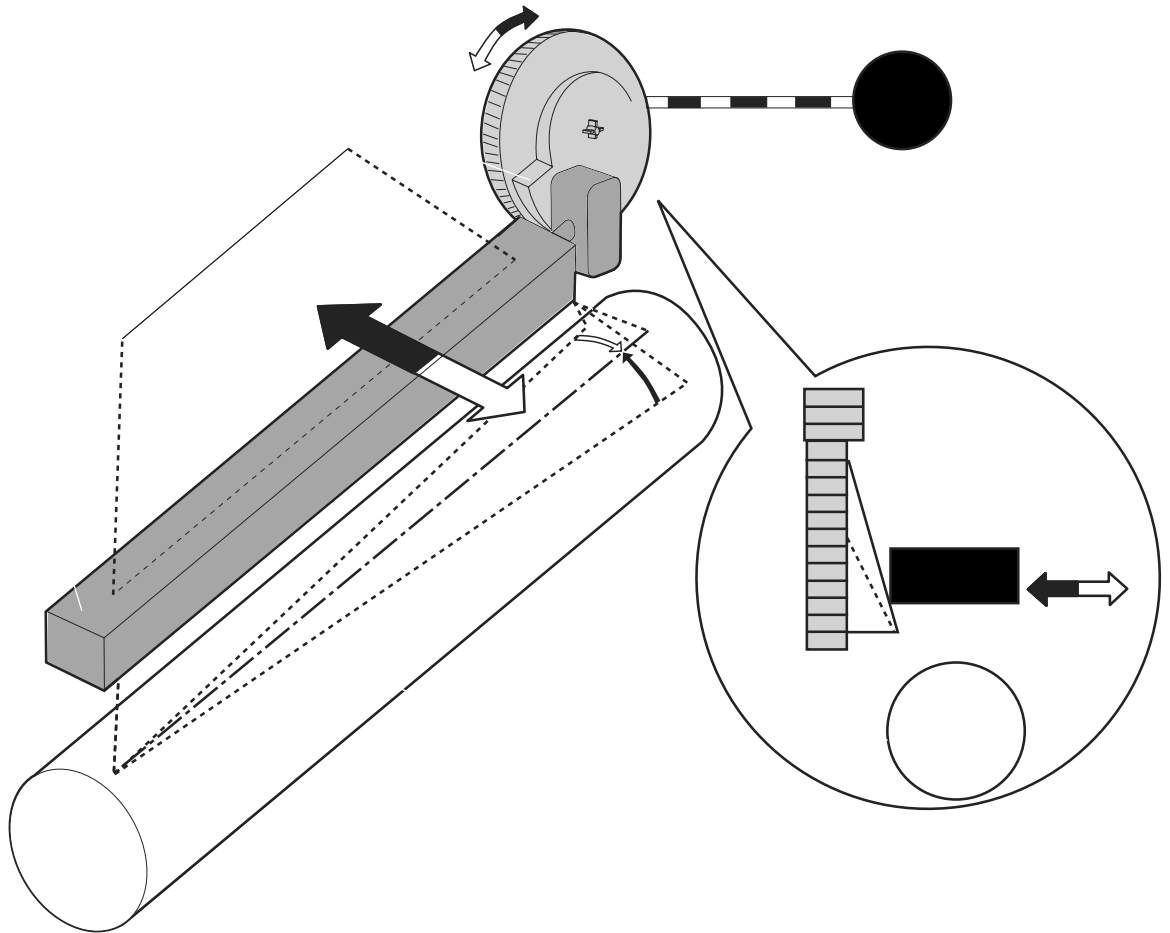


Color plane registration (CPR) adjustment

Laser-beam-skew calibration

To calibrate the laser-beam-skew, the laser beam scanning line (vertical scanning skew) on the photosensitive drum is calibrated. The vertical scanning skew is adjusted by shifting the long diffractive element (LDE) in the laser/scanner unit.

The cam rotates when the automatic registration motor rotates. One end of the LDE is fixed and the other end is pressed against the cam so that the LDE changes its horizontal angle as the cam rotates. The horizontal scanning skew is adjusted by changing an angle of the LDE by rotating the automatic registration motor clockwise or counterclockwise.



Laser beam skew calibration

Laser adjustment

The following two types of alignment that are adjusted manually:

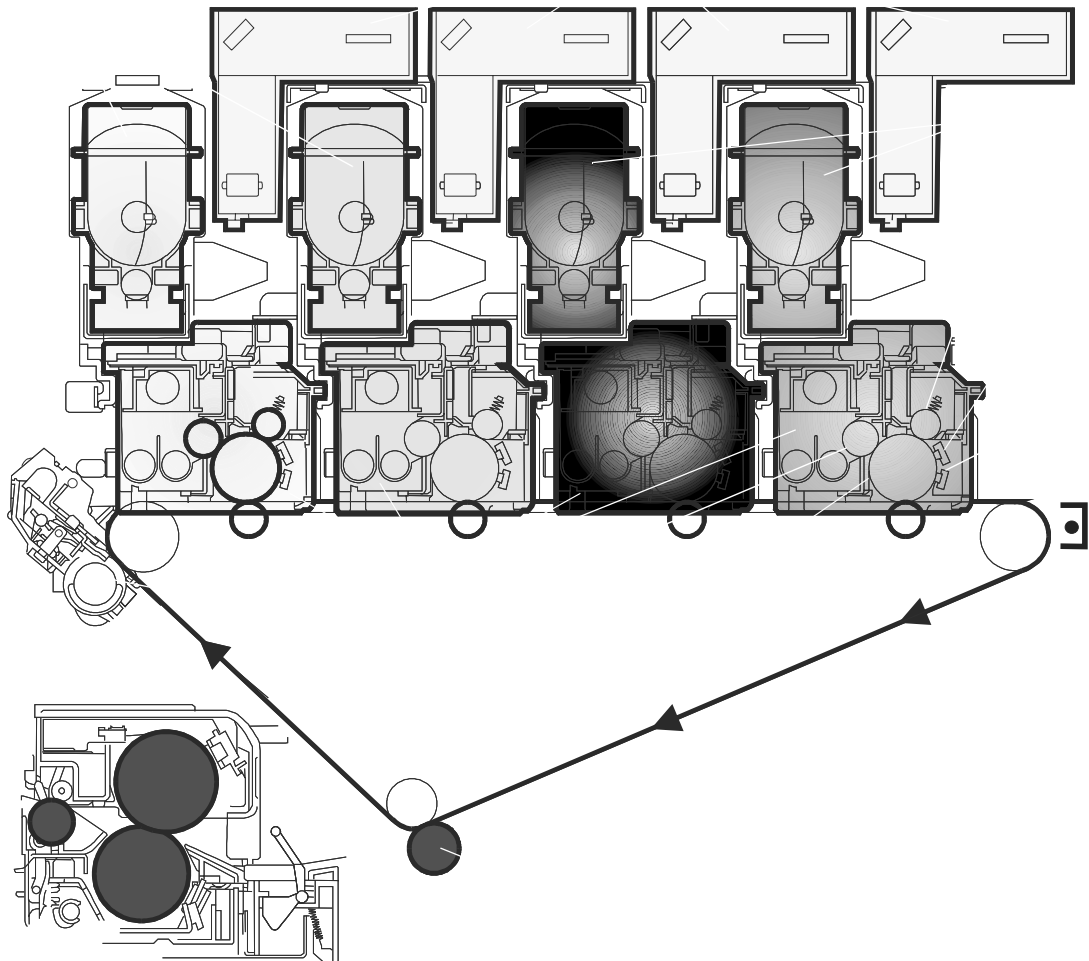
- inter-dot runout (lengthens the scan line)
- parallelism

See Adjusting the laser/scanner assemblies (page 223) for more information about these adjustments.

Electrophotographic process

The following are the main components of the electrophotographic (EP) process:

- four lasers
- four print cartridges
- four image drum cartridges
- the ITB
- the post charger
- the secondary transfer roller
- the fuser
- the cleaning blade assembly

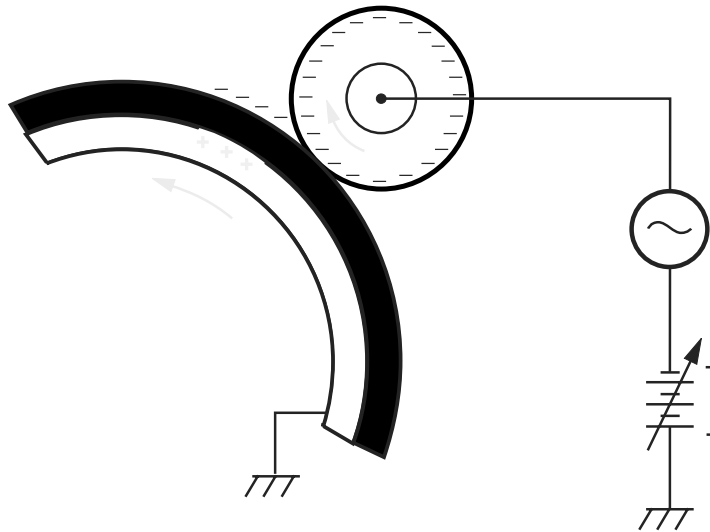


EP process main components

Step 1

- 1 The primary charge roller is given a negative charge.
- 2 On the image drum, ac bias is applied to replace uneven and previously charged areas with an even, negative charge.
- 3 The dc bias is applied to control density.

This procedure occurs in the same way for all four image drums.

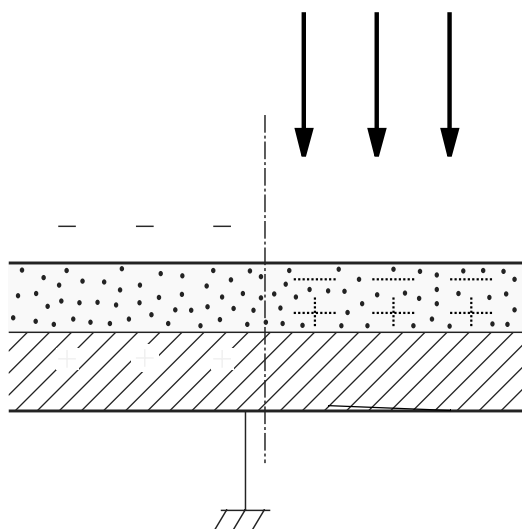


Primary charging (step 1)

Step 2

- 1 A laser beam strikes the charged surface of the OPC to write a latent image.
- 2 Areas that are exposed to the laser strikes are neutralized and attract toner.

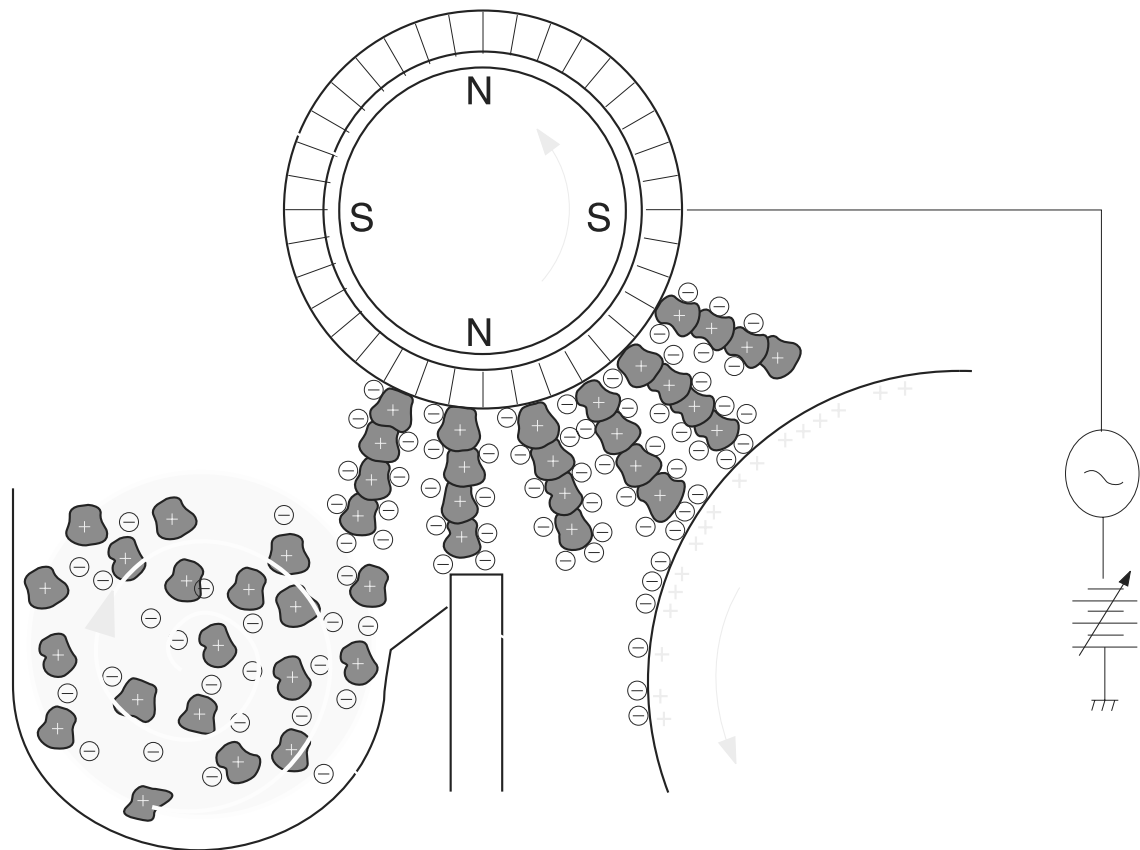
This procedure occurs in the same way for all four image drums.



Laser writing latent image (step 2)

Step 3

- 1 The appropriate amount of toner is fed from the print cartridge into the image drum.
- 2 When in the image drum, the non-magnetic toner is mixed with the magnetic carrier.
- 3 The mixing process of the two augers applies a negative charge to the toner particles.
- 4 The magnet inside the developing cylinder and the applied biases attract the magnetic carrier, creating brush-like fibers of magnetic carrier.
- 5 The developing cylinder rotates the carrier brushes past a doctor blade, which trims the brushes to an even and specified height.
- 6 Toner is picked up, and then brushed onto the OPC as the developing cylinder rotates.
- 7 Toner transfers from the brushes to the laser-discharged OPC surfaces.
- 8 As the toner is used, the automatic toner replenishment (ATR) sensor in the P cartridge detects the toner-to-carrier ratio. The T-cartridge augers turn to feed the amount of toner into the P cartridge.

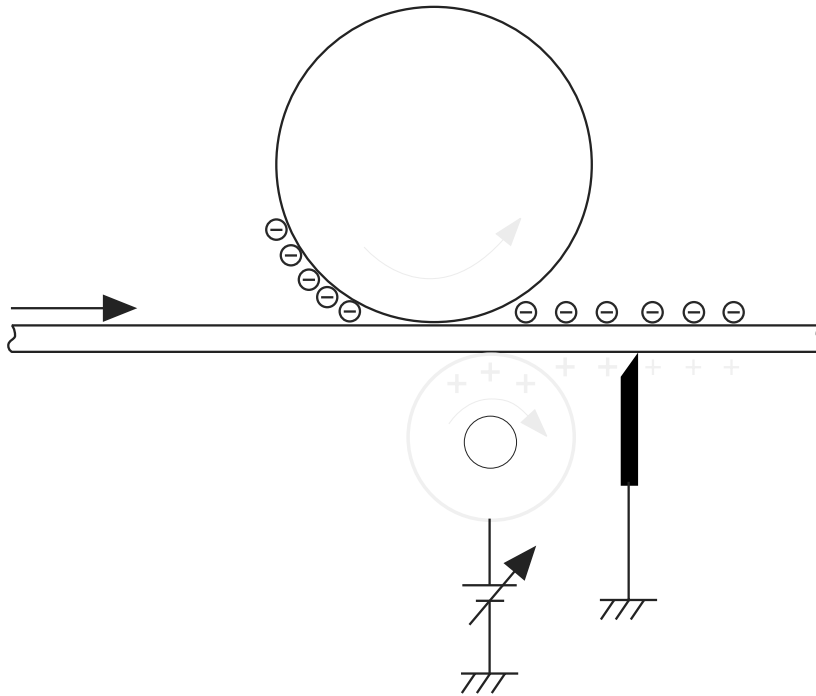


Developing (step 3)

Step 4

- 1 The ITB starts without bias, and then positive bias is applied to the primary transfer roller (T1).
- 2 Negatively-charged toner on the image drum is attracted to the positive charge on the primary transfer roller and to the ITB surface.
- 3 After T1 transfer, a static charge eliminator drops the positive charge on the ITB to keep from transferring toner too early at the next T1 station.

This procedure is repeated for each primary color in the order of YMCK, and creates piles of four toner colors on the belt.



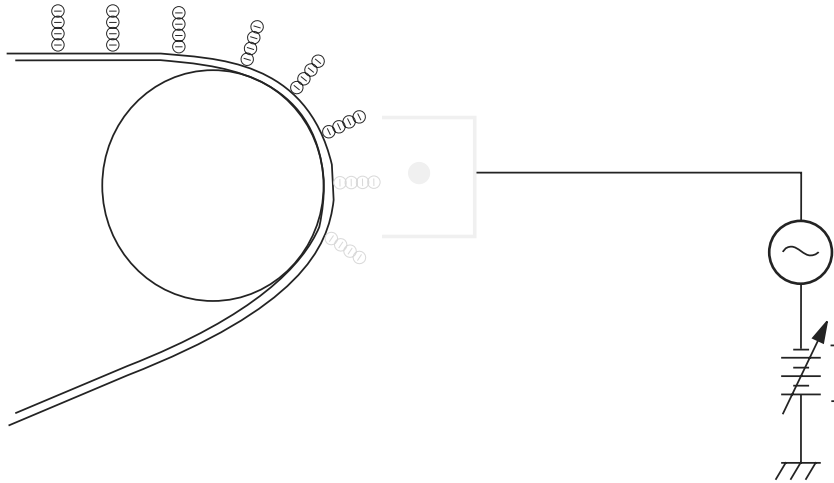
Primary transfer (step 4)

Step 5

- 1 The post charger applies an increased negative charge and a more even charge to the toner piles.

This procedure is similar to what happens in the HP color LaserJet 8550.

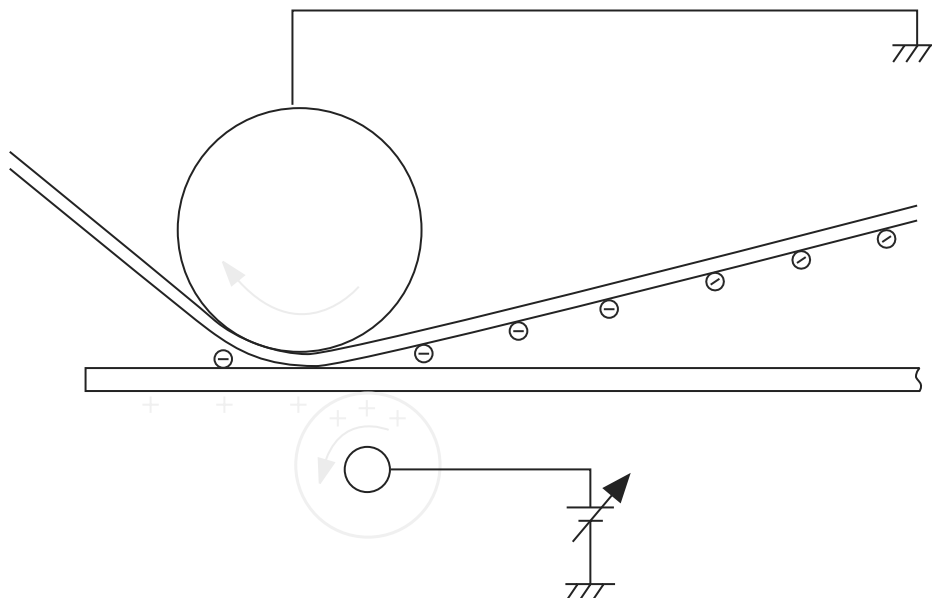
The post charger is not used for all printed pages.



Post charging (step 5)

Step 6

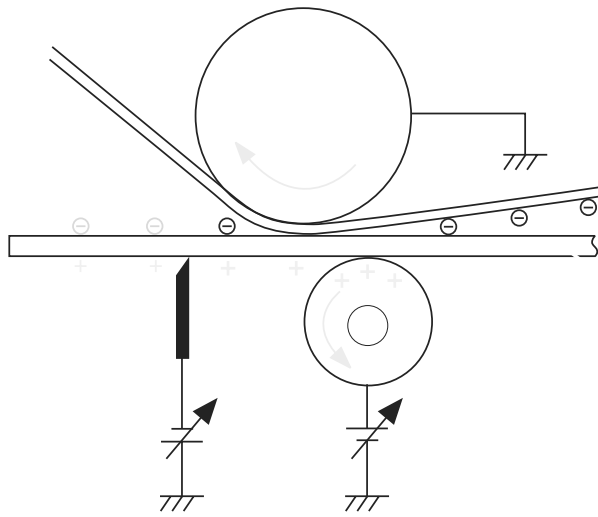
- 1 Media is fed between a nip that is formed by the ITB, secondary transfer backing roller (T2 backing roller), and the image transfer roller (T2 roller).
- 2 Positive bias is applied to the T2 roller. This attracts the negatively charged toner piles from the ITB to the media.



Secondary transfer (step 6)

Step 7

- 1 The media is separated from the ITB.
- 2 The static charge eliminator stabilizes the toner on the media before the fusing phase.

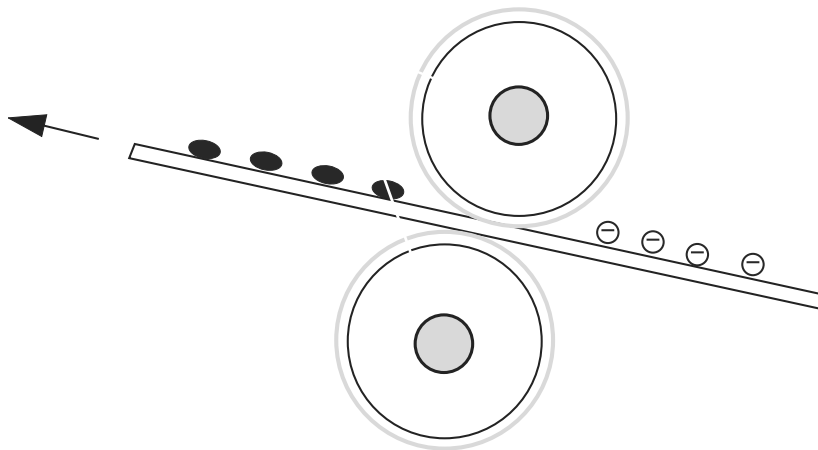


Separation (step 7)

Step 8

- 1 Heat and pressure are applied to melt toner to the media.

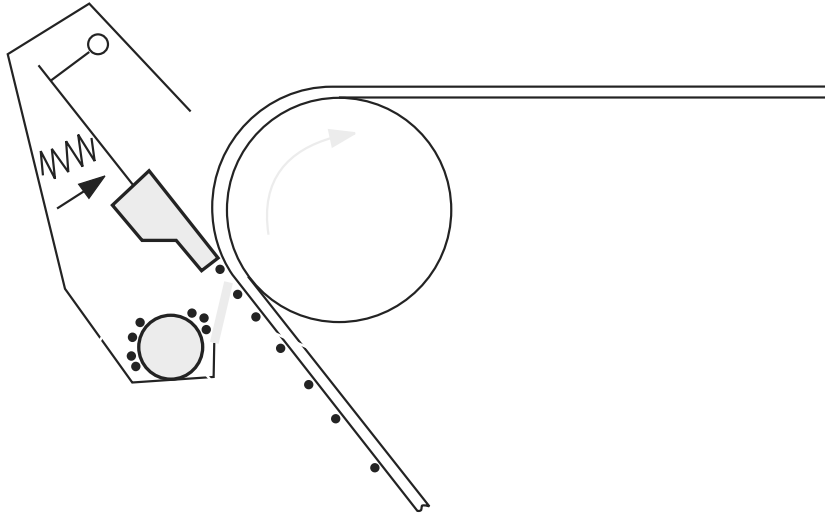
The two fuser rollers are rubber-coated to handle thick media and for improved gloss levels.



Fusing (step 8)

Step 9

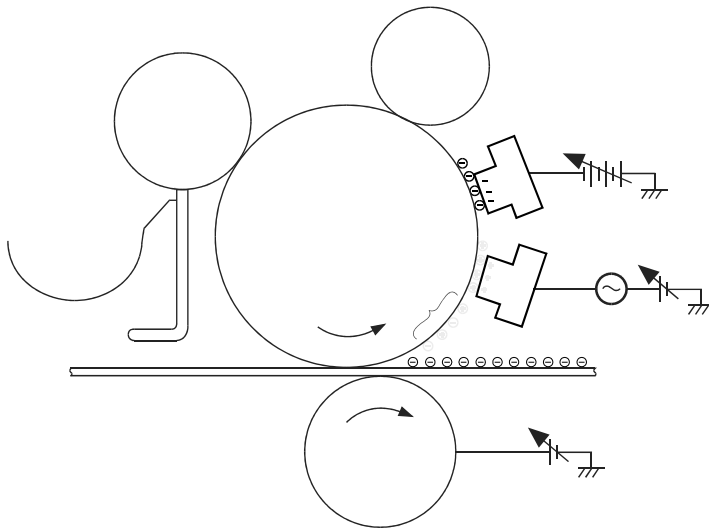
- 1 The cleaning blade rides on the ITB and scrapes off any residual toner remaining from the secondary transfer roller.
- 2 Falling toner is directed to an auger by the waste toner collection sheet.
- 3 The auger moves the toner into the toner collection bottle.



ITB cleaning (step 9)

Step 10

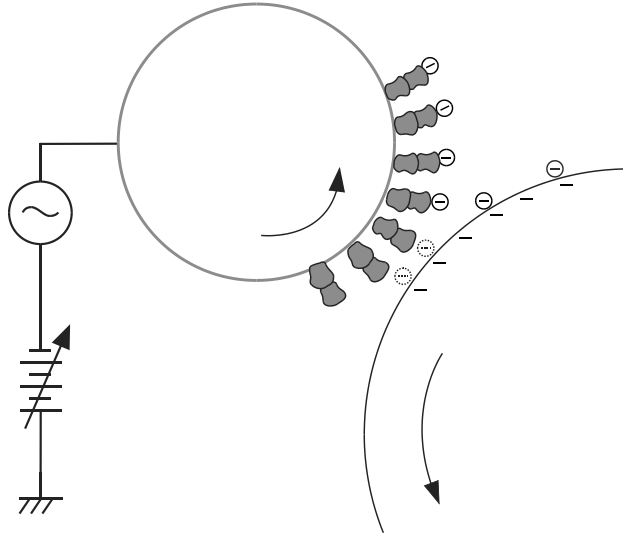
- 1 To clean residual toner from the OPC, two brushes apply charge to the residual toner. The first charge is positive, and the second charge is negative.



OPC cleaning

Step 11

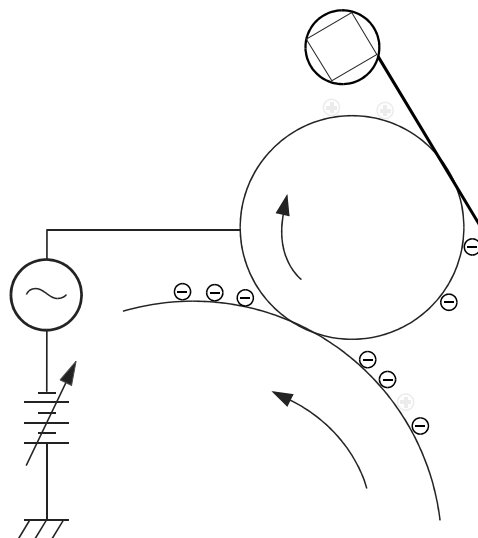
- 1 Negatively charged toner passes the charging roller where the carrier brushes pick it off of the OPC, and then it is returned to be used again.



OPC cleaning toner collection (step 11)

Step 12

- 1 During the OPC cleaning, some positively charged toner that was not charged negatively in step 10 adheres to the primary charging roller (these particles adhere to the primary charging roller).
- 2 When the particles go around the primary charging roller, the particles are rubbed by the primary charging cleaner and receive a negative charge.
- 3 The toner particles transfer back to the OPC surface, and are lifted off of the OPC by the carrier brushes (such as step 11).



OPC cleaning toner not charged by brushes (step 12)

Image stabilization control

The image stabilization control reduces image density variations (for example, those that result from deteriorations of the photosensitive drum or carrier). Three types of image stabilization control are available:

- environment calibration control
- image-density calibration control (D-max)
- image halftone calibration control (D-half)

Environment calibration control

The DC controller determines the printer environment based on an interior temperature and humidity signal. The DC controller performs the following actions to obtain an optimal image:

- various high-voltage DC bias controls
- ATR sensor control voltage calibration

The environment calibration control is performed at the following times:

- when the printer is turned on
- after replacing the P-crg
- during extreme environmental changes

Image density detection control

The image density detection control occurs when the density sensor strikes light at the four-color image density patterns on the ITB, and measures pattern density from the reflected light intensity.

The DC controller controls the density sensor. The sensor is located above the ITB and consists of a LED and a PD.

When the image density is measured, the DC controller emits light from the density sensor. The light strikes the detection patterns. The light receiver PD reads light that is reflected off of the detection patterns and returns it to the DC controller as the image-density detection signal. The two types of image-density control include:

- image density calibration control (D-max)
- image halftone calibration control (D-half)

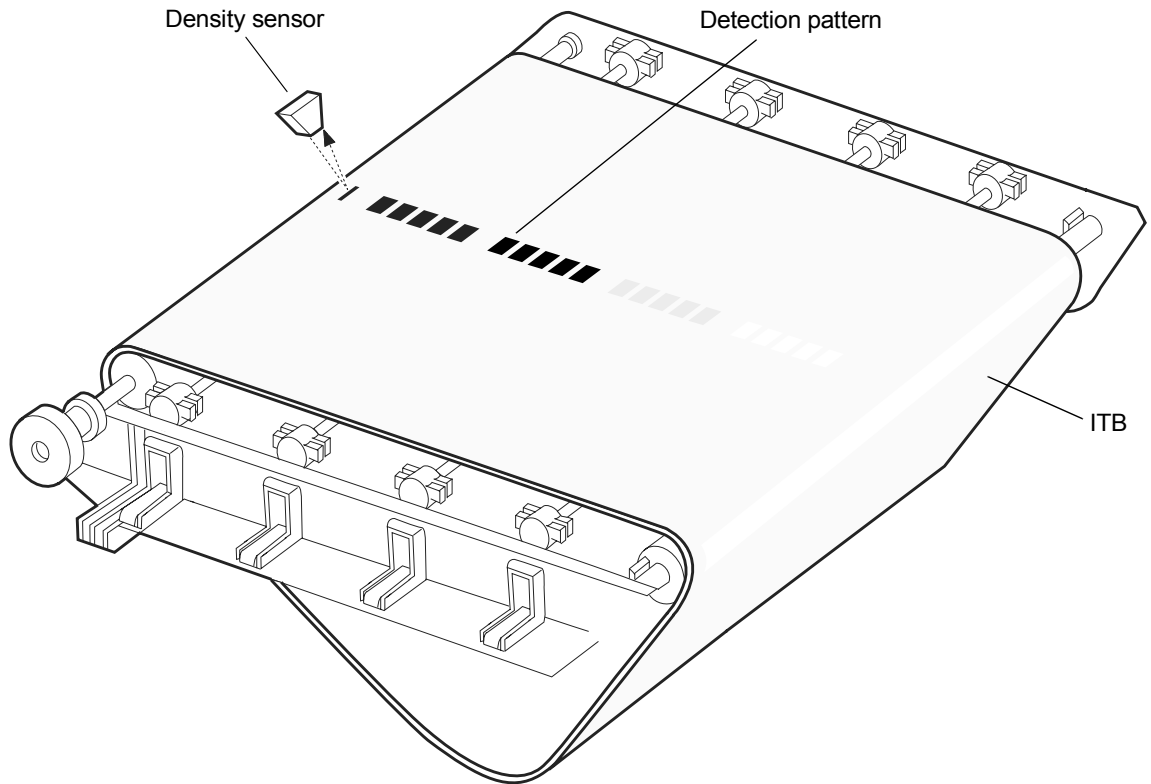


Image density detection control

The image density calibration control (D-max) stabilizes output-image density. The DC controller performs a D-max as follows when specified conditions are met:

- forms density patterns for colors on the ITB while varying the primary charging bias and the developing bias
- measures the density of the patterns by using the density sensor
- controls the primary charging bias and the developing bias to adjust the four measured density patterns to a correct density

Image density control is performed at the following times:

- the printer is turned on
- the printer is returning from sleep mode
- the printer experienced extreme environmental changes
- the printer is on for a long time
- a specified number of pages have been printed

Image halftone calibration control

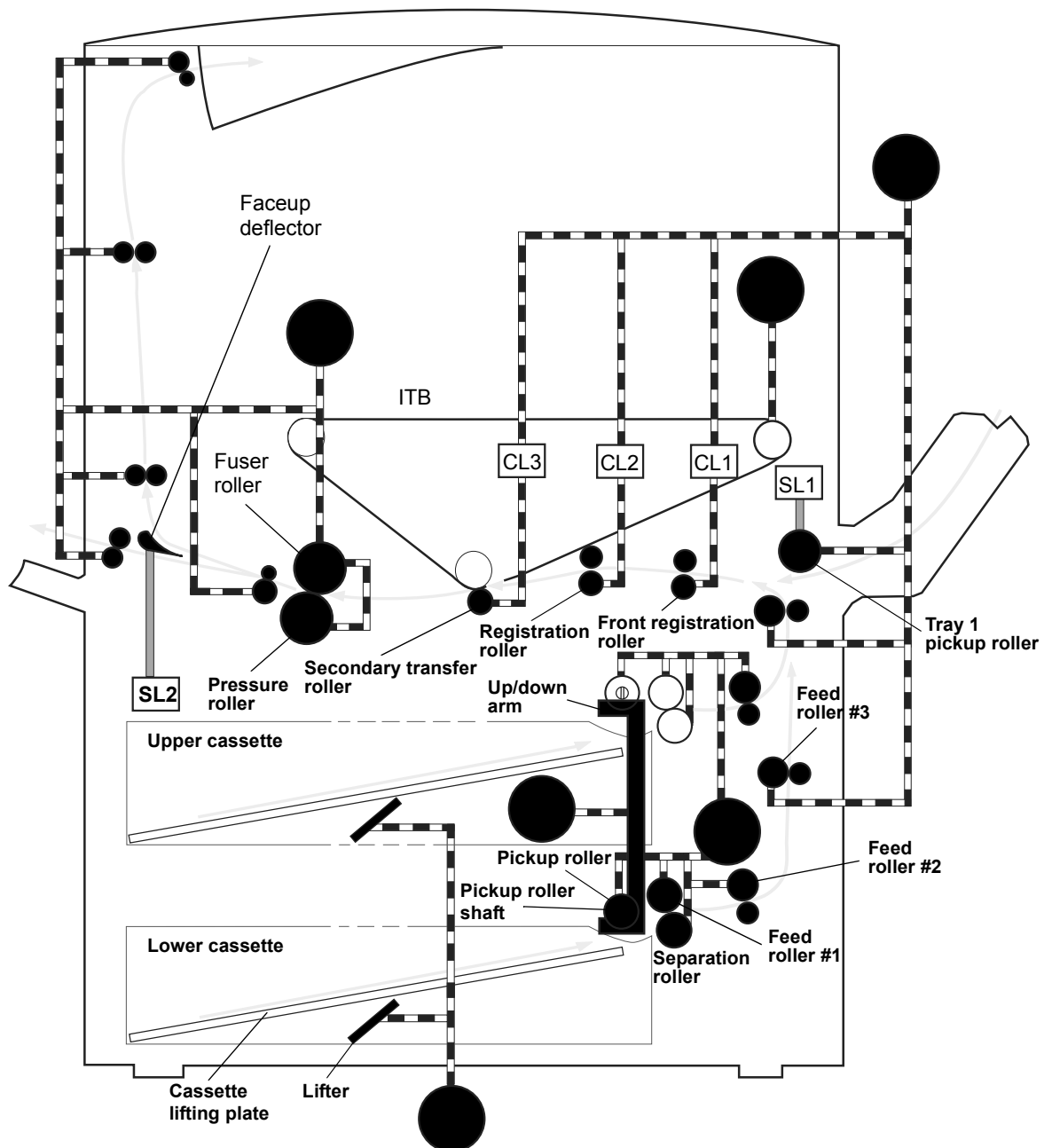
The image halftone calibration control (D-half) occurs when the formatter performs a halftone calibration that is based on the results of the DC controller halftone density measurement. After the D-max is completed, the DC controller and the formatter perform the D-half as follows:

- 1** The DC controller forms density detection patterns on the photosensitive drum for each color. Optimum primary charging bias and developing bias are determined in the D-max, based on the image data sent from the formatter.
- 2** The DC controller measures density detection patterns by using the density sensor, and sends the data to the formatter.
- 3** The formatter performs the halftone calibration, based on the density data, to obtain an ideal halftone image.

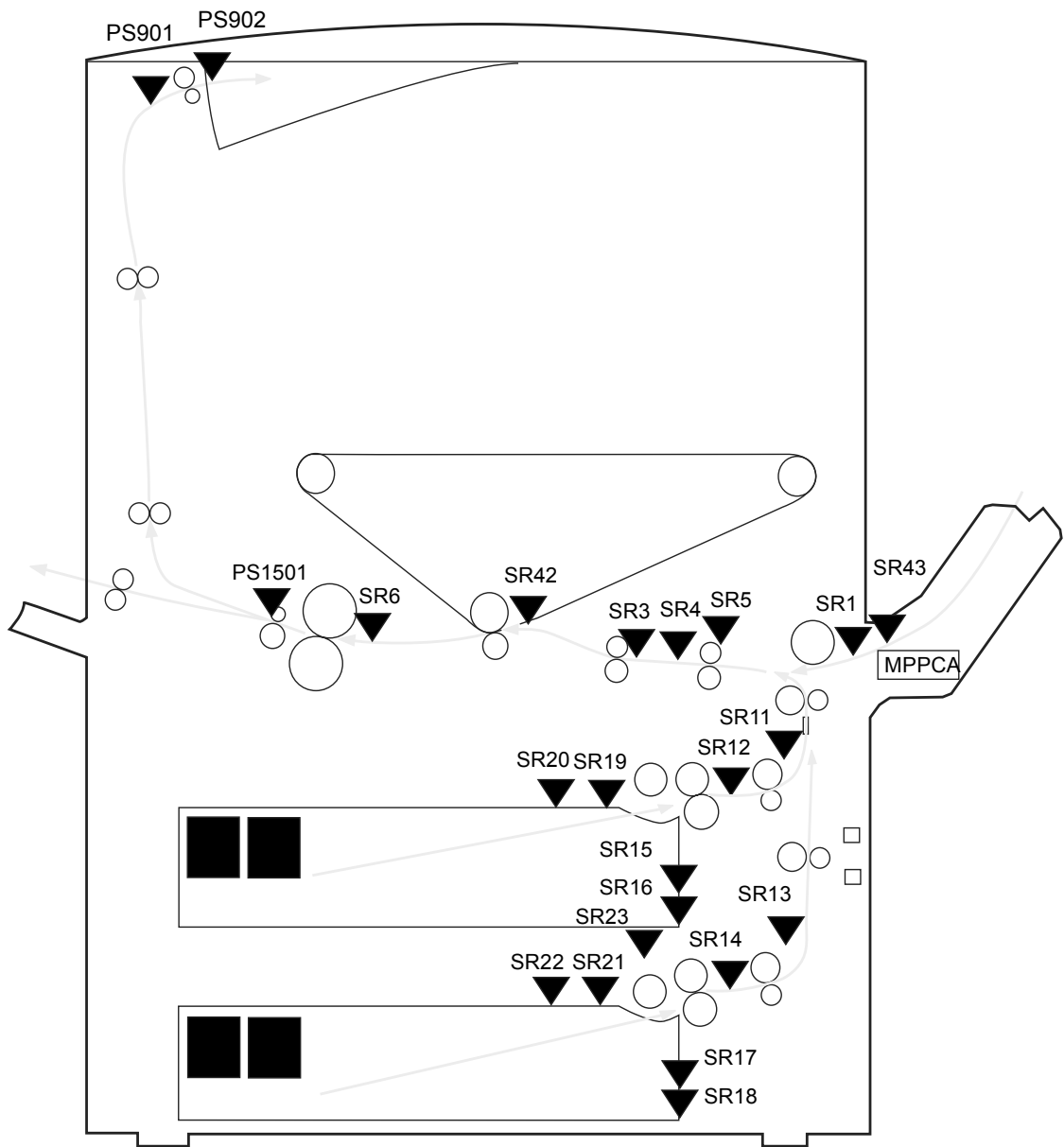
The paper-path system feeds print media by using different feed rollers. This printer includes three standard paper pickup sources (tray 1, tray 2, and tray 3), and two standard delivery sources (face-up and face-down bins). A tray 4 (2,000-sheet feeder) and optional finishing devices are also available.

The DC controller drives the feed rollers and ITB by controlling four motors, three clutches, and two solenoids. The 10 paper sensors on the paper path detect the reach or the passage of the sheet of media. If the sheet does not reach or pass each sensor within a specified amount of time, the main CPU on the DC controller determines a jam and notifies the formatter.

The paper sensors also detect media in the cassettes and tray 1. The paper-width-detection switch detects the media size in the cassettes, and the paper-width-detection PCA detects the media size in tray 1.



Paper-path system motors, clutches, and solenoids



Paper-path system switches, sensors, and PCA

For more information about the paper-path system, see "Switches, solenoids, clutches, and sensors" on page 142.

Pickup/feed unit

The pickup/feed unit feeds the sheets of media individually from the tray into the printer, and transports each sheet to the fuser. The main mechanisms used in tray pickup and paper feeding are cassette pickup, tray 1 paper pickup, and paper feeding.

Cassette paper size detection/cassette paper detection

This printer utilizes the two universal cassettes: upper cassette and lower cassette. Each cassette determines media size by detecting the length and width of media.

Cassette paper size detection

The DC controller determines media size as standard size when the custom-size lever on the side of the cassette is up. When the lever is down, it is determined as custom size.

Standard-sized media: Media size in the cassette is detected by the paper-width-detection switch and paper-length-detection switch located in the cassette. The DC controller detects statuses of these switches and determines media size. If standard-sized media is not present, the DC controller notifies an incorrect paper size to the formatter.

Custom-sized paper: The DC controller detects the width and length of custom-sized media by utilizing the paper-width-detection switches and registration paper sensor based on the media size specified by the formatter. The length is detected by monitoring the registration paper sensor during a print operation. If the media size differs from the one specified by the formatter, the DC controller notifies an incorrect media size to the formatter after completing a print operation.

Cassette detection

The cassette detection is performed with the paper-width-detection switch. If the cassette is not installed in the printer, all of these switches become “H” and the DC controller determines a cassette absence.

Media size	Paper-length-detection switches (SW3 and SW4)			Paper-width-detection switches (SW5 and SW6)		
	SIZE 1	SIZE2	SIZE3	WSIZE 1	WSIZE2	WSIZE3
A4 (landscape)	H	H	H	L	H	H
LTR (landscape)	H	H	H	L	L	H
A5 (landscape)	H	H	H	H	L	L
B5 (portrait)	L	L	H	H	L	L
Executive (portrait)	H	L	H	H	L	L
LTR (portrait)	H	L	L	H	L	L
A4 (portrait)	H	H	L	H	L	L
A3	L	H	L	L	L	L
Ledger	L	H	L	L	L	H
B4	L	H	L	H	L	H
Legal	L	H	L	H	L	L
Custom size	L	L	L	-	-	-
No cassette	-	-	-	H	H	H

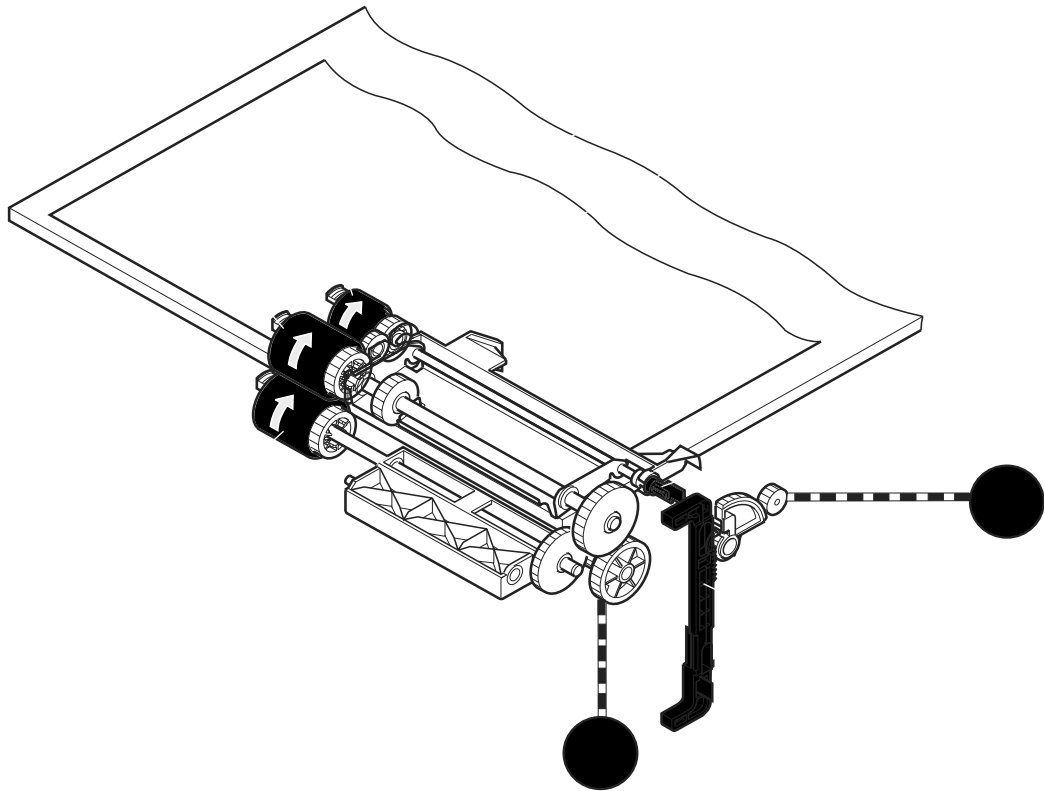
Cassette pickup

When printing from tray 2 or tray 3, sheets of media are fed into the printer individually. The cassette pickup sequence includes the following:

- 1 When the printer is turned on, the cassette lifting plate shifts up to the pickup position.
- 2 The DC controller rotates the pickup roller up/down motor (M23) when the formatter inputs a print command.
- 3 The M23 rotates clockwise to lower the up/down arm. This allows the pickup roller shaft to descend until it reaches the surface of the media stack.
- 4 The pickup motor (M24) drives the pickup roller, feed roller, and separation roller so that each rotates.

When the rollers rotate clockwise, the M24 drives the pickup roller, feed roller, and separation roller for tray 2 and performs a pickup operation from tray 2. When the rollers rotate counterclockwise, the M24 drives the pickup roller, feed roller, and separation roller for tray 3 and performs a pickup operation from tray 3.

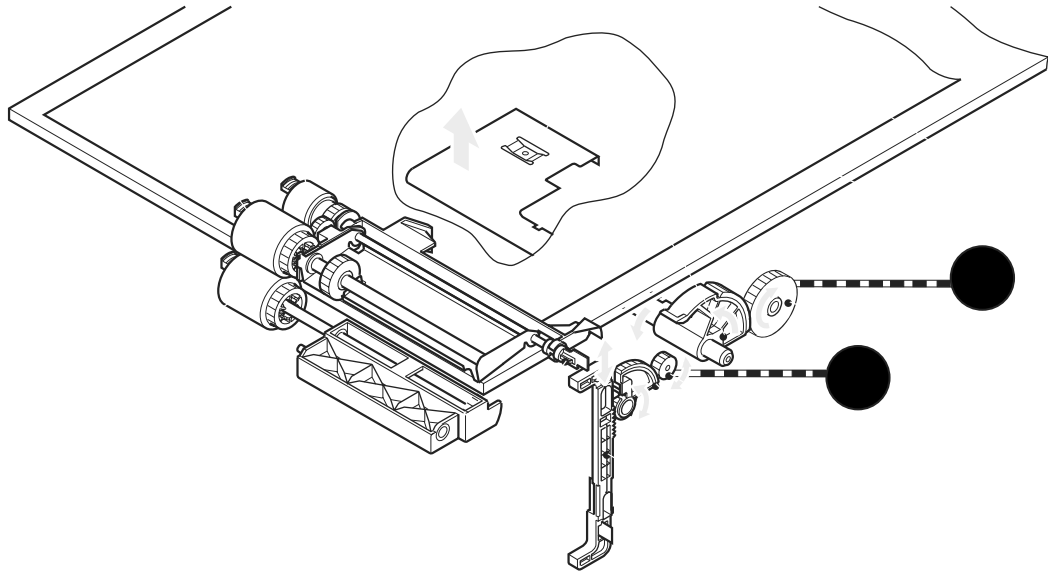
- 5 The sheets in tray 2 or tray 3 are fed into the printer individually as the pickup roller, feed roller, and separation roller rotate.
- 6 After a pickup operation is completed, the M24 stops as the M23 begins rotating counterclockwise. The M23 lifts the pickup roller to the pickup position and stops rotating.



Cassette pickup

Lifting-up operation

The lifting-up operation keeps the surface of the print media stack at a specified position. This stabilizes the pickup operation for any print-media size that the tray holds.

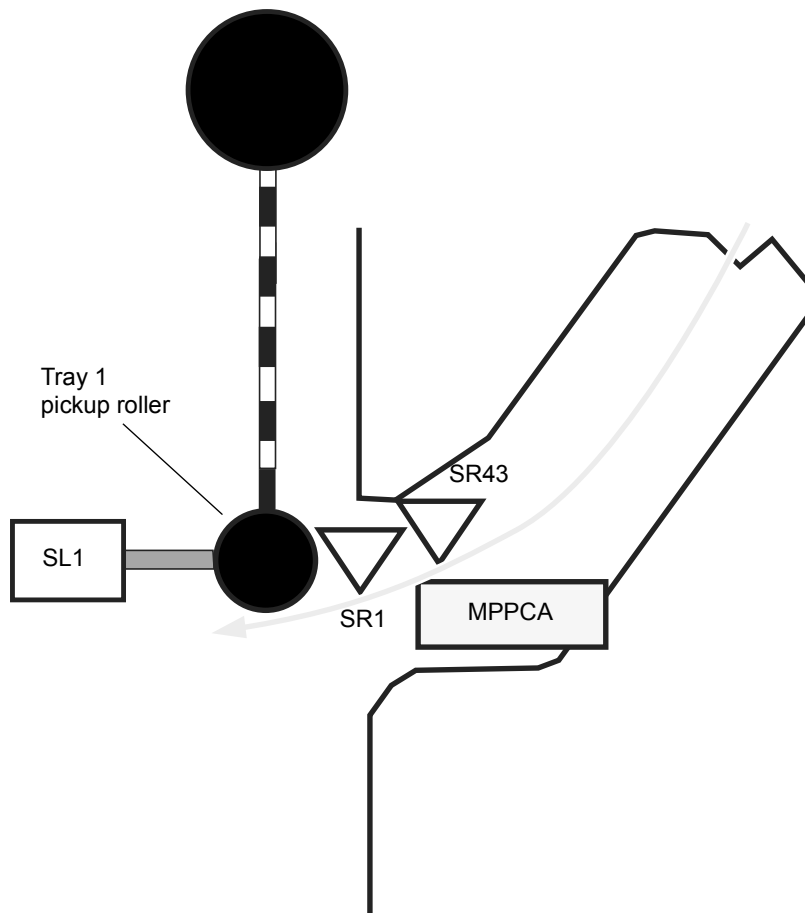


Lifting-up operation

Tray 1 paper pickup

When printing from tray 1, pages in the tray are fed individually. The tray 1 pickup operation includes the following steps:

- 1 The tray 1 paper sensor (PS1301) detects media in tray 1.
- 2 After a print command is input from the formatter, the DC controller rotates the registration motor (M11).
- 3 When the DC controller signals the tray 1 pickup solenoid (SL1) to move, the lifting plate (which is now loaded with media) moves up and the media contacts the tray 1 pickup roller.
- 4 The rotating pickup roller picks up a single page.
- 5 The single page feeds into the printer after the separation pad clears any multifeed pages.

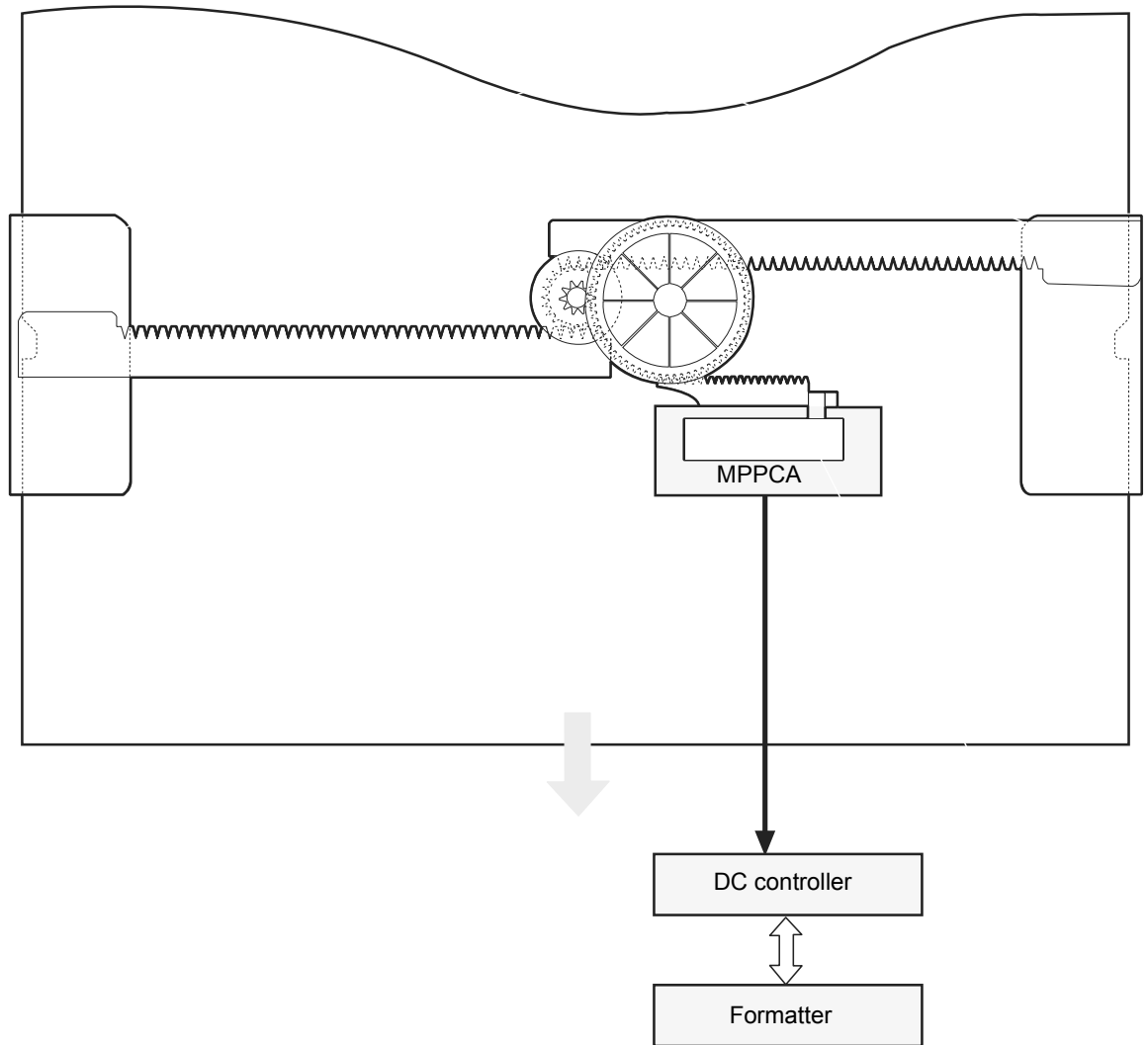


Tray 1 paper pickup

Tray 1 paper-width detection

The DC controller detects the paper width by using the tray 1 paper width-detection PCA (MPPCA) in tray 1. The MPPCA has a variable resistor, and the document width is detected by variations in the variable resistor that is interlocked to the document size guide.

If the detected width differs from the width that is specified by the formatter, the DC controller determines a paper-size discrepancy, indicates this to the formatter, and stops the printer.



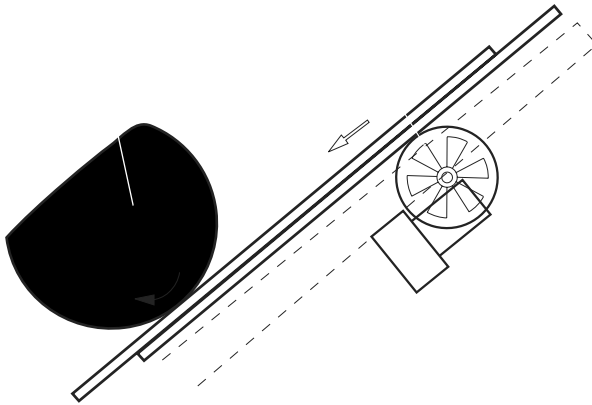
Tray 1 paper-width detection

Tray 1 last-paper detection

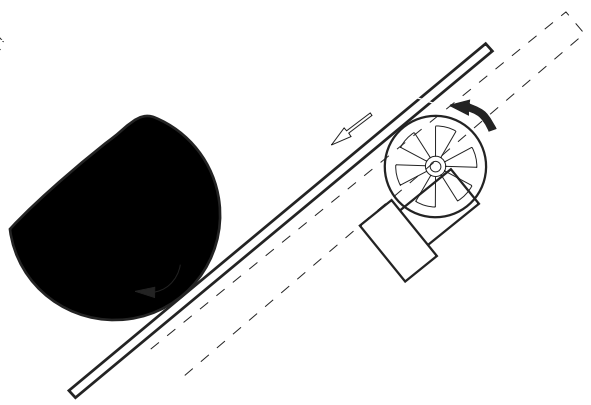
This printer can detect if the last sheet of paper in the tray is the next to be fed.

The feed distance between the tray 1 paper sensor and the registration roller is short. If the last page is fed during continuous printing, the DC controller begins to write the next image before it detects that tray 1 is out of paper. Because of this, the tray 1 last-paper detection detects that the tray is out of paper before image writing to avoid soiling the photosensitive drum and the ITB. This detection is performed with the last paper sensor (SR43) monitoring rotations of the last-paper-detection roller located on tray 1.

Normal paper pickup



Last paper pickup

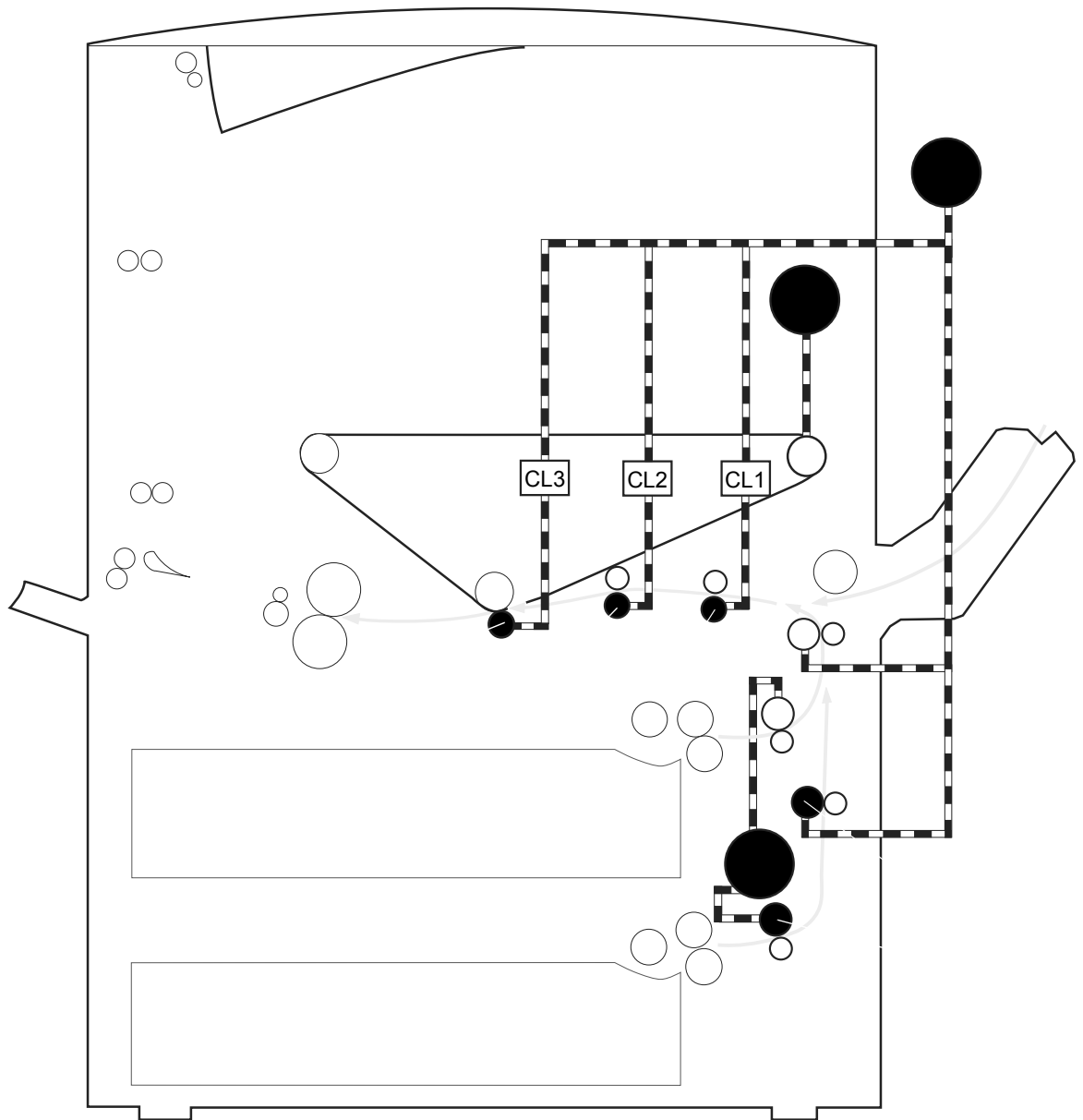


Tray 1 last-paper detection

Paper pickup and feed

The diagram indicates the paper path from the internal trays to the registration, secondary transfer, and fuser. It also indicates the drive relationships between the clutches and the paper path motors.

The preregistration motor does *not* provide any registration function.



Tray 1 paper feed

The following paper sensors detect the presence of media and whether it is fed correctly:

- Tray 2 feed sensor A/B (SR11; SR12)
- Tray 3 feed sensor A/B (SR13;SR14)
- Registration paper sensor (SR3)
- T2 input sensor (SR42)
- Fuser input sensor (SR6)
- Fuser output sensor (PS1501)
- Face-down bin output sensor (PS901)
- Duplexer media reverse sensor (SR33)
- Duplex media path sensor (SR31)
- Duplexer media refeed sensor (SR30)
- Multifeed sensor (SR5)

The main CPU in the DC controller determines if a paper jam has occurred by using the timing stored in the main CPU to check for the presence of media at the sensor. If the main CPU identifies a paper jam, the main CPU stops the print operation and communicates a jam to the formatter.

The printer detects jams according to the following conditions:

Pickup delay jam 1. Media does not reach the SR11 or the SR13 within a specified period after paper pickup begins.

Pickup delay jam 2. Media does not reach the SR3 within a specified period after paper pickup begins.

ITB wrapping jam. Media does not reach the SR6 within a specified period after paper pickup begins.

Fuser delivery delay jam. Media does not reach the PS1501 within a specified period after paper pickup begins.

Fuser delivery stationary jam. Media does not clear the PS1501 within a specified period after it reaches the PS1501.

Face-down delivery delay jam. The leading edge of the media does not reach the face-down bin paper delivery sensor (PS901) within a specified period after paper pickup begins.

Face-down delivery stationary jam. The leading edge of the media does not clear the PS901 within a specified time after it has reached the PS901.

Door open jam. Any of the following sensors detect media upon opening or closing the door:

- Tray 2 feed sensor A (SR11)
- Tray 2 feed sensor B (SR12)
- Tray 3 feed sensor A (SR13)
- Tray 3 feed sensor B (SR14)
- Registration paper sensor (SR3)
- Fuser delivery paper sensor (PS1501)
- Face-down bin paper delivery sensor (PS901)

Residual-paper jam. Any of the following conditions determine a residual-paper jam if the listed sensors detect the media:

- The printer is turned on.
- The printer is returning from SLEEP mode.
- A door is closed after a jam occurs.
 - Tray 2 feed sensor A (SR11)
 - Tray 3 feed sensor A (SR13)
 - Front fusing paper sensor (SR6)
 - Front secondary transfer paper sensor (SR42)
 - Fuser delivery paper sensor (PS1501)

Paper undeliverable jam. The SR3 detects that the media that is longer than what the formatter specified.

Fuser unit wrapping jam. Media reaches the PS1501 within a specified period after the paper pickup, and the PS1501 detects paper-out within the minimum specified period after detecting the media.

Removal and replacement

Introduction	183
Removal and replacement strategy	183
General cautions during removal and replacement	183
Electrostatic discharge	183
Required tools	184
Flat flexible cable caution	185
DC controller and cable/connector damage areas	186
Potential damage areas while servicing	186
Consumables	187
Toner cartridges (print cartridges)	187
Process cartridges (image drums)	189
Waste toner bottle (toner collection bottle)	191
Transfer cleaner (cleaning blade)	192
Transfer roller	193
External covers	194
Control panel overlay	194
Control panel	195
Right upper cover	196
Left upper cover	198
Top right cover	199
Top left cover	201
Front doors	203
Intermediate transfer belt (ITB) door	206
Left back cover	210
Left lower cover	211
Right back cover	213
Back cover	214
Major assemblies	215
Process cartridge (image drum) door	215
Laser/scanner assembly	217
Printing a laser/scanner adjustment page	219
Reading a laser/scanner adjustment page	221
Adjusting the laser/scanner assemblies	223
Delivery unit	235
Delivery unit sensor	239
Vertical feed unit	240
Duplexer	244
Fuser	245
Intermediate transfer belt (ITB)	246
Density and registration sensor assembly	248
Right back fan	251
Right front fan	252
Secondary transfer assembly (T2)	253

Pickup unit	258
Temperature and humidity sensor	266
High-voltage power supply	267
Low-voltage power supply	268
Registration assembly	269
Delivery fan	276
Fuser fan	277
P-crg (image drum) drive assembly	278
T-crg (print cartridge) drive assembly	282
Fuser motor	284
Fuser drive assembly	285
DC controller	286
Formatter PCB	288
Formatter cage	289
High-voltage contact	291
Post charger power supply	292
Tray 1 pickup roller	294
Tray 1 separation pad	295
Left door switch	296
Right door switch (front and right side doors)	297
ITB sensor	298
Upper left door sensor	299
Fuser front paper sensor	300
Fuser sensor PCA	301

Removal and replacement strategy

This chapter documents removal and replacement of field replaceable units (FRUs).

Replace parts in the reverse order of their removal. Directions for difficult or critical replacement procedures are included.

General cautions during removal and replacement

Before removing or replacing assemblies and parts:

- make sure the printer is turned off
- disconnect all cables and cords

If the printer has been running continuously prior to servicing, turn the power off but allow the printer to remain plugged in with the cooling fans running for at least 10 minutes before unplugging the power cord.

Exercise caution when working on the printer. The printer can have sharp sheet-metal edges.

Always remove the image drums before removing or replacing assemblies and parts that are near the drums.

IMPORTANT: Put the image drums in the original protective plastic sleeves, or, if the sleeves are not available, place the image drums right-side up on a hard, flat, clean surface. Do not place the image drums on carpet or a dusty surface because contaminants (such as dust and fibers) can stick to the OPC and diminish print quality. Light can damage the image drums.

Exercise caution when removing and replacing the ITB. Place it on a flat, clean surface because the belt is exposed on the bottom of the assembly.

Make sure you do not disturb the toner in the toner collection bottle. Toner and static charges might dust and block the sensor windows.

Note the lengths, diameters, and locations of screws. Be sure to return each screw to its original location during reassembly.

Incorrectly routed or loose wire harnesses can interfere with other internal components and can become damaged or broken. Frayed or pinched harness wires can be difficult to locate. When replacing wire harnesses, always use the provided wire loops, lance points, or wire-harness guides.

Electrostatic discharge

The printer contains parts that are sensitive to electrostatic discharge (ESD). Always service the printer at an ESD-protected workstation, or use an ESD mat.



Watch for the ESD symbol (shown at left) to identify the parts that are sensitive to ESD. Protect these parts by using an ESD wrist strap and protective ESD pouches.

Required tools

The following tools are needed to service the printer and the finishing device:

- #2 Phillips screwdriver with magnetic tip (one short-reach and one long-reach)
- Small flatblade screwdriver; Small needle-nose pliers
- ESD mat and wrist strap; Penlight

A PoziDriv screwdriver will damage screw heads on the printer. Be sure to use a #2 Phillips screwdriver. If you have an electric or multi-speed screwdriver, use a torque limiter or set the clutch to apply low torque.

Table 50. Hardware table

Example	Type and uses
	<div>Long aluminum finish (M 3 x 8)<ul style="list-style-type: none">Plastic to sheet metalLong reach sheet metal (P-cartridge motor assembly)</div> <div>Short brass finish (M 3 x 6)<ul style="list-style-type: none">Sheet metal to sheet metal</div> <div>Short black finish (M 3 x 8)<ul style="list-style-type: none">Laser/scanner assemblies</div> <div>Self-threading brass finish (M4)<ul style="list-style-type: none">Sheet metal to plastic</div>

Table 51. Common torque values

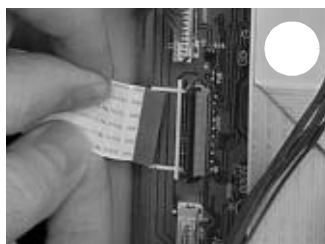
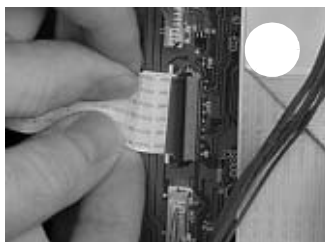
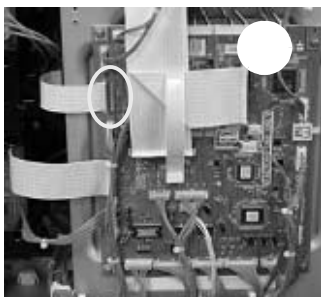
Material	HP recommended torque value
	5.5 lb-inch
	10 lb-inch
	5.5 lb-inch
	5.5 lb-inch

Flat flexible cable caution

Flat flexible cables (FFCs) can break easily because you must unlatch them. FFCs are easy to crease, cut, bend, or rip.

The following are steps for removing the FFCs:

- 1 Locate the FFC connection.
- 2 Use your finger to open the cover.
- 3 Gently pull the cable.
- 4 Remove the cable.



Remove the FFC

To reinstall

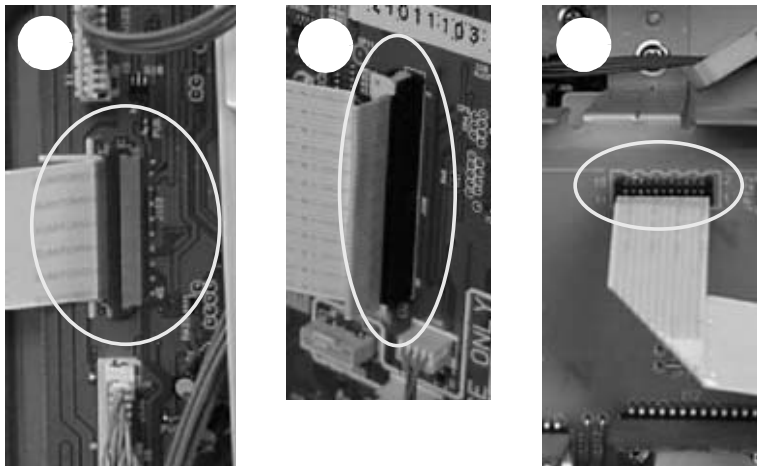
Make sure that you align the FFC correctly and that the cable remains completely inserted and correctly registered when you are fastening the cover or the lock. A partially seated FFC can cause irreparable damage to the cartridge e-labels and can cause motor stall errors.

DC controller and cable/connector damage areas

When replacing the DC controller, connect and check each of the 25 connectors by pressing each one of them.

Do not open the FFC covers until you know exactly how to unlatch the connector. The DC controller can be permanently damaged if the brown retainer is broken while lifting the white retainer.

- A. This type of connector can break easily because you must unlatch them.
- B. Lift-and-pull removal makes this connector easy to break. Also, it is easy to damage the cable when you lift the white retainer.
- C. This type of connector is easier to remove than the other two types. Simply pull the cable out or push it in.



DC controller and cable/connector damage areas

Stabilize the DC controller board to counter resistance while pulling on the copper wire connectors. Grasp the entire harness and pull on the wires perpendicular and evenly to avoid tearing out a single wire.

Potential damage areas while servicing

The following are potential areas for damage while the printer is being serviced:

- the print cartridge bottoms (remove the print cartridges when servicing areas near them)
- the white plastic tab on the P-cartridge drive assembly (drives the ITB)
- the ITB
- the toner collection bottle
- the tower on the T-drive assembly
- the P-cartridge drive assembly

Toner cartridges (print cartridges)

- 1 Open the front doors.

Gain access to the toner cartridges

- 2 Rotate the blue lever clockwise.



Rotate the toner cartridge lever

- 3 Pull the toner cartridge out.



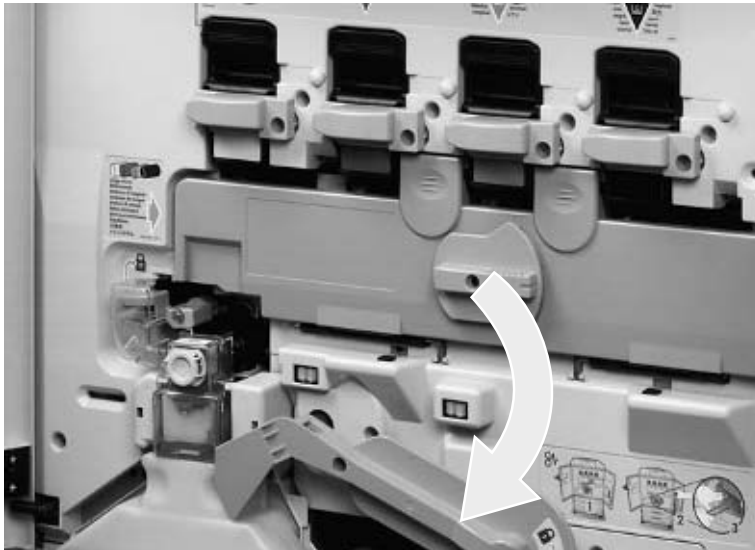
Remove the toner cartridge

If necessary, repeat these steps for the other three toner cartridges.

Process cartridges (image drums)

Image drums must be placed face-down on a flat, clean surface.

- 1 Rotate the green lever clockwise.



Gain access to the process cartridge door

- 2 Rotate the blue dial counterclockwise.



Rotate the process cartridge door dial

- 3 Open the process cartridge door.



Open the process cartridge door

- 4 Pull the process cartridge out.



Remove the process cartridges

If necessary, repeat these steps for the other three process cartridges.

Waste toner bottle (toner collection bottle)

- 1 Hold the top of the waste toner bottle and pull it out.

Remove the waste toner bottle

Transfer cleaner (cleaning blade)

- 1 Rotate the blue lever down.



Unlock the transfer cleaner

- 2 Pull out the transfer cleaner.

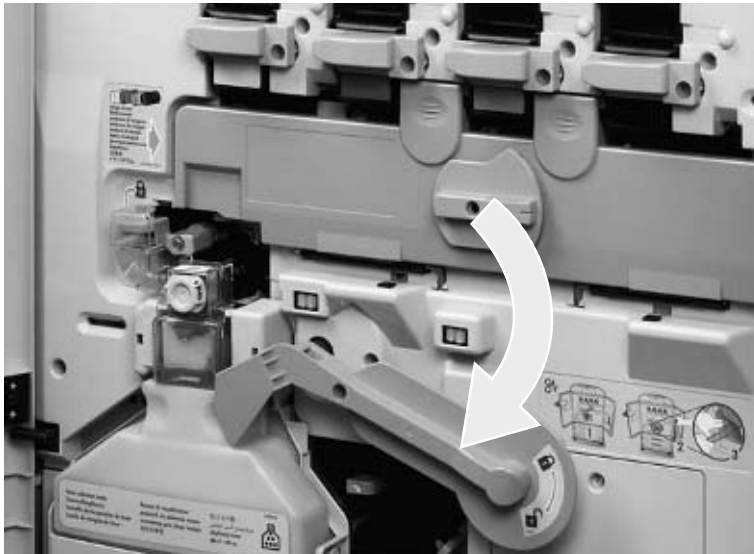


Remove the transfer cleaner

Transfer roller

Do not touch the surface of the transfer roller.

- 1 Rotate the green lever clockwise.



Disengage the ITB to release the transfer roller

- 2 Grasp the blue tab and pull the transfer roller out.



Remove the transfer roller

Control panel overlay

- 1 Insert a small screwdriver and remove the control panel overlay.



Remove the control panel overlay

Control panel

- 1 Open the front doors.
- 2 Release two tabs on the underside of the control panel by pulling them toward the front of the printer.



Release the control panel

- 3 Lift the control panel straight up.
- 4 Unplug the cable connector (callout 1) on the underside of the control panel.

Remove the control panel

- 5 Remove the control panel from the printer.

To reinstall

Make sure that you do not bend the grounding strip (callout 2) on the control panel.

Right upper cover

- 1 Remove the ozone filter (callout 1).
- 2 Open the right intermediate transfer belt (ITB) door.



Gain access to the right upper cover mounting screws

- 3 Remove two screws (callout 2).

Remove the right upper cover mounting screws

- 4 Pull out the bottom of the right upper cover and remove it.



Remove the right upper cover

Left upper cover

- 1 Open the left upper door.



Gain access the left upper cover mounting screws

- 2 Remove two screws (callout 1).

Remove the left upper cover mounting screws

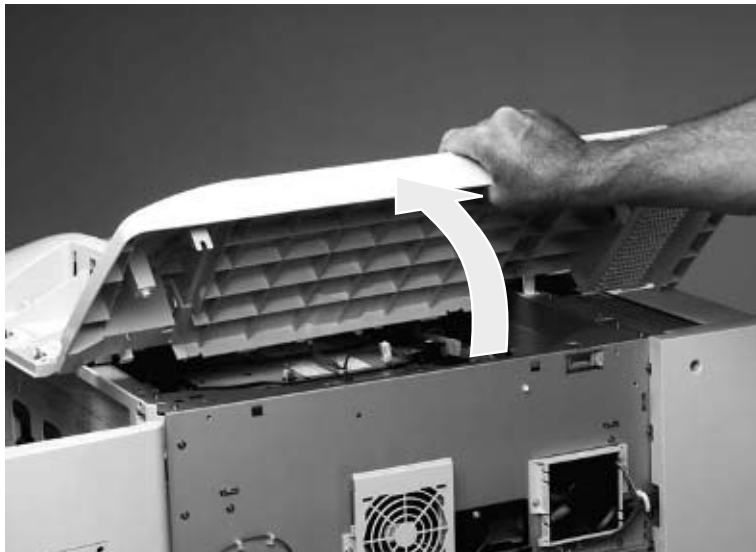
- 3 Remove the left upper cover.

Top right cover

- 1 Remove the following assemblies:
Control panel. See page 194.
Right upper cover. See page 196.
- 2 Open the front doors.
- 3 Remove two screws (callout 1).

Remove the top right cover mounting screws

- 4 Remove the top right cover.



Remove the top right cover

To reinstall

Make sure that the tabs and locator pins are lined up correctly (callout 2).

Loosen the front middle screw (callout 3) so the tabs are easier to insert.

Reinstalling the top right cover

Top left cover

- 1** Remove the following covers:
Left upper cover. See page 198.
Top right cover. See page 199.
- 2** Remove two screws (callout 1).

Remove the top left cover mounting screws (1 of 2)

- 3** Remove two screws (callout 2).

Remove the top left cover mounting screws (2 of 2)

- 4 Lift up the top left cover and remove it to your right.

Be careful not to damage the face-down output tray-full sensor and the control panel cable.



Remove the top left cover

To reinstall

Make sure that the spring is correctly positioned in the pedestal clips, and that the top of the spring is correctly positioned on the plastic cross hairs.

Make sure that the output tray-full sensor (callout 3) is above the output bin, and be careful not to damage the control panel cable.

Reinstall the top left cover

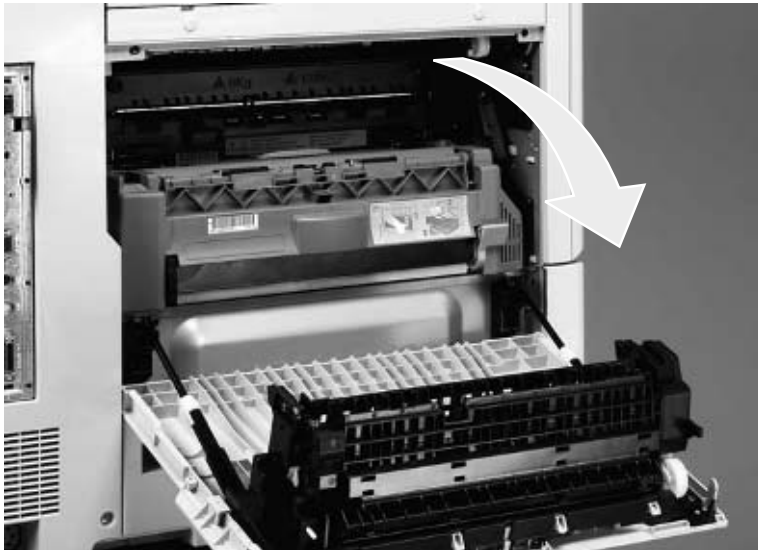
Front doors

- 1 Remove the following covers:
Right top cover. See page 199.
Left top cover. See page 201.
- 2 Lift up and remove the front door.

Remove the front doors

Fuser door

- 1 Open the fuser access door.



Gain access to the fuser

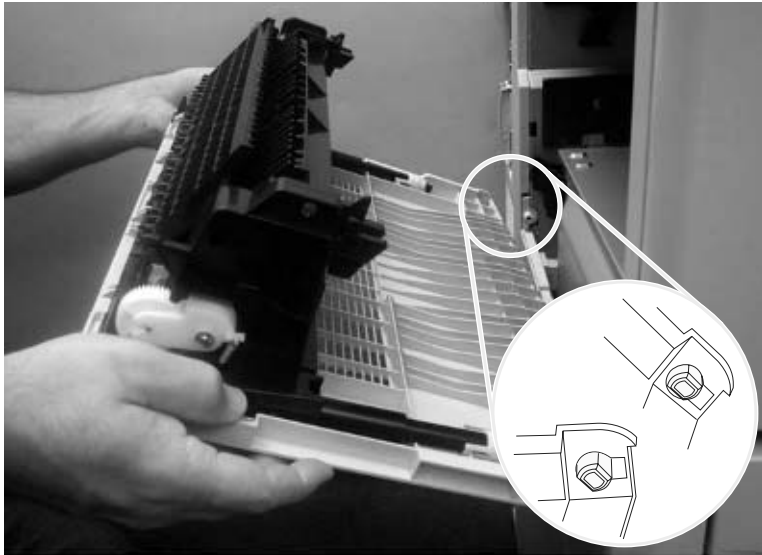
- 2 Push the spring-loaded door rod down and to the back to remove it from the bracket (callout 1).

Hold the door with one hand while holding the rod with your other hand.

The rods are under tension and the pins in the rods are not secure.

Release the fuser door pistons

- 3 Align the flat side of the pivot hole on the left side of the door with the flat sides of the pivot pin.



Remove the fuser door

- 4 Rotate the door away from the printer.
- 5 Remove the fuser door.

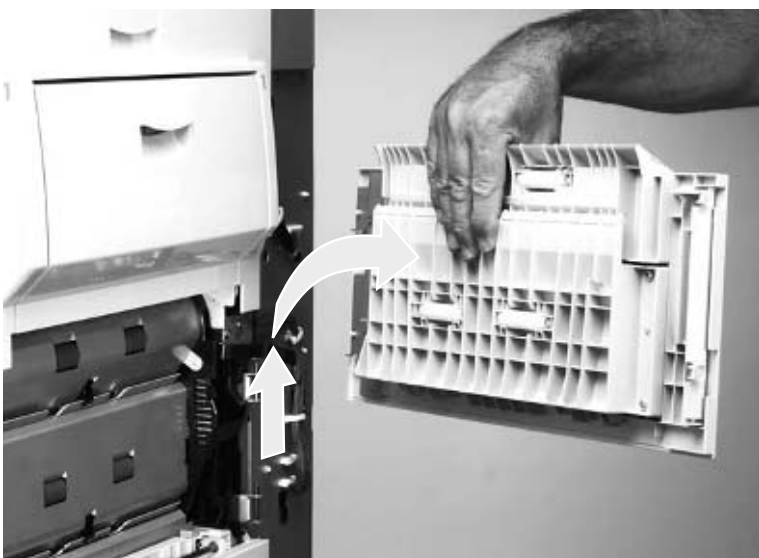
Intermediate transfer belt (ITB) door

- 1 Remove the right back cover. See page 213.
- 2 Open the right lower door assembly, and remove one screw (callout 1) on the retaining strap of the door assembly.



Release the right lower door

- 3 Remove the right lower door assembly.



Remove the right lower door assembly

- 4 Open the right upper door (ITB access door).



Open the ITB door

- 5 Remove seven screws (callout 2).
- 6 Remove the shield (callout 3).

Remove the wire harness shield

- 7 Disconnect one cable connector (callout 4), and unclip one wire harness (callout 5).
- 8 Push the spring-loaded door rod down and to the back to remove it from the bracket (callout 6).

Hold the door with your left hand while holding the rod with your right hand.

The rod is under tension and the pins in the rod are not secure.

Do not remove the pin from the rod.

Disconnect the ITB door wire harness

- 9 Close the right upper door.



Gain access to the ITB door mounting screws

- 10** Remove three screws (callout 7).
- 11** Open the right upper door slightly and remove the bracket (callout 8).

Remove the ITB door mounting screws

- 12** Shift the ITB door toward the back of the printer and remove it.

Left back cover

- 1** Remove 8 screws (callout 1).

Remove the left back cover

- 2** Remove the left back cover.

Left lower cover

- 1** Remove the following assemblies:
Fuser door. See page 204.
Left back cover. See page 210.
- 2** Remove four screws (callout 1).

Remove the left lower cover mounting screws

- 3** Remove tray 2 and tray 3.
- 4** Remove one screw (callout 2), and remove the front left cover (callout 3).

Remove the front left cover

- 5 Depress two tabs (callout 4).

Release the left lower cover tabs

- 6 Remove the left lower cover.

Right back cover

- 1** Remove seven screws (callout 1), and depress the tab (callout 2) near the ITB access door.

Remove the right back cover

- 2** Remove the right back cover.

Back cover

- 1** Remove following covers:

Left back cover. See page 210.

Right back cover. See page 213.

- 2** Remove one filter (callout 1), and remove eight screws (callout 2).

Remove the back cover

- 3** Remove the back cover.

Process cartridge (image drum) door

- 1 Remove the four process cartridges. See page 189.
- 2 Rotate the green lever down.
- 3 Unclip the drum door hinge pins (callout 1) with a screwdriver.



Unclip the process cartridge door hinge pins

- 4 Unlock the process cartridge door.



Unlock the process cartridge door

- 5 Open the process cartridge door halfway.

- 6 Remove the hinge pins.



Remove the process cartridge door hinge pins

- 7 Remove the process cartridge door.

Remove the process cartridge door

After replacing the process cartridge door, print a laser alignment test page and, if necessary, perform a laser alignment procedure. See page 219.

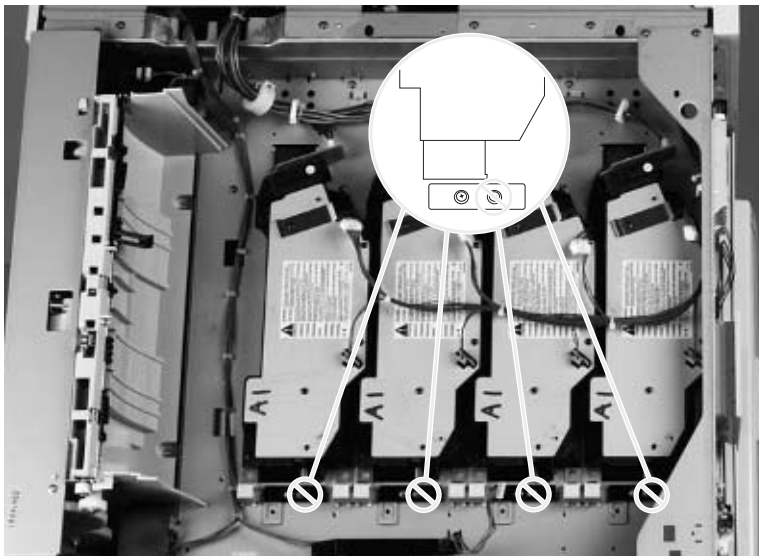
Laser/scanner assembly

- 1 Remove the following covers:
Top right cover. See page 199.
Top left cover. See page 201.
- 2 Disconnect three connectors (callout 1), and remove four black screws (callout 2).

Depending on which laser/scanner assembly needs to be removed, disconnect the appropriate connectors from the other laser/scanner assemblies.

Disconnect a laser/scanner assembly

Do *not* remove the four black screws called out in figure 119.



Do not loosen the laser/scanner adjustment screws

- 3 Remove the laser/scanner assembly.

To reinstall

Make sure that the two metal shim stacks (callout 3) are not covering the laser/scanner mounting screw-holes.

Reinstall the laser/scanner assembly

Print a laser/scanner adjustment test page before reinstalling the top right cover and the top left cover. See page 219.

Printing a laser/scanner adjustment page

A laser/scanner adjustment can be printed without reconnecting the control panel. However, when the control panel is connected you can read printer error messages (if any errors occur) and know when the printer reaches the `READY` state.

This procedure can only be performed using A4- or letter-size media. Using A3 or 11-by-17 media gives invalid results.

- 1 Turn the printer off.
- 2 Completely cover the laser/scanner assemblies with two layers of paper to prevent light from leaking into the printer. A light leak might affect the adjustment values on the test page.

Cover the laser/scanners to prevent a light leak

- 3 Using a small, non-metallic, flatblade screwdriver (or similar tool), depress the engine test button, making sure to press straight in to avoid damaging the DC controller board. Turn the printer on. Continue to depress the test button for about three to five seconds while the printer initializes. Release the engine test button and wait for the printer to come to the `READY` state.

Prepare to print a laser/scanner adjustment page

- 4 When the printer reaches the `READY` state, depress and release the engine test button. The printer performs an internal calibration, and then a laser/scanner adjustment page prints.

Reading a laser/scanner adjustment page

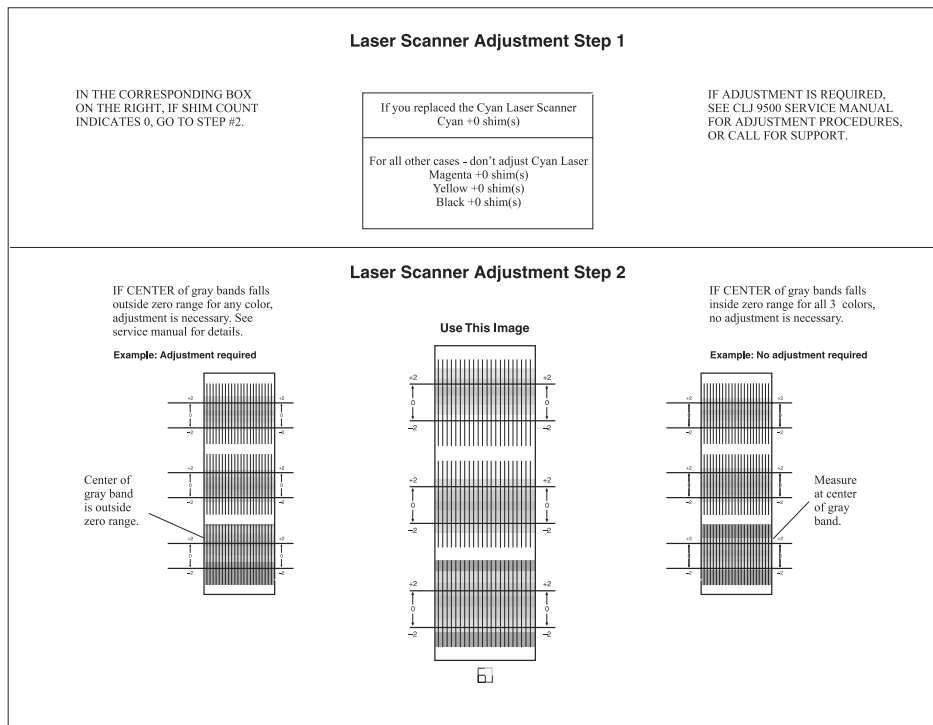
Do not attempt to adjust the laser/scanner assemblies unless the laser/scanner adjustment page indicates that a laser/scanner needs adjustment. See “Printing a laser/scanner adjustment page” on page 219.

Overview

Two possible adjustments can be made to a laser/scanner assembly. These adjustments *must* be made in the correct sequence. The first adjustment is identified as *Laser Scanner Adjustment Step 1* on the laser/scanner adjustment page. The second adjustment is identified as *Laser Scanner Adjustment Step 2* on the laser/scanner adjustment page.

- 1 Look at the laser/scanner adjustment page. If the numbers under the *Laser/Scanner Adjustment Step 1* are all zeros (callout 1; figure 123) and the center of the three gray bands under the *Laser Scanner Adjustment Step 2* are inside of the zero range for all three colors (callout 2; figure 123), then no adjustment is required and this procedure is complete.

The laser/scanner adjustment page has examples to help interpret the position of the gray bands (callout 3; figure 123). An example of “Adjustment required” is located on the left side of the page. An example of “No adjustment required” is located on the right side of the page.



Reading the laser/scanner adjustment page

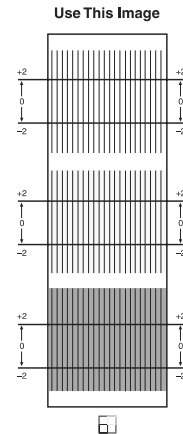
- 2 If any of the numbers under the *Laser/Scanner Adjustment Step 1* is *not* a zero (callout 4; figure 124) or if the center of any of the three gray bands under the *Laser/Scanner Adjustment Step 2* is outside of the zero range for any of the three colors (callout 5; figure 124), a laser/scanner adjustment is required.

The position of the center of the gray bands under the *Laser/Scanner Adjustment Step 2* are interpreted as shown in figure 124. Callout 6 shows that the center of the gray band for the magenta laser/scanner falls outside of the zero range, meaning that a laser/scanner adjustment is required. Callout 7 shows that the center of the gray band falls inside of the zero range, meaning that a laser/scanner adjustment is not required.

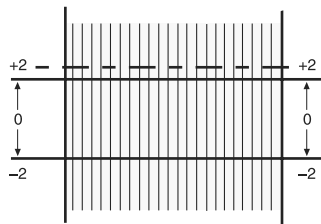
Laser Scanner Adjustment Step 1

If you replaced the Cyan Laser Scanner Cyan +0 shim(s)
For all other cases - don't adjust Cyan Laser Magenta +1 shim(s) Yellow +0 shim(s) Black +0 shim(s)

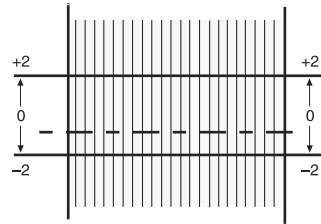
Laser Scanner Adjustment Step 2



Interpreting Step 2 gray band positioning



Adjustment required



No adjustment required

Interpreting the laser/scanner adjustment page

- 3 If an adjustment is required, see Adjusting the laser/scanner assemblies (page 223).

Adjusting the laser/scanner assemblies

Do *not* attempt to adjust the laser/scanner assemblies unless the laser/scanner adjustment page indicates that a laser/scanner requires adjustments. See “Printing a laser/scanner adjustment page” on page 219.

Overview

Laser/scanners might need to be adjusted if a laser/scanner assembly (RG5-6181-000CN), the process cartridge drive assembly (image drum drive assembly) (RG5-6188-000CN), or the image drum door (RG5-6182-000CN) is replaced.

Adjusting the laser/scanner assemblies requires that you print a laser/scanner adjustment page (see “Printing a laser/scanner adjustment page”) and use several special tools that are included with the replacement laser/scanner assemblies, process cartridge drum drive assembly (image drum drive assembly), and image drum door.

Two possible adjustments that can be made to a laser/scanner assembly. These adjustments *must* be made in the correct sequence. The first adjustment is identified as *Laser Scanner Adjustment Step 1* on the laser/scanner adjustment page. The second adjustment is identified as *Laser Scanner Adjustment Step 2* on the laser/scanner adjustment page.

When adjusting the laser/scanner assemblies you might have to print multiple laser/scanner adjustment pages. Information on the page will change as you make fine adjustments to the laser/scanner assemblies.

Avoid using previously printed pages, which might not reflect the current adjustment of a laser/scanner, by numbering each page after it prints or throwing away previously printed pages. Always make sure that you are using the most recent adjustment page that you printed.

Laser scanner adjustment step 1

Make sure that you do not lose any shims inside the printer. Shims that remain inside the printer can damage the printer.

If you are unsure of how to interpret the *Laser Scanner Adjustment Step 1* part of the adjustment page, see figure 124.

- 1 Print a laser/scanner page (See "Printing a laser/scanner adjustment page" on page 219).
- 2 Locate the box on the laser/scanner adjustment page under the *Laser Scanner Adjustment Step 1* heading (callout 1). If all of the listed laser scanners indicate that zero shims are needed, the step 1 adjustment is *not* required. Proceed to Laser/scanner adjustment step 2 (page 228).

If any of the results under the *Laser Scanner Adjustment Step 1* heading indicate a number other than zero, proceed to the next step.

If a laser/scanner assembly is replaced, it will usually be the one that requires adjustment. If the cyan laser/scanner is replaced, read the top of the step 1 box and ignore the magenta, the yellow, and the black laser/scanner numbers that are indicated in the bottom half of the box. Make sure that the cyan laser/scanner is adjusted correctly before attempting to adjust the other assemblies. Adjust laser/scanner assemblies one at a time (after the cyan laser/scanner is properly adjusted), printing a new laser/scanner adjustment page after every addition or removal of shims.

Laser Scanner Adjustment Step 1

IN THE CORRESPONDING BOX ON THE RIGHT, IF SHIM COUNT INDICATES 0, GO TO STEP #2.

If you replaced the Cyan Laser Scanner
Cyan +0 shim(s)

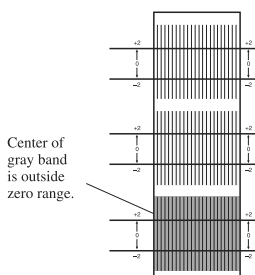
For all other cases - don't adjust Cyan Laser
Magenta +1 shim(s)
Yellow +0 shim(s)
Black +0 shim(s)

IF ADJUSTMENT IS REQUIRED, SEE CLJ 9500 SERVICE MANUAL FOR ADJUSTMENT PROCEDURES, OR CALL FOR SUPPORT.

Laser Scanner Adjustment Step 2

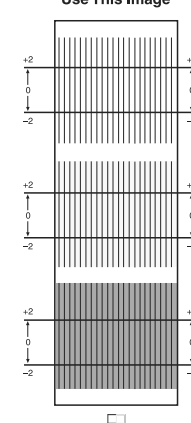
IF CENTER of gray bands falls outside zero range for any color, adjustment is necessary. See service manual for details.


Example: Adjustment required



Center of gray band is outside zero range.

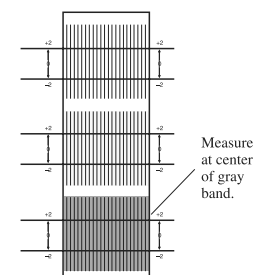
Use This Image





IF CENTER of gray bands falls inside zero range for all 3 colors, no adjustment is necessary.

Example: No adjustment required



Measure at center of gray band.

Laser/scanner adjustment page step 1

- 3** Place two S-shims on the edge of the black plastic shim guide (callout 2).

Make sure you do not drop the shims into the sheet-metal opening.

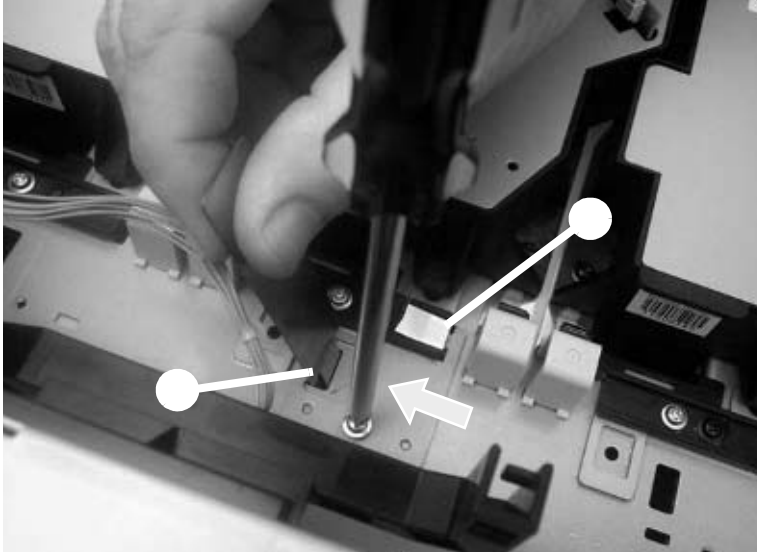
Placing the initial laser/scanner S-shims

- 4** Place the metal adjustment plate (callout 3) in the printer. Loosely secure the plate with a screw.

A screw is not provided with the tool kit. Use one of the screws that you removed when the top covers were removed.

Install the laser/scanner adjustment plate

- 5 Use the spring tool (callout 4) to force the adjustment plate against the shims (callout 5), and then tighten the screw that secures the metal adjustment plate. Remove the spring tool.



Position the laser/scanner adjustment plate

- 6 Loosen the four black laser/scanner mounting screws (callout 6) and the black laser/scanner adjustment screw (callout 7). Slide the laser/scanner assembly to the left, away from the S-shims.

If you replaced the cyan laser/scanner assembly, look at the top half of the step 1 box on the adjustment page (callout 1 on figure 125). If you replaced any of the other laser/scanner assemblies, look at the bottom half of the step 1 box on the adjustment page (callout 1 on figure 125).

Add or remove the number of S-shims that is indicated on the laser/scanner adjustment page to or from the S-shims on the black plastic shim guide.

Add or remove laser/scanner adjustment S-shims

- 7 Slide the laser/scanner tightly against the plate and the S-shims (if any remain), and use the spring tool (callout 8) to keep the laser/scanner snug against the plate or the S-shims.



Position the laser/scanner assembly

- 8 Tighten the four black laser/scanner mounting screws (callout 9) and tighten the black adjustment screw (callout 10).

Tighten the laser/scanner assembly mounting screws

- 9 Cover the top of the printer to prevent light leaks, and then print another laser/scanner adjustment page (see page 219). If the numbers under the *Laser Scanner Adjustment Step 1* heading indicate that the laser/scanners do not require further adjustments (all are zeros), the first adjustment is complete.

Make sure that you remove the adjustment plate and screw from the laser/scanner bed.

- 10 If further adjustment is required for the remaining laser/scanner assemblies, repeat *Laser Scanner Adjustment Step 1*.

If the step 1 adjustment must be repeated, make sure you install the first two S-shims.

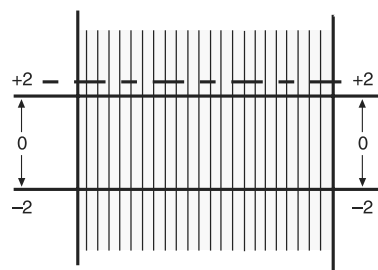
Laser/scanner adjustment step 2

Make sure that you do not lose any shims inside the printer.

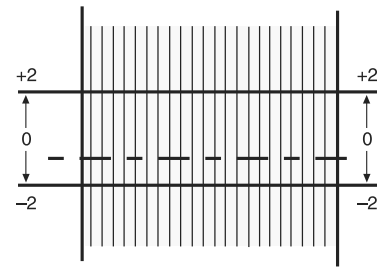
The laser/scanner adjustment page has examples to help interpret the position of the gray bands. An example of "Adjustment required" is located on the left side of the page. An example of "No adjustment required" is located on the right side of the page.

The position of the center of the gray bands under the *Laser Scanner Adjustment Step 2* is interpreted as shown in figure 124. Callout 1 shows that the center of the gray band falls outside of the zero range, meaning that a laser/scanner adjustment is required. Callout 2 shows that the center of the gray band falls inside of the zero range, meaning that a laser/scanner adjustment is not required.

Laser Scanner Adjustment Step 2



Adjustment required



No adjustment required

Reading the laser/scanner adjustment step 2 images

- 1 Print the laser/scanner adjustment page (see page 219).
- 2 Locate the box that appears on the adjustment page under the *Laser Scanner Adjustment Step 2* heading (callout 3). If centers of the gray bands are at zero for all three colors, no adjustment is required and the second adjustment is complete.

If the center of the gray bands falls outside of the zero range, adjustment is required. If one of the colors (Y, M, or C) is out of the zero range, adjust the laser for that color as described. If all three colors (Y, M, and C) are out of the zero range in the same direction, you might only have to adjust the black laser. In this case, the number of shims that you add or subtract is the reverse of the indication. That is, you add shims if the indication is negative or remove shims if the indication is positive. Proceed to the next step.

Laser Scanner Adjustment Step 1

IN THE CORRESPONDING BOX ON THE RIGHT, IF SHIM COUNT INDICATES 0, GO TO STEP #2.

If you replaced the Cyan Laser Scanner
Cyan +0 shim(s)

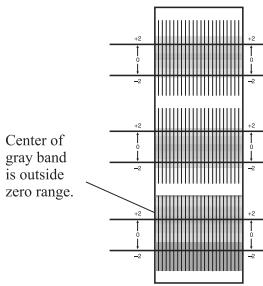
For all other cases - don't adjust Cyan Laser
Magenta +0 shim(s)
Yellow +0 shim(s)
Black +0 shim(s)

IF ADJUSTMENT IS REQUIRED, SEE CLJ 9500 SERVICE MANUAL FOR ADJUSTMENT PROCEDURES, OR CALL FOR SUPPORT.

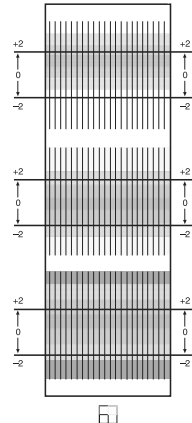
Laser Scanner Adjustment Step 2

IF CENTER of gray bands falls outside zero range for any color, adjustment is necessary. See service manual for details.

Example: Adjustment required

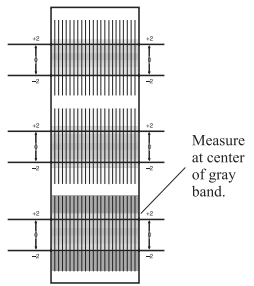


Use This Image



IF CENTER of gray bands falls inside zero range for all 3 colors, no adjustment is necessary.

Example: No adjustment required



Laser/scanner adjustment page step 2

ENWW

Chapter 6 Removal and replacement **229**

- 3 Remove the four black laser/scanner mounting screws (callout 4) for the selected laser/scanner.

Do *not* loosen the one black laser/scanner adjustment screw (callout 5).

Remove the laser/scanner assembly mounting screws

- 4 Lift up the laser/scanner assembly slightly. Pinch one of the two plastic shim retainers and pull the retainer and shim pile (callout 6) out of the printer. Repeat for the second retainer and shim pile (callout 7).

Remove the laser/scanner assembly shim retainers and shims

- 5 Add or remove the required number of shims from the two shim piles.

If all three colors (Y, M, and C) are outside of the zero range by the same amount, you can simply adjust the black laser, rather than the other three, to align all four laser scanners. In this instance, the number of shims added or subtracted is reversed, and black is the reference color for this adjustment.

Always add or subtract shims from the *top* of the shim pile. The bottom shim might include a half-width, factory-installed shim that *must* stay in place.

Make sure that you add or remove the same number of shims from the top of each shim pile. If the number of shims is not equal, the laser/scanner will not be parallel to the printer frame when it is installed.

Add or remove the laser/scanner adjustment shims

- 6 Lift up the laser/scanner assembly slightly. Carefully slide the two retainers and shim piles back into position under the left and right side of the laser/scanner assembly. Snap the two plastic shim retainers into place.

Make sure that the shims do not cover the laser/scanner mounting screw-holes. If they cover the holes, the shims might be bent or damaged when the laser/scanner assembly is installed. Dispose of any bent or damaged shims and replace them with smooth, flat, undamaged shims.

Replace the laser/scanner adjustment shim retainers and shims

- 7 Tighten the four black laser/scanner mounting screws (callout 8).

Tighten the laser/scanner assembly mounting screws

- 8 Print another laser/scanner adjustment page (see page 219). Make sure that you cover the top of the printer to prevent light leaks.

Make sure that you do not use previously printed laser/scanner adjustment pages to check for the correct laser/scanner adjustment.

- 9 If all of the centers of the three gray bands under the *Laser Scanner Adjustment Step 2* heading are inside of the zero range for all of the three colors (callout 9), the step 2 adjustment is complete. Replace the printer covers.
- 10 If any of the centers of the three gray bands under the *Laser Scanner Adjustment Step 2* heading are outside of the zero range for any of the three colors (callout 9), repeat the step 2 adjustment procedure.

Laser Scanner Adjustment Step 1

IN THE CORRESPONDING BOX ON THE RIGHT, IF SHIM COUNT INDICATES 0, GO TO STEP #2.

If you replaced the Cyan Laser Scanner
Cyan +0 shim(s)

For all other cases - don't adjust Cyan Laser
Magenta +0 shim(s)
Yellow +0 shim(s)
Black +0 shim(s)

IF ADJUSTMENT IS REQUIRED, SEE CLJ 9500 SERVICE MANUAL FOR ADJUSTMENT PROCEDURES, OR CALL FOR SUPPORT.

Laser Scanner Adjustment Step 2

IF CENTER of gray bands falls outside zero range for any color, adjustment is necessary. See service manual for details.

Example: Adjustment required

Use This Image

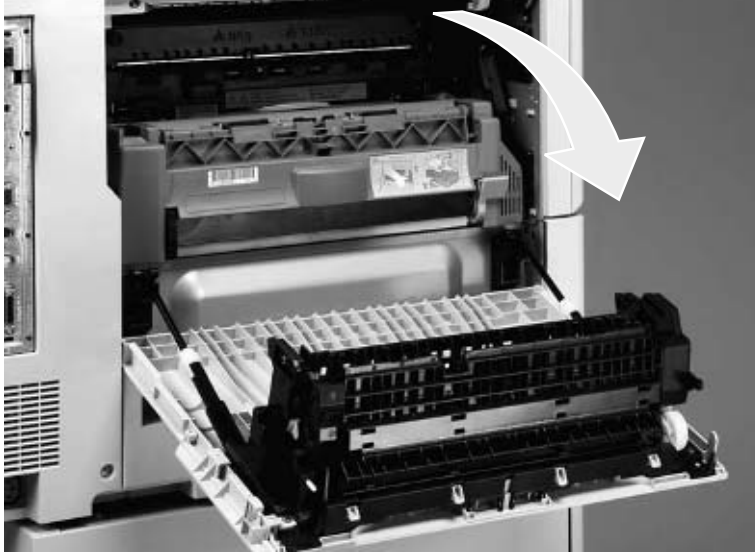
IF CENTER of gray bands falls inside zero range for all 3 colors, no adjustment is necessary.

Example: No adjustment required

Print another laser/scanner adjustment page

Delivery unit

- 1 Remove the following covers:
Top left cover. See page 201.
Left back cover. See page 210.
- 2 Open the fuser access door.



Gain access to the delivery unit

- 3 Push down the top of the left side front cover, and remove it by pulling out from the middle of the cover.

Removing the left front door might make it easier to remove the left side front cover.

Make sure to depress the tab at the top of the left side front cover so that the plastic pin can be removed.

Remove the left side front cover

- 4 Remove four screws (callout 1) and two shields (callout 2).

Remove the delivery unit shields

- 5 Disconnect two connectors (callout 3).

Disconnect the delivery unit connectors

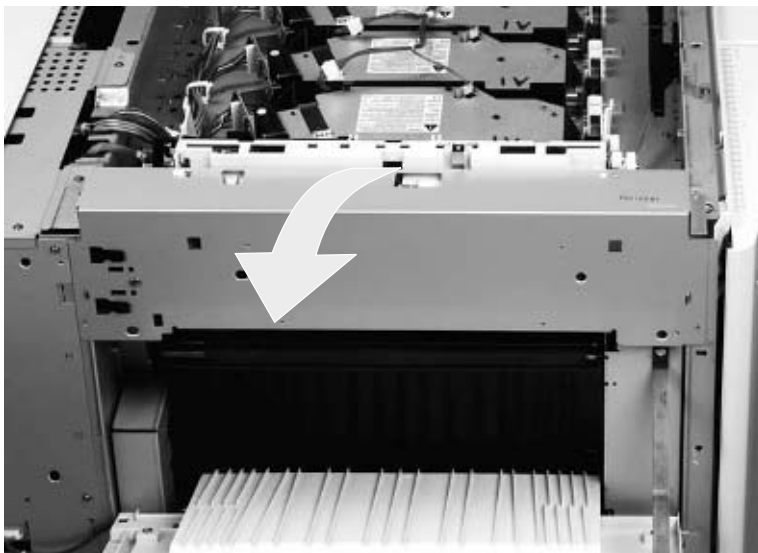
6 Remove five screws (callout 4)

Remove the delivery unit mounting screws (1 of 2)

7 Remove two screws (callout 5).

Remove the delivery unit mounting screws (2 of 2)

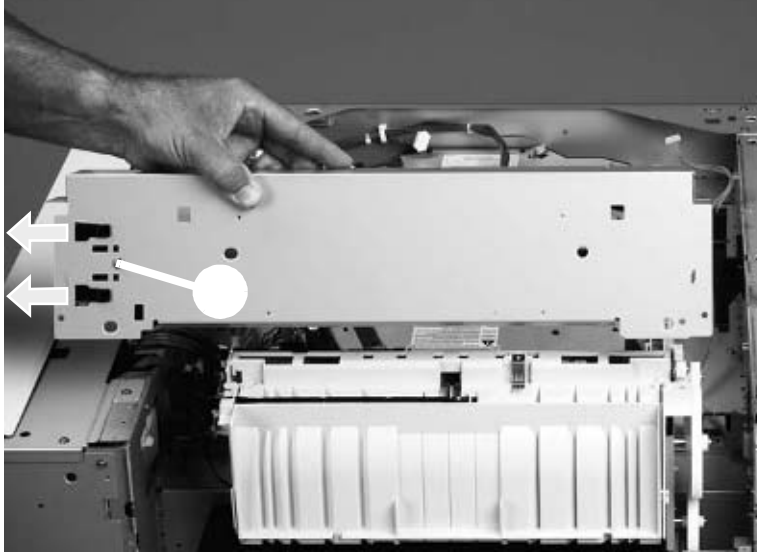
8 Remove the delivery unit.



Remove the delivery unit

Delivery unit sensor

- 1 Perform steps 1 through 8 for the delivery unit. See page 235.
- 2 Remove one screw (callout 1).



Remove the delivery unit sensor

- 3 Remove the delivery unit sensor.

To reinstall

Install the delivery unit sensor on the replacement delivery unit.

Vertical feed unit

- 1 Remove the following covers and assemblies:
Top left cover. See page 201.
Delivery unit. See page 235.
- 2 Disconnect one connector (callout 1), and one retaining strap (callout 2), and remove one screw on the holding clamp (callout 3).

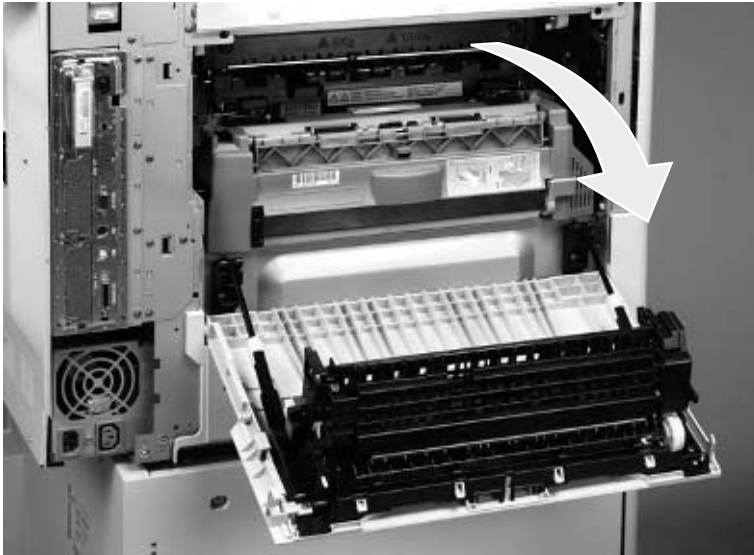
Gain access to the vertical feed unit

- 3 Lower the paper-path access door to a horizontal position.
- 4 To remove the door, pull the right side of the paper-path access door to the right.



Remove the paper path access door

- 5 Open the fuser access door.



Gain access to the left side middle cover mounting screws

- 6 Remove two screws (callout 4).

Remove the left side middle cover mounting screws

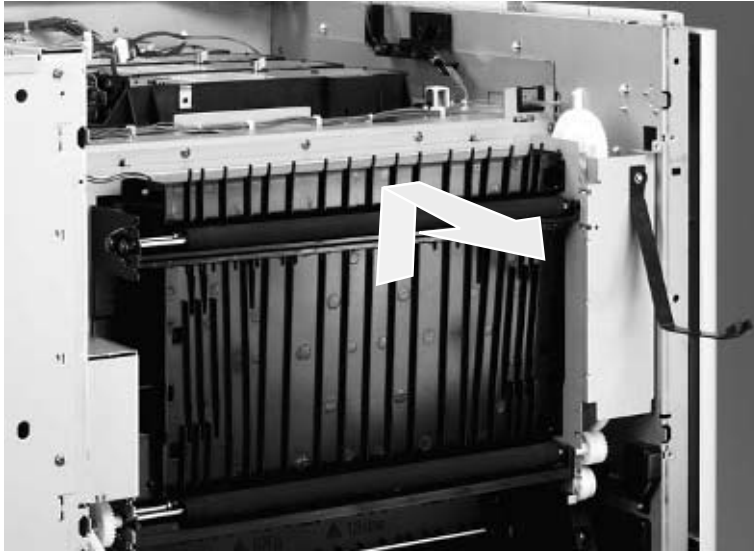
- 7 Remove the left side middle cover mounting bracket.

Remove the left side middle cover mounting bracket

- 8 Remove three screws (callout 5), and disconnect one connector (callout 6).

Remove the vertical feed unit mounting screws

9 Remove the vertical feed unit.

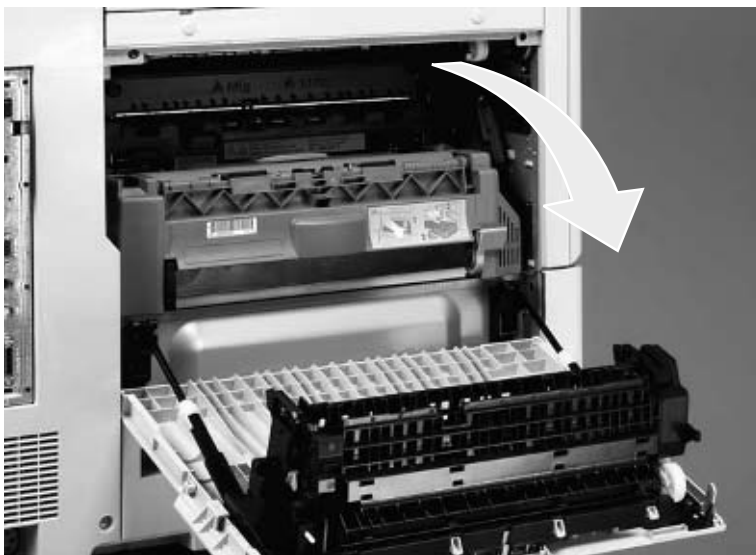


Remove the vertical feed unit

When replacing the vertical feed unit, make sure to reconnect the connector.

Duplexer

- 1 Open the fuser access door.



Gain access to the duplexer

- 2 Depress the green lever (callout 1), and pull the duplexer out until it stops.

Remove the duplexer

- 3 Tilt the duplexer up and remove it.

Fuser

- 1 Remove the duplexer. See page 244.
- 2 Rotate the two blue tabs inward.



Unlock the fuser

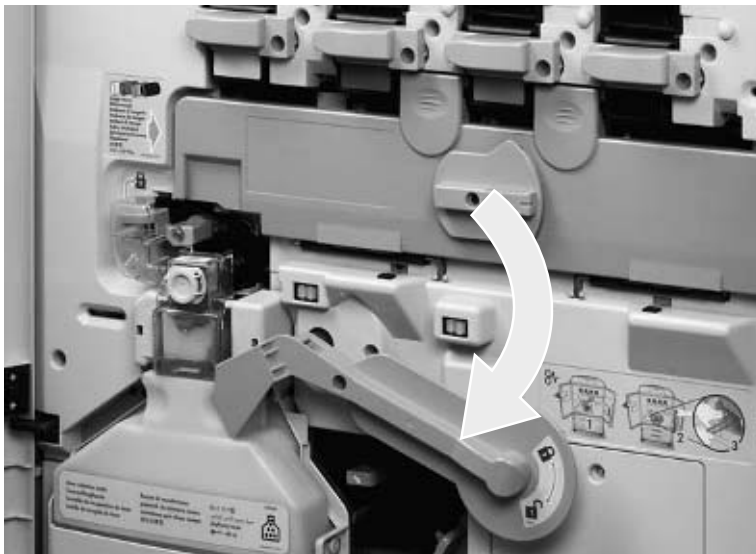
- 3 Slightly lift up the fuser and pull it out.

Remove the fuser

Intermediate transfer belt (ITB)

- 1 Open the front doors.

Make sure that the green handle is down.



Release the ITB

- 2 Open the ITB door.



Open the ITB door

- 3 Grasp the blue handle, and slide the ITB out until it stops.



Slide the ITB out of the printer

Do not let anything touch the surface of the ITB.

- 4 Depress the two blue levers (callout 1), and remove the ITB.



Remove the ITB

Make sure that you set the ITB on a flat, clean surface.

Density and registration sensor assembly

- 1** Remove the following covers and FRUs:
 - Upper right cover. See page 196.
 - Right back cover. See page 213.
 - Back cover. See page 214.
 - Intermediate transfer belt (ITB). See page 246.
- 2** Remove one screw (callout 1), and remove the right front cover (callout 2).

Remove the right front cover

- 3** Remove four screws (callout 4).

Remove the density and registration sensor mounting screws

- 4 Disconnect one connector (callout 5) and two clips (callout 6) from the post charger power supply.

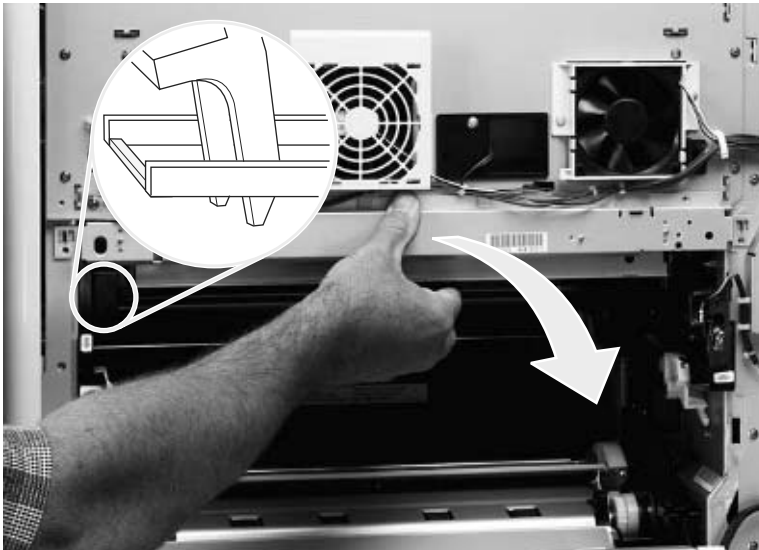
Disconnect the density and registration sensor connector

- 5 Unclip two wire retainers (callout 7) and feed the wire through the hole in the chassis (callout 8; in this picture, the wire has already been passed through the hole in the chassis).

Unclip the density and registration sensor wire retainers

- 6 Open the right front door to release the density and registration shutter. Remove the density and registration sensor assembly from the printer.

When removing the density and registration sensor assembly, do not damage the sensor shutter where it contacts the front right door shutter lever (make sure you re-link this assembly when reinstalling).



Release the density and registration sensor assembly

- 7 Disconnect three connectors (callout 9), unclip four cable clamps (callout 10), and thread the harness out.

Remove the density and registration sensor assembly

- 8 Remove the density and registration sensor.

Make sure that you do not bend the copper grounding strip. Make sure not to pinch any wires when reinstalling the density and registration sensor.

Make sure that the sensor shutter assembly is linked correctly to the front right door lever so the shutter moves to the open position when the door is closed. If the printer continuously tries to self-calibrate after this assembly is replaced, verify that the shutter is correctly linked to the door, is not damaged, and can freely move to the open position.

Right back fan

- 1** Remove the following covers:
Right upper cover. See page 196.
Right back cover. See page 213.
- 2** Disconnect one connector (callout 1) and unclip one wire clip (callout 2).
- 3** Remove one screw (callout 3) and one metal harness retainer (callout 4).
- 4** Remove two screws (callout 5).

Remove the right back fan

- 5** Remove the right back fan.

Right front fan

- 1** Remove the following covers:
Right upper cover. See page 196.
Right back cover. See page 213.
- 2** Disconnect one connector (callout 1) and Unclip one wire clip (callout 2).
- 3** Remove one screw (callout 3) and one metal harness retainer (callout 4).
- 4** Remove two screws (callout 5).

Remove the right front fan

- 5** Remove the right front fan.

Secondary transfer assembly (T2)

- 1 Remove the following FRUs:
 - Four process cartridges. See page 189.
 - Transfer roller. See page 193.
 - Duplexer. See page 244.
 - Fuser. See page 245.
 - Intermediate transfer belt. See page 246.

Removing the front right door might make it easier to remove the secondary transfer assembly.

- 2 Remove one screw (callout 1), and remove the T2 access cover (callout 2).

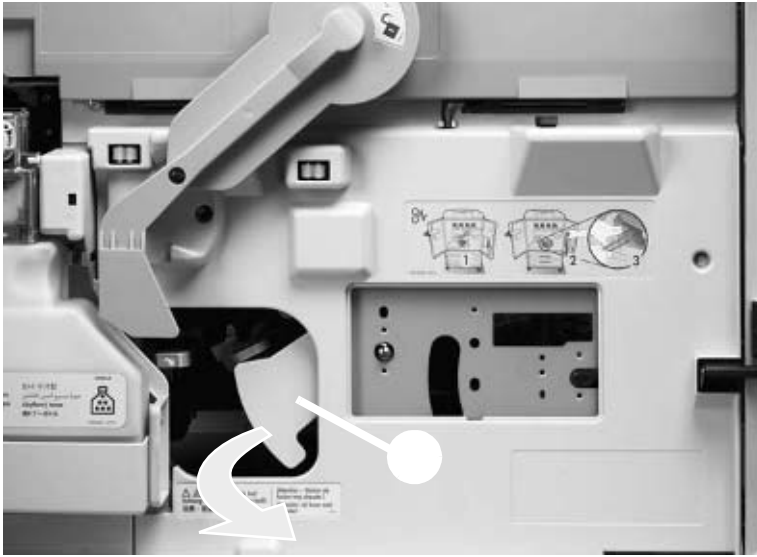
Remove the T2 cam access door

- 3 Remove two screws (callout 3), and remove the plastic bearing surface (callout 4).

Remove the T2 bearing surface

- 4 Remove the link cover (callout 5).

The green lever must be up.



Remove the T2 link cover

- 5 Slide the spring (callout 6) off the shaft to the left and out of the chassis.



Remove the T2 cam spring

- 6 Lower the green handle.

- 7** Remove the cable cover by pinching its sides (callout 7).

Make sure to remove the cable cover carefully, because the cables are retained in the channel on the right side of the cover.

Remove the T2 wire harness cover

- 8** Disconnect one connector (callout 8), and remove two links (callout 9 and 10).

Remove the link (callout 9) by lifting it up and pulling it away from the shaft. Remove the link (callout 10) from the shaft by sliding it directly off the shaft.

Remove the T2 link (1 of 2)

- 9** Remove the closest link (callout 11) first. Remove the link by unsnapping the plastic collar and sliding the link out. This link (callout 11) is not captive

This link is *not* included when ordering a replacement or exchange secondary transfer assembly. Do not lose this link.

- 10** Remove the other link (callout 12) by pushing the link up and pulling it out.

Remove the T2 link (2 of 2)

- 11** To remove the secondary transfer assembly:
- a** Position yourself on the right (ITB access) side of the printer.
 - b** Grasp the secondary transfer assembly with both hands.
 - c** Rotate the secondary transfer assembly up and toward you.
 - d** Slide the secondary transfer assembly to the left.
 - e** Swing the right side of the secondary transfer assembly up and toward you.
 - f** Remove the secondary transfer assembly.

Make sure that you do not bend the links.

Remove the T2 assembly

To reinstall

Make sure that the four links are positioned upward.

Make sure that the green lever is down.

Locate the secondary transfer assembly shaft hole before replacing the assembly.

The reinstall motion is the opposite of the removal motion.

Make sure that the connector is not entangled when reinstalling the links.

Make sure that the four links are reinstalled correctly and functioning properly. Test this by gently rotating the green lever to verify that motion is not impeded.

Do not force the green lever if it does not rotate easily.

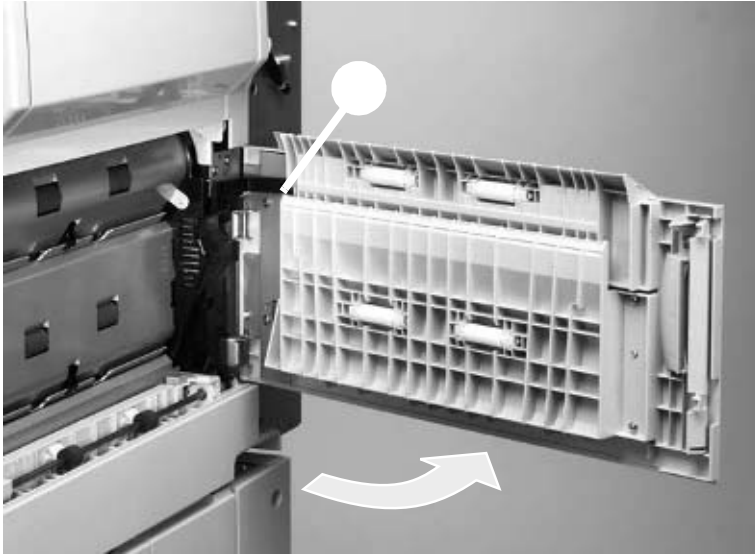
Make sure that both connectors are firmly seated and that the cover does not pinch the wires.
The cover must be installed, because it retains a link.

To reinstall the finger guard, pull back on the spring and push the finger guard onto the large shaft.

The finger guard must be seated correctly on two shafts.

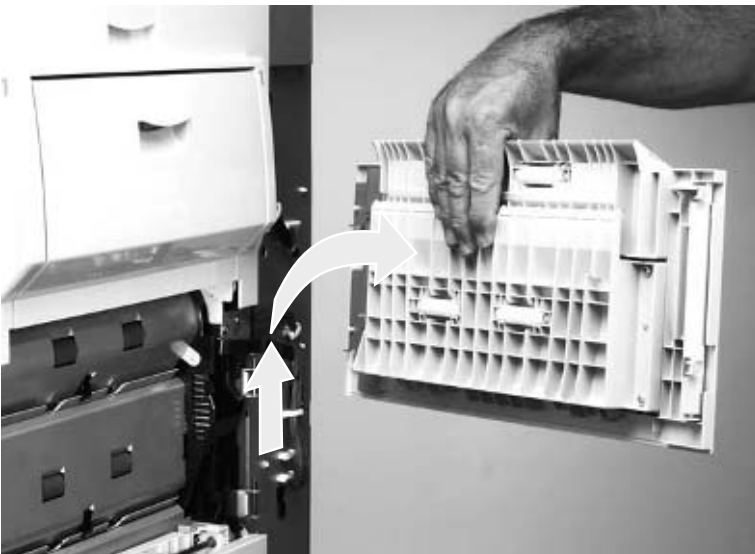
Pickup unit

- 1 Remove the following covers:
Right upper cover. See page 196.
Back cover. See page 214.
- 2 Open the right lower door assembly, and remove one screw (callout 1) on the retaining strap of the right lower door assembly.



Release the right lower door

- 3 Remove the right lower door assembly.



Remove the right lower door

- 4 Remove one screw (callout 2). Lift the right front cover (callout 3) up and then away from the printer.

Remove the right front cover

- 5 Open the ITB door.



Open the ITB door

- 6 Remove seven screws (callout 4).
- 7 Remove the shield (callout 5).

Remove the wire harness shield

- 8 Disconnect one cable connector (callout 6), and unclip one wire harness (callout 7).
- 9 Push the spring-loaded door rod down and to the back to remove it from the bracket (callout 8).

Hold the door with your left hand while holding the rod with your right hand.

The rod is under tension and the pins in the rod are not secure.

Do not remove the pin from the rod.

Disconnect the ITB door wire harness

10 Close the right upper door.



Gain access to the ITB door mounting screws

11 Remove three screws (callout 9).

12 Open the right upper door slightly and remove the bracket (callout 10).

Remove the ITB door

- 13 Shift the ITB door toward the back of the printer and remove it.
- 14 Remove tray 2 and tray 3.
- 15 Remove two screws (callout 11) on the front of the printer.
- 16 Unhook the tab (callout 12) and disconnect the hook (callout 13).
- 17 Remove the lower right corner cover.

Remove the front lower right cover

- 18 Remove the paper path connection unit.



Remove the vertical transfer unit

19 Remove three screws (callout 14) and remove the right lower cover (callout 15).

Remove the right lower cover

20 Remove one screw (callout 16) and remove the door stop (callout 17).

Make sure that you orient the door stop correctly when you reinstall it.

Remove the paper path door stop

21 Remove four screws (callout 18) on the front of the printer.

Remove the tray guide mounting screws

22 Remove the tray 2 and tray 3 cassette guides.

Remove the tray guides

- 23** Remove five screws (callout 19), disconnect two connectors (callout 20), and disconnect two wire clips (callout 21).

Disconnect the pickup unit connectors

- 24** Remove the pickup unit.

You might need to use a slight amount of force when pulling out the pickup unit.

Remove the pickup unit

Temperature and humidity sensor

- 1 Remove the right upper cover. See page 196.
- 2 Remove the white, plastic cover labeled “Up” (callout 1).

Remove the temperature and humidity sensor cover

- 3 Remove one screw (callout 2), and disconnect one connector (callout 3).

Remove the temperature and humidity sensor

- 4 Remove the temperature and humidity sensor.

To reinstall

Make sure to reinstall the sensor before reinstalling the white, plastic cover.

High-voltage power supply

- 1 Remove the back cover. See page 214.
- 2 Disconnect four connectors (callout 1), remove one ribbon cable (callout 2), and remove five black screws (callout 3).

Do not remove any of the copper screws around the high-voltage power supply. All of the high-voltage power supply mounting screws are black.

Remove the high-voltage power supply

- 3 Rotate the top of the high-voltage power supply outward.
- 4 Shift the high-voltage power supply to one side until the pivot pin releases.
- 5 Remove the high-voltage power supply.

Low-voltage power supply

- 1 Remove the back cover. See page 214.
- 2 Disconnect 12 connectors, disconnect two wire clips (callout 1), and remove one screw (callout 2).

Disconnect the low-voltage power supply

- 3 Remove four screws (callout 3).

Remove the low-voltage power supply

- 4 Remove the low-voltage power supply.

Registration assembly

- 1 Remove the following FRUs:
 - Pickup unit. See page 258.
 - High-voltage power supply. See page 267.
- 2 Disconnect one connector (callout 1) and remove three screws (callout 2).

Mark the screw holes on the chassis before removing the screws.

Disconnect the registration assembly motor

- 3 Remove the registration motor.
- 4 Remove three screws (callout 3) from the registration drive assembly.

The registration drive assembly is removed in step 10.

Remove the registration assembly motor

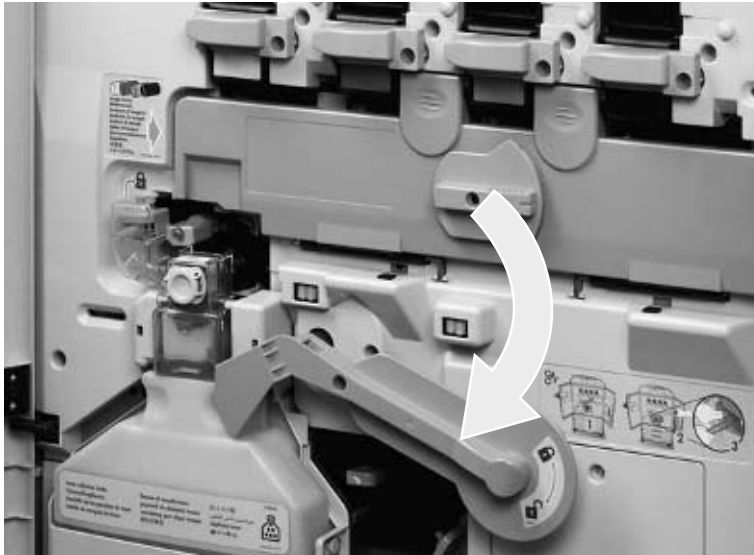
- 5 Remove two covers (callout 4).

Remove two wire harness covers

- 6 Open the front doors.

Gain access to the green ITB release lever

- 7 Push the green handle down.

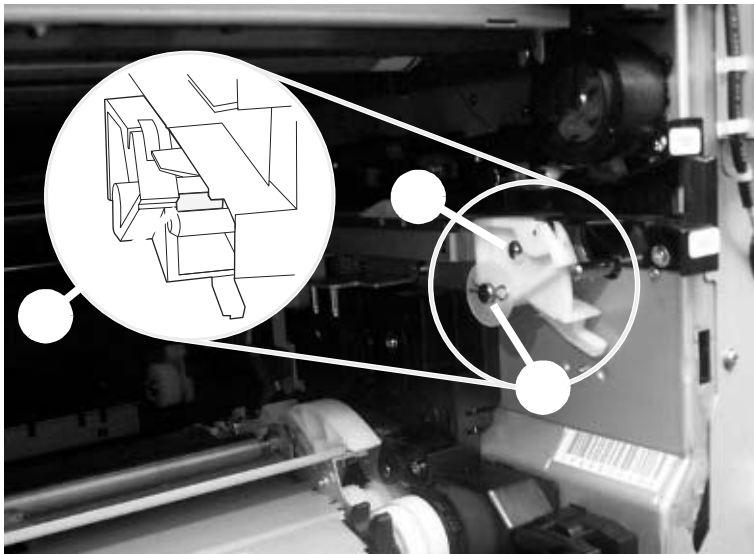


Lower the ITB release lever

- 8 Use the following steps to remove the right back ITB lift link:

Do not remove the e-ring (callout 5) from the claw assembly.

- a Remove the retainer clip and washer by using needlenose pliers (callout 6).
- b Use a small flatblade screwdriver to lift and unclip the retaining claw (callout 7) on the white, plastic cam assembly.



Release the right back ITB lifting link

- c** Slide the right back ITB lift link to the left and off.

Make sure that you do not bend the right back ITB lift claw by pulling out too far.

Remove the right back ITB lifting link

- 9** Disconnect one wire connector (callout 8).
- 10** Remove the registration drive assembly (callout 9).

Disconnect the registration assembly connector

11 Remove two screws (callout 10).

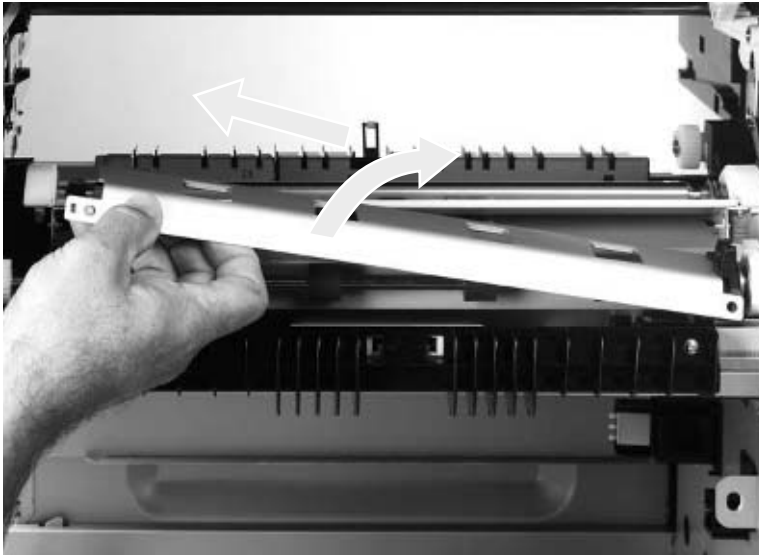
Remove the registration assembly plate mounting screws

12 Slide the plate toward the back of the printer.



Remove the registration assembly plate (1 of 2)

13 Lift up the left side of the plate, slide it toward the front of the printer, and remove it.



Remove the registration assembly plate (2 of 2)

14 Remove three screws (callout 11).

Make sure that the black process cartridge (image drum) is removed. The handle of a long-blade screw driver can damage the process cartridge if it contacts the cartridge when you are removing these screws.

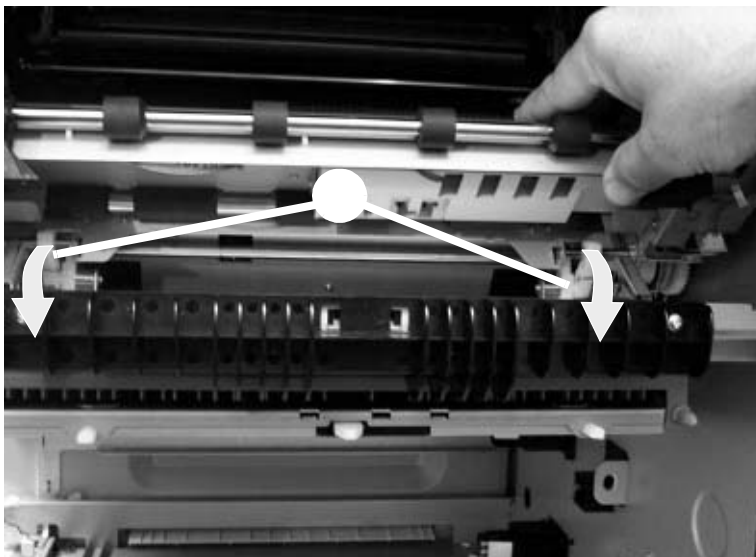
Remove the registration assembly mounting screws

15 Disconnect two connectors (callout 12).

Disconnect the registration assembly connectors

16 Lift the front of the registration assembly and unhook two white claws (callout 13).

17 Remove the registration assembly.



Remove the registration assembly

To reinstall

Make sure that you replace the back of the registration assembly first.

Make sure that the two white claws are hooked correctly.

Delivery fan

- 1** Remove the back cover. See page 214.
- 2** Disconnect one connector (callout 1).
- 3** Pry the two hooks (callout 2) away from the delivery fan.

If you need to remove the duct, remove one screw (callout 3) and unhook the duct from the chassis. A long-shaft screwdriver might be needed.

Remove the delivery fan

- 4** Remove the delivery fan.

Fuser fan

- 1** Remove the back cover. See page 214.
- 2** Disconnect one connector (callout 1).
- 3** Pry the two hooks (callout 2) away from the fuser fan.

Remove the fuser fan

- 4** Remove the fuser fan.

If you need to remove the duct, remove one screw (callout 3) and unhook the duct from the chassis. A long-shaft screwdriver might be needed.

P-crg (image drum) drive assembly

The P-crg drive assembly is heavy. Do not drop the assembly when you remove it. You *must* remove the four process cartridges (image drums) before removing the P-crg drive assembly. See page 189.

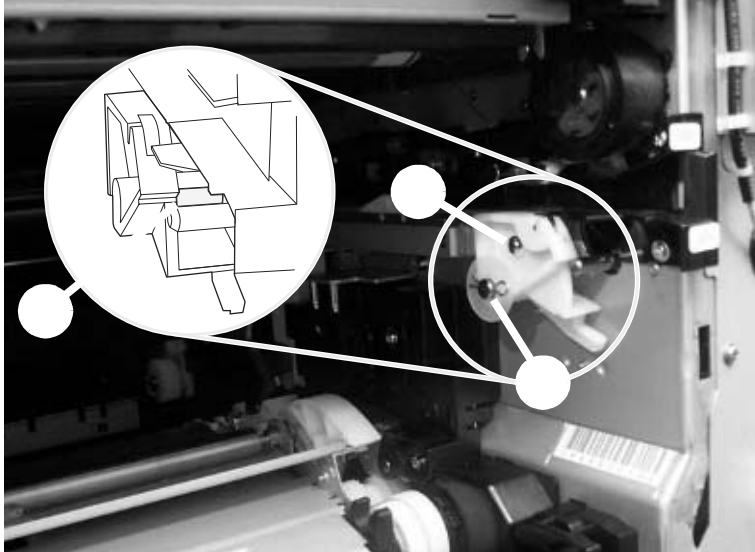
- 1 Remove the following covers and FRUs:
 - Back cover. See page 214.
 - Intermediate transfer belt. See page 246.
 - Delivery fan. See page 276.
 - Fuser fan and duct. See page 277.
 - High voltage power supply. See page 267.
 - High voltage contact. See page 291.
- 2 Remove three screws (callout 1). Disconnect two flat cables from the cable channel to the P-crg assembly (callout 2). Move the cable channel to the right, away from the P-crg assembly.

Disconnect the P-crg drive assembly connectors

3 Use the following steps to remove the right back ITB lift link:

Do *not* remove the e-ring (callout 5) from the cam assembly.

- a** Remove the retainer clip and washer by using needlenose pliers (callout 3).
- b** Use a small flatblade screwdriver to lift and unclip the retaining claw (callout 4) on the white, plastic cam assembly.



Remove the right back ITB lift link (1 of 2)

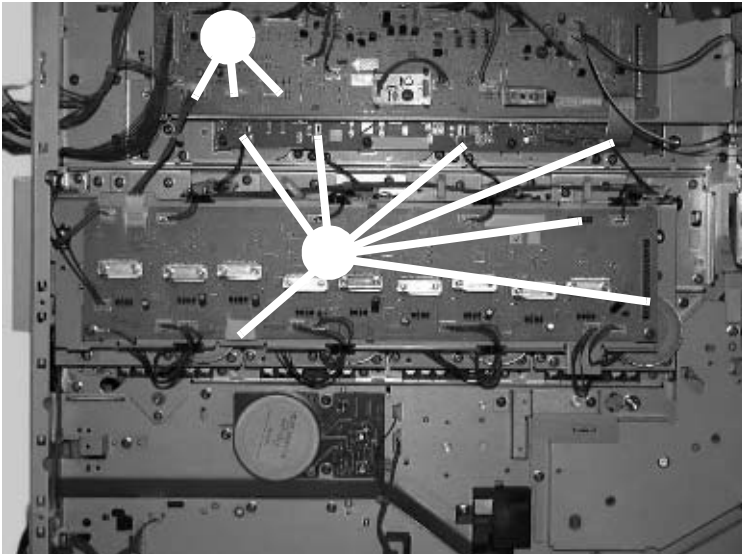
- c** Slide the right back ITB lift cam to the left and off.

Make sure that you do not bend the right back ITB lift linkage by pulling out too far.

Remove the right back ITB lift link (2 of 2)

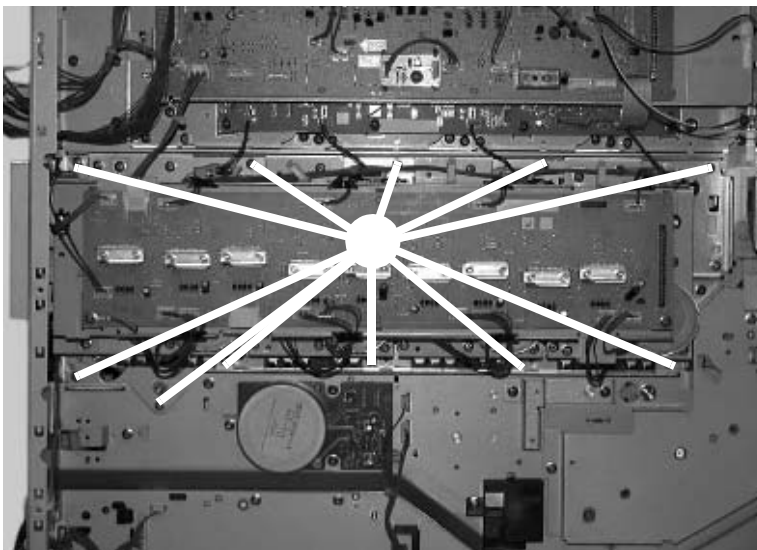
- 4 Disconnect the P-crg drive assembly connectors (callout 6; ribbon cables are not shown). Unhook the wire clips as required.

Make sure that you remove the P-crg drive assembly connectors carefully. The connectors and ribbon cables can break easily, particularly the three lead connectors from the p-crg drive assembly. Pull each wire with equal force and make sure to pull the connectors straight out and perpendicular to the board. Failing to properly remove the connectors might result in broken connectors, broken solder pads, or board leads.



Disconnect the P-crg drive assembly

- 5 Remove twelve screws (callout 7).



Remove the P-crg drive assembly mounting screws

The P-crg drive assembly is heavy.

Place the assembly upside-down on a table to avoid damage to the assembly.

Do not bend the high-voltage leaf spring on the backside of the assembly.

- 6** Lift the P-crg drive assembly off of the retaining hooks and remove it.
- 7** Print a laser/scanner adjustment test page. Make sure that all of the laser/scanners are adjusted correctly. See page 219.

T-crg (print cartridge) drive assembly

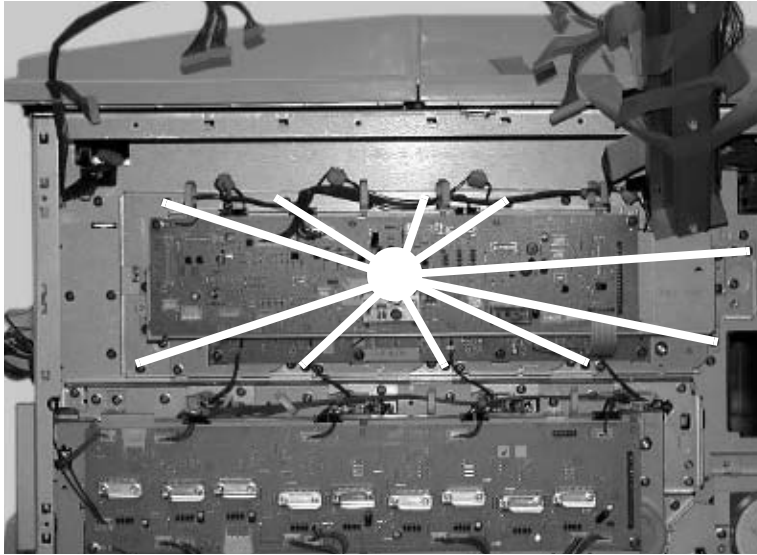
You *must* remove the four toner cartridges (print cartridges) prior to removing the T-crg drive assembly. See page 187.

- 1 Remove the following covers and FRUs:
 - Back cover. See page 214.
 - Delivery fan and fan duct. See page 276.
 - Fuser fan and duct. See page 277.
- 2 Remove three screws (callout 1). Disconnect two flat cables from the cable channel to the P-crg assembly (callout 2). Move the cable channel to the right, away from the T-crg assembly.

Disconnect the T-crg drive assembly

- 3 Disconnect all cable connectors except J813, J814, and J802. Remove 10 screws (callout 3).

Make sure that the T-crg drive assembly cable connectors are removed carefully. The connectors can break easily. Make sure that you remove the T-crg drive assembly connectors carefully. The connectors and ribbon cables can break easily, particularly the three lead connectors from the T-crg drive assembly. Pull each wire with equal force and make sure to pull the connectors straight out and perpendicular to the board. Failing to properly remove the connectors might result in broken connectors, broken solder pads, or board leads.



Remove the T-crg drive assembly mounting screws

- 4 Lift the T-crg drive assembly off of the retaining hooks and remove it.

Place the assembly upside-down on a table to avoid damage to the assembly.

Fuser motor

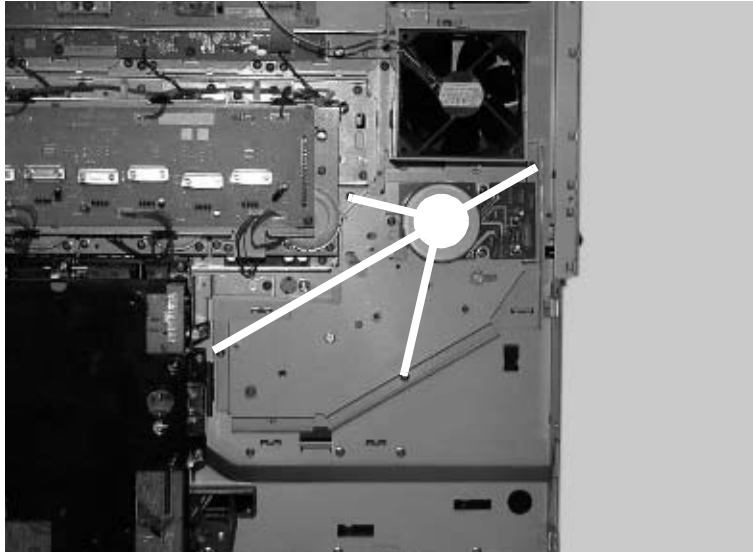
- 1 Remove the back cover. See page 214.
- 2 Remove three screws (callout 1), and disconnect one connector (callout 2).

Remove the fuser motor

- 3 Remove the fuser motor.

Fuser drive assembly

- 1 Remove the following covers and FRUs:
 - Back cover. See page 214.
 - Fuser motor. See page 284.
 - Formatter cage. See page 289.
 - High voltage contact. See page 291.
- 2 Remove four screws (callout 1).



Remove the fuser drive assembly mounting screws

- 3 Remove the fuser drive assembly.

DC controller

- 1 Remove the back cover. See page 214.
- 2 Disconnect all of the connectors on the board.

Make sure that you remove the DC controller connectors carefully. The connectors and ribbon cables can break easily. Pull each wire with equal force and make sure to pull the connectors straight out and perpendicular to the board. Failing to properly remove the connectors might result in broken connectors, broken solder pads, or board leads.

Disconnect the DC controller connectors

- 3 Remove five flat flexible cables (FFCs) (callout 1).

The FFCs have three different types of connectors.

Remove the DC controller FFCs

- 4 Remove five screws (callout 2).

Remove the DC controller mounting screws

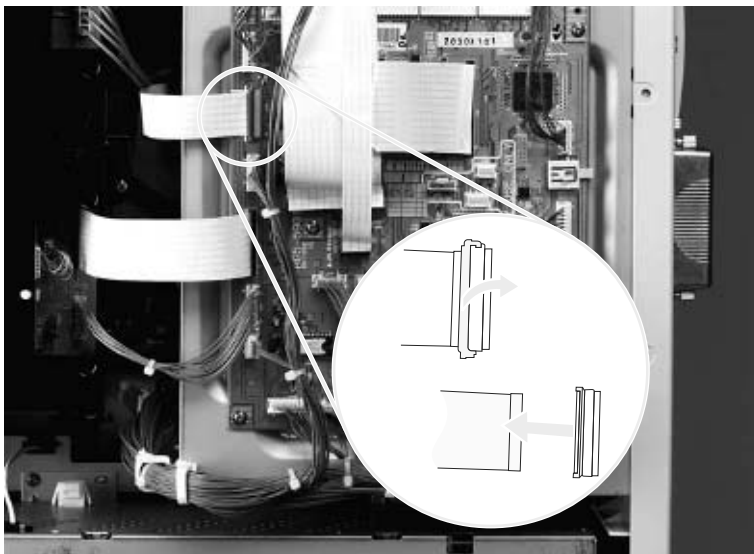
- 5 Remove the DC controller.

To reinstall

Make sure that the cables and the FFCs are reinstalled in the correct location, and that they are centered correctly into the connector. Not centering the cables and the FFCs correctly can cause motor, consumables, and other error messages.

Make sure that the FFC does not back out of the connector when the retaining clip is fastened.

One of the FFC connectors must be flipped up before removing or reinstalling the FFC.



Verify that the DC controller connectors and FFCs are connected properly

Formatter PCB

- 1** Remove eight screws (callout 1).

Remove the formatter PCB mounting screws

- 2** Remove the formatter PCB.

Remove the formatter PCB

Formatter cage

- 1** Remove the following covers and FRUs:
 - Back cover. See page 214.
 - DC controller. See page 286.
 - Formatter PCB. See page 288.
- 2** Remove three screws (callout 1).

Remove the formatter cage mounting screws

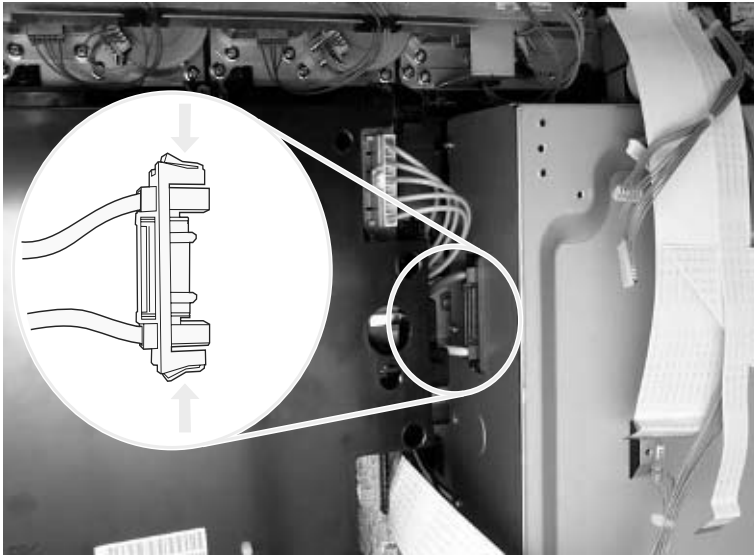
- 3** Unclip six wire harnesses (callout 2).

Unclip the formatter cage wire retainers

Disconnect the small, flat cable from the formatter connector.

- 4 Reach inside the formatter cage and squeeze the formatter connector locking tabs. Push the connector out of the cage.

Do not pull the cable connector too hard.



Unplug the formatter PCB connector

- 5 Remove six screws (callout 4).

Remove the formatter cage mounting screws

- 6 Remove the formatter cage.

High-voltage contact

- 1 Disconnect one connector (callout 1), and remove three screws (callout 2).

In this picture, the formatter cage is removed so that you can see the screws more easily. Removing the formatter cage is not required to remove the high-voltage contact. It is, however, much easier to remove the contact when the formatter cage is removed.

Remove the high-voltage contact

- 2 Remove the high-voltage contact.

Post charger power supply

- 1 Remove the back cover. See page 214.
- 2 Disconnect two connectors (callout 1).

Disconnect the post charger connectors

- 3 Remove the shield (callout 2).

Remove the cable shield

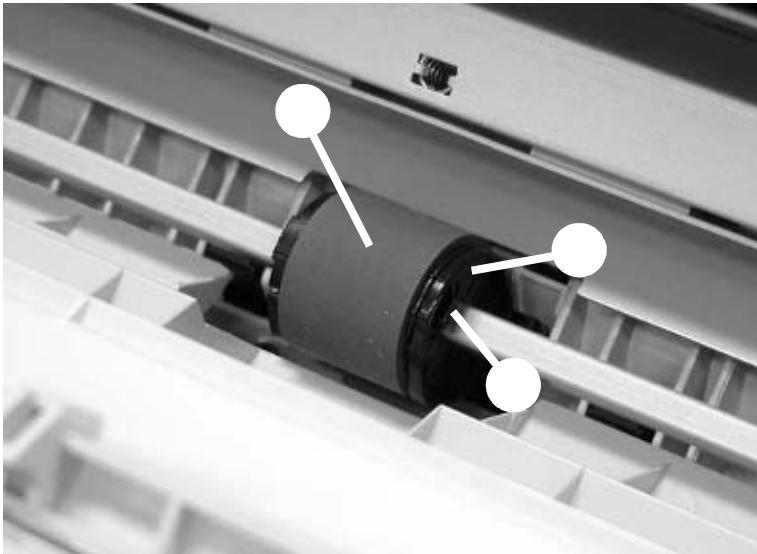
- 4 Remove one screw (callout 3).

Remove the post charger mounting screw

- 5 Lift up the post charger slightly and remove it.

Tray 1 pickup roller

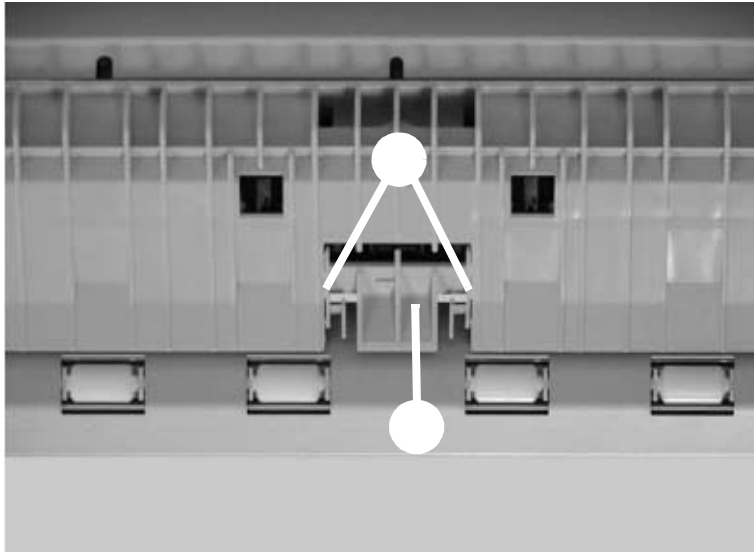
- 1 Open the ITB door.
- 2 Unhook one claw (callout 1), slide the roller holder (callout 2), and remove the tray 1 pickup roller (callout 3).



Remove the tray 1 pickup roller

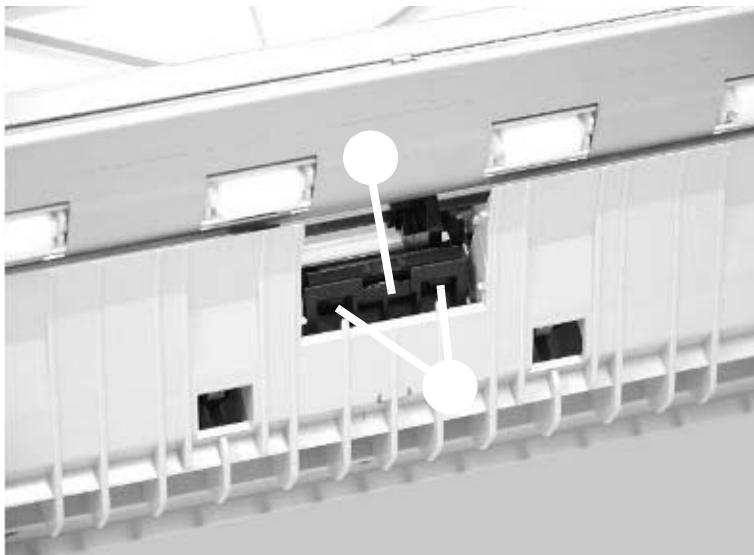
Tray 1 separation pad

- 1 Remove the ITB door.
- 2 Remove the tray 1 pickup roller. See page 294.
- 3 Unhook two claws (callout 1), and remove the pad cover (callout 2).



Unhook the tray 1 separation pad

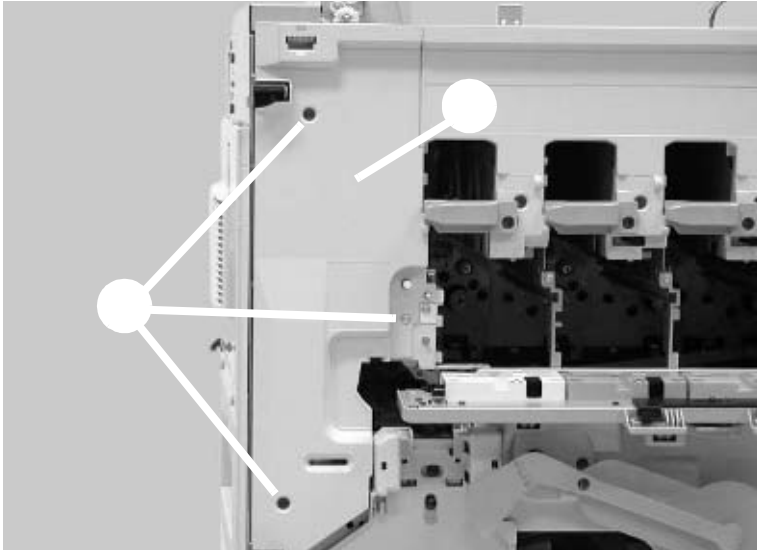
- 4 Unhook two claws (callout 3), and remove the separation pad (callout 4).



Remove the tray 1 separation pad

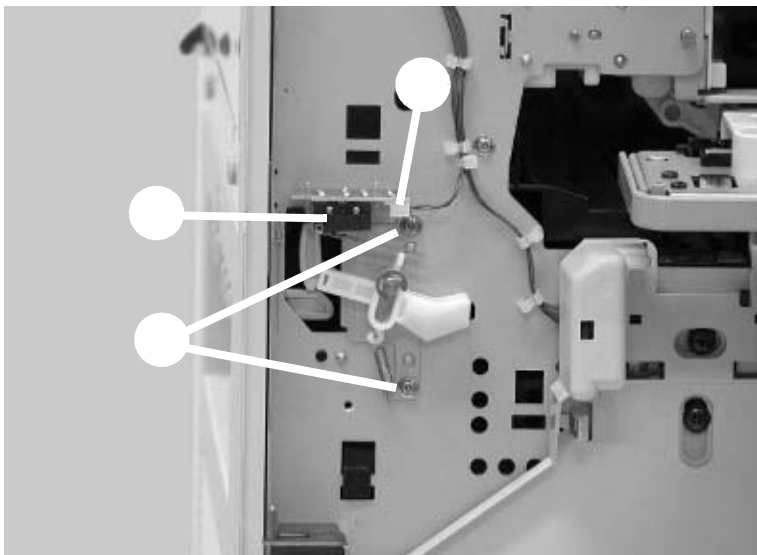
Left door switch

- 1 Remove the left front door. See page 203.
- 2 Remove the ITB cleaner
- 3 Open the drum door.
- 4 Remove three screws (callout 1), and remove the inner cover (callout 2).



Remove the left door switch cover

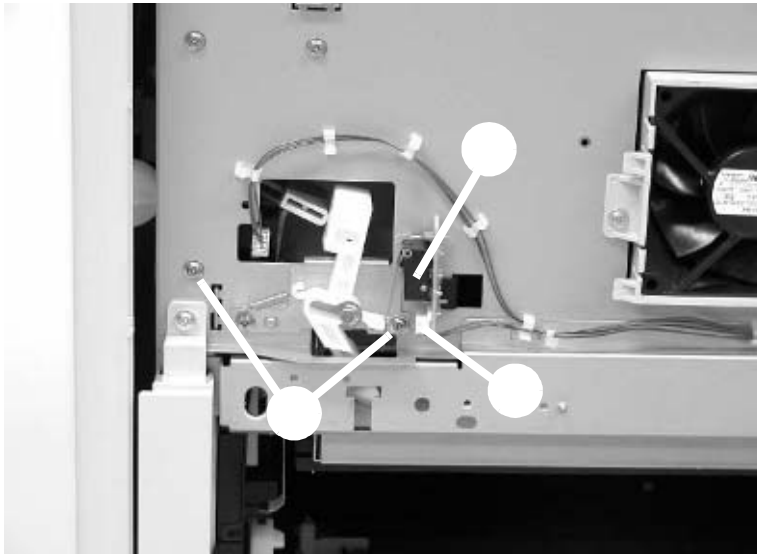
- 5 Remove two screws (callout 3), disconnect one connector (callout 4), and remove the left door switch (callout 5).



Remove the left door switch mounting screws

Right door switch (front and right side doors)

- 1 Remove the right upper cover. See page 196.
- 2 Remove two screws (callout 1), disconnect one connector (callout 2), and remove the right door switch (callout 3).

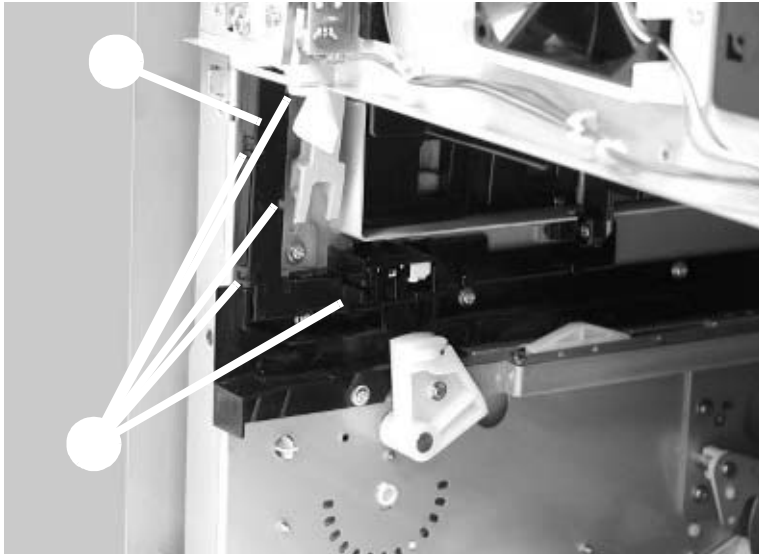


Remove the right door switch mounting screws

It is easiest to reconnect the connector *before* fastening the right door switch to the printer chassis.

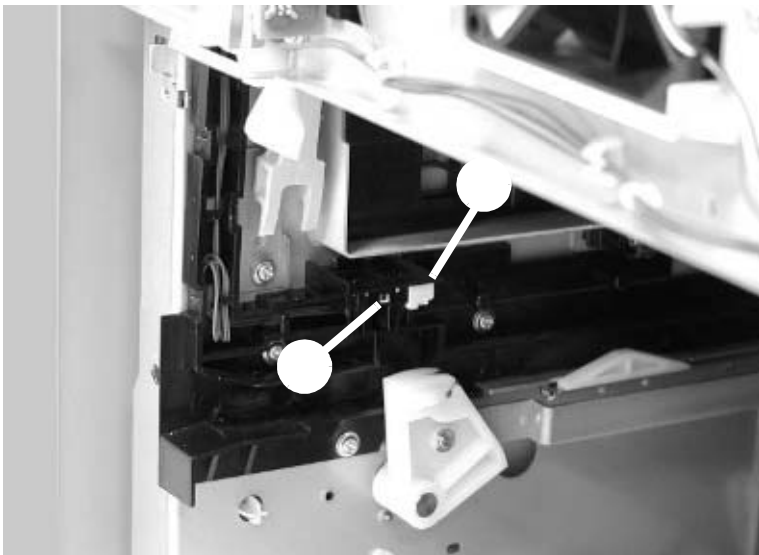
ITB sensor

- 1 Remove the density and registration sensor assembly. See page 248.
- 2 Unhook five claws (callout 1), and remove one cable cover (callout 2).



Unhook the ITB sensor cable cover

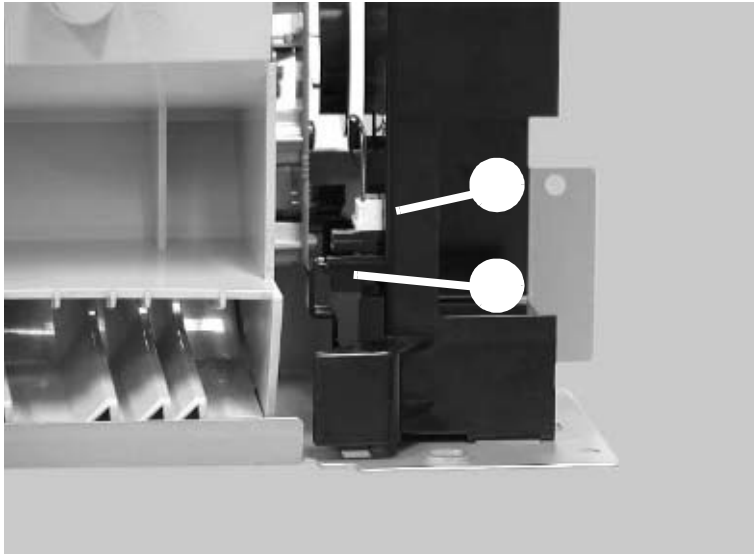
- 3 Disconnect one connector (callout 3), and remove the ITB sensor (callout 4).



Disconnect the ITB sensor connector

Upper left door sensor

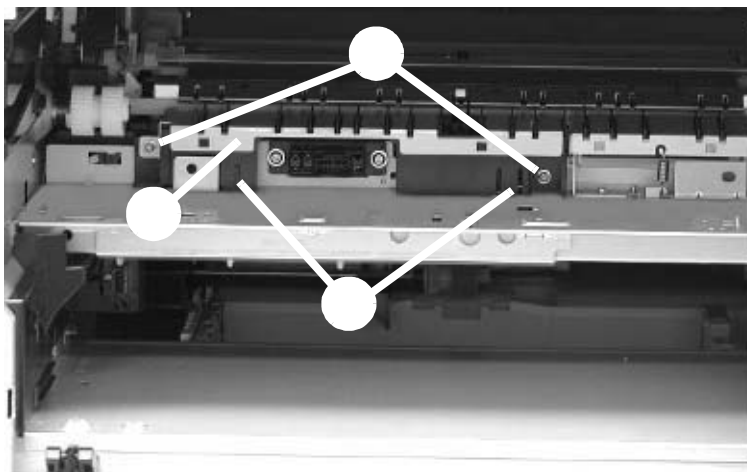
- 1 Remove the delivery unit. See page 235.
- 2 Disconnect one connector (callout 1), and remove the upper left door sensor (callout 2).



Disconnect the upper left door sensor

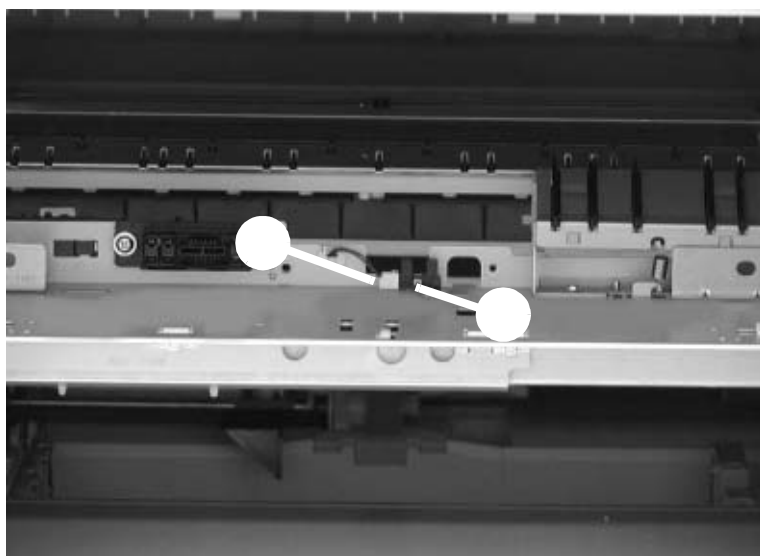
Fuser front paper sensor

- 1 Remove the fuser. See page 245.
- 2 Remove two screws (callout 1), unhook two claws (callout 2), and remove the fuser front guide (callout 3).



Remove the fuser front paper sensor mounting screws

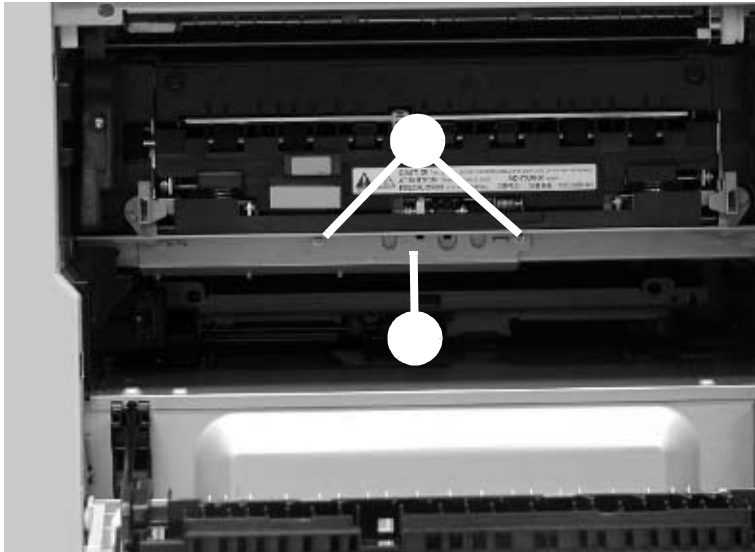
- 3 Disconnect one connector (callout 4), and remove the fuser front paper sensor (callout 5).



Disconnect the fuser front paper sensor

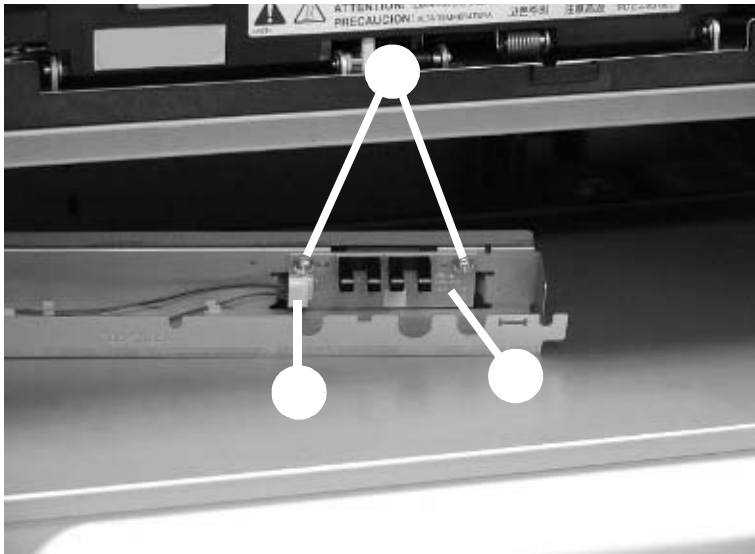
Fuser sensor PCA

- 1 Open the fuser door.
- 2 Remove the duplexer (if installed). See page 244.
- 3 Remove two screws (callout 1), and remove the fuser sensor bracket (callout 2).



Remove the fuser sensor PCA mounting screws

- 4 Disconnect one connector (callout 3), remove two screws (callout 4), and remove the fuser sensor PCA (callout 5).



Disconnect the fuser sensor PCA

Troubleshooting

Introduction	306
Troubleshooting process	306
Pre-troubleshooting checklist	306
Power checks	308
Control panel checks	308
Troubleshooting tools and procedures	309
Hardware and electrical troubleshooting tools	309
Engine diagnostic tools	309
Defeating interlocks	309
Engine diagnostics preconditions	310
Disable cartridge test	310
Print stop test	320
Engine test button	321
Sensor test (interactive)	311
Engine test button	321
Component test: Belt only test	313
Component test: Image drum motors test	314
Component test: Print cartridge motors test	314
Component test: Developer motors test	315
Component test: YMCK laser test	316
Component test: Fuser motor test	316
Component test: Tray 1 feed motor test	316
Component test: Tray 2 feed drive test	317
Component test: Tray 3 feed drive test	318
Component test: Pre-registration test	318
Component test: Registration test	318
Component test: Face-up solenoid test	319
Engine test button	321
Engine test print page	334
Formatter heartbeat LED	322
Information pages	323
Configuration page	323
Supplies status pages	325
Usage page	327
File directory page	328
Electrical connection and contact failures	329
Image formation and print-quality troubleshooting tools	330
Print-quality problems associated with the environment	330
Reseating consumables	330
Cleaning the post charger	330
Cleaning the post charger	330
Cleaning the fuser input	330
Print-quality troubleshooting pages	330

Color band test	334
Engine test print page	334
Laser/scanner adjustment page	335
Door ruler and repeating defect frequencies	335
Sample defects and solutions	336
Repeating marks (98 mm)	337
Repeating marks (45 mm)	338
Lines and bands appear perpendicular to feed direction.	341
Lines, streaks or scratches appear parallel to feed direction.	344
Diagonal bands or lines	348
Light or faint image and dropouts	350
Wavy brush marks	354
Color plane misregistration	355
Primary color covers entire page.	357
Ghosted image (98 mm)	358
Ghosted image (140 mm)	359
Distorted or misplaced image	361
Poorly fused image	362
Missing color plane	364
Blank	365
Hand or fingerprints	365
Fine, yellow dot background	367
Toner halos or explosions occur around solid secondary colors	368
Control panel print-quality adjustments	370
Media and paper-path troubleshooting tools	373
Paper path jam sensors	373
Determine the problem source: print media or printer.	378
Using the straightest paper path	379
Determine if problem is caused by the duplexing process	379
Isolate the source of the jam	379
Determine where media jams occur	379
Determine whether the printer is experiencing misfeeds or multifeed jams	379
Print-quality problems associated with media	379
Isolate a media brand	380
Isolate a media type	380
Wrinkling envelopes.	380
Poor fusing	380
Overhead transparency defects.	381
Media jam	381
Customer print job	382
Clearing jams.	382
Clearing repeated jams	382
Tests for troubleshooting paper-path problems	383
Print stop test.	383
Paper-path test	383
Sensor test	383
Tray alignment adjustment.	383
Noise troubleshooting tools	384
Event log page	386
Print an event log.	386
Show an event log	387
Interpret an event log.	387
Sample event log page	388
Control panel messages.	385
Control panel and event log message format.	386
Error message interpretation	389
Alphabetical error messages	389
Numerical error messages	400
Data and communication troubleshooting tools	435

Test message	435
EIO troubleshooting	435
Software/network troubleshooting	435
Jetdirect configuration	436
Verify network and server operation.	436
Jetdirect page.	437
Tray 4 troubleshooting tools	438
Tray 4 diagnostics label	438
Tray 4 motor test.	438
Tray 4 standalone running test	438
Tray 4 sensor test	439
Tray 4 light pattern interpretation	440
Tray 4 does not print media	440

This chapter contains information, tools, and procedures to use in isolating, identifying, and correcting problems with the HP color LaserJet 9500 series printer. This printer is designed for effective technician-supported, over-the-phone diagnosis. Always check online data bases for updates on known issues and troubleshooting methods.

The list below describes basic questions to ask the customer to help quickly define the problem(s).

Pre-troubleshooting checklist

Check the following items before diagnosing a malfunction. If a failure is found, the service technician clears the problem and gives the instruction to the customer.

Table 52. Pre-troubleshooting checklist

Environment	<p>Is the printer installed on a solid, level surface?</p> <p>Is the power supply voltage within ± 10 volts of the specified power source?</p> <p>Is the power supply plug inserted in the printer and the outlet?</p> <p>Is the operating environment within the specified parameters, as listed in chapter 1 of this manual?</p> <p>Is the printer exposed to direct sunlight?</p> <p>Is the room temperature kept between 15° C and 30° C, and is the relative humidity between 10 percent and 80 percent?</p> <p>Is the printer near sites generating ammonia gas, high temperature or high humidity (near a water faucet, kettle, or humidifier, for example), cold places, open flames, and dusty areas?</p>
Media	<p>Is the correct media type selected on the control panel?</p> <p>Is the media ream broken (slightly bend the stack before loading media)?</p> <p>Does the customer use only supported media (see table 8 in chapter 1)?</p> <p>Is the media in good condition (no curls, folds, etc.)?</p> <p>Is the media stored correctly and within environmental limits?</p> <p>Is the media type set correctly on the control panel?</p> <p>Is the media not damp or dirty?</p> <p>Was the media not opened until it was ready to use?</p> <p>Is the amount of media in the input source within specifications?</p> <p>Are the media guides aligned with the media?</p>
Input trays	<p>Is the amount of media in the tray within specifications?</p> <p>Is the media set into the tray correctly?</p> <p>Are the media guides aligned with the media?</p> <p>Is the tray properly installed in the printer?</p>
Consumables loaded	<p>Is each print cartridge and image drum properly installed?</p> <p>Are the intermediate transfer belt (ITB) unit, the fuser unit, the ITB cleaner, the waste toner bottle, and the secondary transfer roller unit installed correctly?</p>

Table 52. Pre-troubleshooting checklist (continued)

Cover and doors	<p>Are the covers and doors closed?</p> <p>Are the front doors, the image drum door, right upper (ITB) door, left upper door, left lower (fuser access) door, paper-path access door, and right lower door closed correctly at power on?</p> <p>Are the right front cover, left front cover, left upper cover, left cover unit, right cover unit, and right lower cover all closed correctly?</p>
Condensation	<p>Was an image drum or print cartridge opened soon after being moved from a cold to a warm room? If so, allow the printer to sit at room temperature for one to two hours.</p> <p>Does condensation occur following a temperature change (particularly in winter following cold storage)? If so, wipe affected parts dry or leave the printer on for 10 to 20 minutes.</p> <p>Note Condensation might result in light images or incorrect contrast.</p>
Miscellaneous	<p>Check for and remove any non-HP components (print cartridges, memory modules, and EIO cards) from the printer.</p> <p>If hardware or software configuration has not changed, or the problem is not associated with any specific software, contact the Customer Care Center (see Chapter 1).</p> <p>Remove the printer from the network, and make sure that the failure is associated with the printer before beginning troubleshooting.</p> <p>For any print-quality issues, calibrate the printer.</p>

Power checks

Table 53. Power checks

Check	What to do
	<ol style="list-style-type: none">1 Make sure that the printer and the finishing device(s) are plugged into a known good source of ac power.
	<ol style="list-style-type: none">1 Push the switch to the “on” position.2 Make sure that the switch is set to low-voltage power supply linkage if a switch problem is suspected.
	<ol style="list-style-type: none">1 Make sure that power is available. See “Specifications” in Chapter 1.2 Test outlet with a known good appliance or in a known good power outlet.
	<p>Note</p> <p>The fan operation is important because all of the fans are controlled by the DC controller PCA. Fans 1 through 6 operate at full speed for 30 seconds during the WAIT period. Fans 1 through 5 slow to half-speed, and fan 6 stops during the STBY period, and when the printer is in PowerSave mode. Make sure that the printer is not in PowerSave mode.</p> <p>Operational fans indicate the following:</p> <ul style="list-style-type: none">the ac power is present in the printerthe DC power supply is probably functional (both +24 VDC and +5 VDC are being generated)the DC controller PCA is probably functional.

Control panel checks

It is important to have the control panel functional as soon as possible in the troubleshooting process so that the printer diagnostics can be used to assist in locating printing errors.

The control panel should show `READY`, `PAUSED`, or `POWERSAVE ON`. For information about error messages that appear on the control panel or in the event log, see the event log. If the control panel is blank, see “Event log page” on page 386.

Use the following steps to troubleshoot the control panel if the power checks are successful, but the control panel is still blank:

- 1 Check connector J3008 on the back of the control panel and connector J123 on the DC controller.
- 2 Check connector J2103 on the DC controller and J9002 on the formatter.
- 3 Check the wire harness between J3008 and J123 for damage. Replace the wire harness if necessary.
- 4 Replace the control panel or the DC controller.

Troubleshooting tools and procedures

Use these troubleshooting tools and procedures to help diagnose and correct problems with the printer.

The following list identifies the troubleshooting tools used to solve printer problems:

- Hardware and electrical. See page 309.
- Image formation and print quality. See page 330.
- Media and paper-path. See page 373.
- Noise. See page 384.
- Alphabetical error message interpretation. See page 389.
- Numerical error message interpretation. See page 400.
- Data and communication. See page 435.
- Tray 4. See page 438.

Hardware and electrical troubleshooting tools

Diagnosing and troubleshooting the HP color LaserJet 9500 is similar to the procedures for other laser jet printers. For the HP color LaserJet 9500, there are some complications because there are four print cartridges and four image drums.

Engine diagnostic tools

The engine diagnostic tools include:

- event log (print or show): indicates high-voltage errors and calibration errors
- print-quality troubleshooting: selected in diagnostics, prints print quality pages
- disable cartridge check: prints normally without one or more color plane(s)
- paper-path test: source, destination, duplex, copies, and sensors.
- sensor test
- component test
- print/stop test

Defeating interlocks

Defeating the interlocks might be difficult because the same switch controls the front and side doors on the right side of the printer. To defeat the interlocks, use rolled up paper.

Front left door switch:

- 1 Defeat the front left door switch from the inside left (fuser) door and use rolled up paper. The paper should not too long so that it interferes with the diverter assembly.

Front right door and right top door (ITB access)

- 1 Open the right top door.
- 2 Remove the filter.
- 3 Remove two screws and remove the right upper cover.
- 4 Insert the rolled up paper into the switch.

Engine diagnostics preconditions

Interlocks must be defeated if the activity is to be seen.

Tests that turn the ITB (transfer motors and belt only) require:

- removal of the ITB
- installation of the toner collection bottle








Pull out both trays to exercise either of the two cassette drives.

At power on, the ITB cleaner must be present. If it is not, the engine reports an erroneous cartridge state that might eventually damage the ITB (by turning the image drum while contacting the ITB).





The p-carg (image drum) drive test only turns the image drums that are removed to avoid ITB damage.

Disable cartridge test

The disable cartridge test can be used for eliminating drum mechanics, diagnosis of color plane-dependent problems and all repeating defects, and noise problems. This test checks the printer and performs all of the standard initializations (similar to the functions associated with opening and closing a door).

- 1 Defeat the appropriate interlocks.
- 2 Press  to open the menus.
- 3 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 4 Use  or  to scroll to `DISABLE CARTRIDGE CHECK`, and then press .
- 5 Remove one or more of the image drums.
- 6 Print a job from the control panel or from a connected PC.











The printer ignores the missing image drums which allows the printer to print normally without one or more color planes. To exit the test:

- 1 Press the  button.
- 2 Use  or  to scroll to `EXIT DIAGNOSTICS`, and then press .
- 3 The printer will re-boot.

Paper-path test (and automatic sensors test)

The paper-path test can be used to make sure that various paper paths are working correctly or to troubleshoot problems with tray configuration. It also allows you to print a page or pages with complete control over source, duplex, and destination.

If the sensors option is ON, you can see the paper-path sensor status when the page is printing. The media jam sensor status is reported if `SENSORS` is selected. If it is not selected, the normal error message appears and all errors are entered into the event log.

- 1 Press  to open the menus.
- 2 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 3 Use  or  to scroll to `PAPER PATH TEST`, and then press .
- 4 Use  or  to select the input tray you want to test, the output bin, the duplexer (if available), and the number of copies. Press  after you set the value for each location.

If `SENSORS` is selected, the printer enters a special diagnostic mode. If you are in the diagnostic mode, the sensor status appears and the `SENSORS` message will *not* appear as an option.

- 5 If the `SENSORS` option is selected, the letters `A` through `K` appear on the control panel. The values include:

- A = Tray 2 feed A
- B = Tray 2 feed B
- C = Tray 3 feed A
- D = Tray 3 feed B
- E = Preregistration
- F = Pre-T2
- G = Pre-fuser
- H = Fuser outlet
- I = Duplex reverse
- J = Fuser feed
- K = Face-down output.

6 After selecting the last option, use ▲ or ▼ to scroll to `PRINT TEST PAGE`, and then press ✓.

Perform the following steps to exit the test if `SENSORS` is selected:

- 1** Press the `EXIT` button.
- 2** Use ▲ or ▼ to scroll to `EXIT DIAGNOSTICS`, and then press ✓.
- 3** The printer will re-boot.

Sensor test (interactive)

The sensor test can be used to determine if a bad sensor is causing a problem.

If a tray is out and causes a warning message, the message covers the sensor test message. When the warning message is cleared, the sensor test appears.

The duplex re-feed sensor cannot be accessed for manual testing. Testing this sensor can be done by covering the sensor with paper or tape, inserting the duplexer, and running a manual sensor test. Also, this sensor is *not* monitored during the paper-path test with sensors.

- 1** Defeat the appropriate interlocks.
- 2** Press ✓ to open the menus.
- 3** Use ▲ or ▼ to scroll to `DIAGNOSTICS`, and then press ✓.
- 4** Use ▲ or ▼ to scroll to `SENSOR TEST`, and then press ✓.

- 5 Touch the sensors and compare the reading on the control panel to the reading on the decoder table. The decoder values include:





A = Preregister
B = T2
C = Paper path
D = Fuser outlet
E = Face-down output
F = Face-down capacity full
G = Tray 1 media detection
H = Tray 2 media detection
I = Tray 2 feed sensor A and B
J = Tray 2 X dimension (cross feed direction)
K = Tray 2 Y dimension (feed direction)
L = Tray 3 media detection
M = Tray 3 feed sensor A and B
N = Tray 3 X dimension (cross feed direction)
O = Tray 3 Y dimension (feed direction)
P = Lower right door
Q = Right front/upper right door interlock
R = Left front/lower left door interlock
S = Upper left door

When the sensors are manually toggled, the control panel shows the sensors going from ON to OFF, and then from OFF to ON.

If it is difficult to see the control panel message when toggling the sensors, remove the control panel so it hangs in front of the printer. Also, using a mirror might be helpful.











All of the preconditions might not have been met if the diagnostic fails to operate and you are sent back to the menu.

Perform the following steps to exit the test:

- 1 Press the  button.
- 2 Use  or  to scroll to EXIT DIAGNOSTICS, and then press .
- 3 The printer will re-boot.

Components test











To repeat any of the following component tests, perform the following steps:

- 1 Press  to open the menus.
- 2 Use  or  to scroll to DIAGNOSTICS, and then press .
- 3 Use  or  to scroll to COMPONENT TEST, and then press .
- 4 Use  or  to scroll to REPEAT, and then press .





Component test: Transfer motors test

The transfer motor test can be used to audibly check the four OPC drive motors and the ITB motor when other printer processes are not operating.

The ITB lever must be in the “up” position, and the cleaning blade must be removed for this test and other tests that involve the ITB. If the cleaning blade is not removed during the test, the test fails and the printer returns to the previous menu. When the printer is turned on, the ITB cleaner must be installed.

- 1 Make sure that all of the printer components are installed.
- 2 Remove the toner collection bottle and the cleaning blade.
- 3 Replace the toner collection bottle without the cleaning blade.
- 4 Defeat the appropriate interlocks.
- 5 Press  to open the menus.
- 6 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 7 Use  or  to scroll to `COMPONENT TEST`, and then press .
- 8 Use  or  to scroll to `TRANSFER MOTORS`, and then press .
- 9 `ROTATING MOTORS` appears on the control panel.
- 10 Check the movement of the OPC drive motor and the ITB from the front or the right side of the printer.











Perform the following steps to exit the test:

- 1 Press the  button.
- 2 Use  or  to scroll to `EXIT DIAGNOSTICS`, and then press .
- 3 The printer will re-boot.

Component test: Belt only test

The belt only test can be used to audibly and visually check the ITB motor, the ITB drive train, and the rotation of the ITB.

The ITB lever must be in the “up” position, and the cleaning blade must be removed for this test and other tests that involve the ITB. If the cleaning blade is not removed during the test, the test fails and the printer returns to the previous menu. When the printer is turned on, the ITB cleaner must be installed.

- 1 Make sure that all of the printer components are installed.
- 2 Remove the toner collection bottle and the cleaning blade.
- 3 Replace the toner collection bottle without the cleaning blade.
- 4 Remove the four image drums.
- 5 Defeat the appropriate interlocks.
- 6 Press  to open the menus.
- 7 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 8 Use  or  to scroll to `COMPONENT TEST`, and then press .
- 9 Use  or  to scroll to `TRANSFER MOTOR`, and then press .
- 10 `ROTATING MOTORS` appears on the control panel.
- 11 Check the movement of the ITB from the front or the right side of the printer.

Perform the following steps to exit the test:

- 1 Press the button.
- 2 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓.
- 3 The printer will re-boot.

Component test: Image drum motors test

The image drum motor test can be used to check that the drum motor(s) are rotating, that the motors and drive assemblies are working correctly, and to isolate image drum and image drum drive assembly problems.

Interface problems can be easily detected, and the image drum motors test is helpful when the back of the printer is removed to check the motors and drive assemblies. This test can also help isolate image drum and image drum drive assembly problems.

The test turns each image drum motor that has the image drum cartridge removed for approximately 10 seconds. If multiple drums are removed, the printer turns the next motor for approximately 10 seconds. This continues until all of the image drum motors have turned.

If you begin the test with the image drums removed and then try to enter the diagnostics menu to select DRUM MOTORS test, you must do this when the CHECKING PRINTER appears on the control panel. If too much time elapses, the printer displays the supplies status information and will not allow the customer to enter the menu structure to select the diagnostic test. If the supplies status information is displayed, open the door and press to enter the menu, and then close the door.

For the print cartridge motors test and the image drum motors test, the printer will *not* check if the cartridge is installed until a door is opened or closed. If the printer does not recognize that a cartridge is removed, it is probably because the front door interlocks are defeated. Open and close the door that does *not* have the interlocks defeated so the change is recognized.

The image drum motors test works with one or more image drums removed.

- 1 Defeat the front door interlocks.
- 2 Open the front doors.
- 3 Press ✓ to open the menus.
- 4 Use ▲ or ▼ to scroll to DIAGNOSTICS, and then press ✓.
- 5 Use ▲ or ▼ to scroll to COMPONENT TEST, and then press ✓.
- 6 Use ▲ or ▼ to scroll to DRUM MOTORS, and then press ✓.
- 7 Remove the image drum(s) that need to be tested.
- 8 Open and then close one of the doors.

Perform the following steps to exit the test:

- 1 Replace the image drums.
- 2 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓.
- 3 The printer will re-boot.

Pressing the button cancels the test.

Component test: Print cartridge motors test

The print cartridge motor test can be used to visually and audibly check that the print cartridge motor(s) are rotating, that the motors and drive assemblies are working correctly, and to isolate print cartridge and print cartridge drive assembly problems. If multiple print cartridges are removed, the printer turns each motor individually for approximately 10 seconds.

For the print cartridge motors test and the image drum motors test, the printer will *not* check if the cartridge is installed until a door is opened or closed. If the printer does not recognize that a cartridge is removed, it is probably because the front door interlocks are defeated. Open and close the door that does *not* have the interlocks defeated so the change is recognized.

If you begin the test with the print cartridges removed and then try to enter the diagnostics menu to select `CARTRIDGE MOTORS` test, you must do this when the `CHECKING PRINTER` appears on the control panel. If too much time elapses, the printer displays the supplies status information and will not allow the customer to enter the menu structure to select the diagnostic test. If the supplies status information is displayed, open the door and press `ESC` to enter the menu, and then close the door.

The print cartridge motors test works with one or more print cartridges removed.

- 1 Defeat the front door interlocks.
- 2 Open the front doors.
- 3 Press `✓` to open the menus.
- 4 Use `▲` or `▼` to scroll to `DIAGNOSTICS`, and then press `✓`.
- 5 Use `▲` or `▼` to scroll to `COMPONENT TEST`, and then press `✓`.
- 6 Use `▲` or `▼` to scroll to `CARTRIDGE MOTORS`, and then press `✓`.
- 7 Remove one or more of the print cartridges.
- 8 Open and then close one of the doors that is not interlock defeated.

Perform the following steps to exit the test:

- 1 Replace the image drums.
- 2 Use `▲` or `▼` to scroll to `EXIT DIAGNOSTICS`, and then press `✓`.
- 3 The printer will re-boot.

Pressing the `ESC` button cancels the test.

Component test: Developer motors test

The developer motor test can be used to visually and audibly check that the developer motor(s) are rotating, that the motors and drive assemblies are working correctly, and to isolate image drum and image drum developer drive assembly problems. Interface problems can be easily detected, and the developer motors test is helpful when the back of the printer is removed to check the motors and drive assemblies. This test can also help isolate image drum and image drum drive assembly problems.

Each motor is turned in sequence for approximately 10 seconds.

For the print cartridge motors test and the image drum motors test, the printer will *not* check if the cartridge is installed until a door is opened or closed. If the printer does not recognize that a cartridge is removed, it is probably because the front door interlocks are defeated. Open and close the door that does *not* have the interlocks defeated so the change is recognized.

This test can be performed with the image drums installed or removed.

- 1 Press `✓` to open the menus.
- 2 Use `▲` or `▼` to scroll to `DIAGNOSTICS`, and then press `✓`.
- 3 Use `▲` or `▼` to scroll to `COMPONENT TEST`, and then press `✓`.
- 4 Use `▲` or `▼` to scroll to `DEVELOPER MOTORS`, and then press `✓`.

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓ .
- 2 The printer will re-boot.

Pressing the button cancels the test.

Component test: YMCK laser test

The YMCK laser test can be used to check the each of the four laser scanner assemblies individually for correct functionality.

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to DIAGNOSTICS, and then press ✓ .
- 3 Use ▲ or ▼ to scroll to COMPONENT TEST, and then press ✓ .
- 4 Select YELLOW LASER SCANNER, MAGENTA LASER SCANNER, CYAN LASER SCANNER, or BLACK LASER SCANNER, and then press ✓ .
- 5 The mirror motor of each laser scanner assembly starts up and runs so an audible check can be performed. Check if any of the assemblies sound different.

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓ .
- 2 The printer will re-boot.

Pressing the button cancels the test.

Component test: Fuser motor test

The fuser motor test can be used to test the fuser motor and all of the mechanisms that it drives. You might remove the fuser during the test in order to isolate the fuser-generated noise.

- 1 Defeat the appropriate interlocks.
- 2 Press ✓ to open the menus.
- 3 Use ▲ or ▼ to scroll to DIAGNOSTICS, and then press ✓ .
- 4 Use ▲ or ▼ to scroll to COMPONENT TEST, and then press ✓ .
- 5 Use ▲ or ▼ to scroll to FUSER MOTOR, and then press ✓ .

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓ .
- 2 The printer will re-boot.

Pressing the button cancels the test.

Component test: Tray 1 feed motor test

The tray 1 feed motor test can be used to test the tray 1 paper feed motor, the secondary transfer roller, registration roller, and the pre-registration roller motor (which all use the registration motor M11). The clutch starts and stops the drive motor.

The tray 1 feed motor test will not operate unless the ITB is engaged and the green lever is “up”.

- 1 Defeat the right side door (ITB access) interlocks.

- 2 Press ✓ to open the menus.
- 3 Use ▲ or ▼ to scroll to `DIAGNOSTICS`, and then press ✓.
- 4 Use ▲ or ▼ to scroll to `COMPONENT TEST`, and then press ✓.
- 5 Use ▲ or ▼ to scroll to `MP PAPER FEED DRIVE`, and then press ✓.
- 6 `MOVING SOLENOID AND MOTOR` appears on the control panel.

The motor turns and the tray 1 solenoid will “fire”. The clutch (CL1 on the pre-registration roller) disengages partially into the test. CL2 to the registration roller disengages during the entire test.

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to `EXIT DIAGNOSTICS`, and then press ✓.
- 2 The printer will re-boot.

Pressing the button cancels the test.

Component test: Tray 2 feed drive test

The tray 2 feed drive test can be used to check the tray 2 pick rollers. M23 rotates clockwise to drive the tray 2 mechanism.

- 1 Remove tray 2 and tray 3.

If tray 2 and tray 3 are not removed the test fails and `MOVING SOLENOID AND MOTOR` appears on the control panel.

There is not a solenoid, and M24 is not tested.

- 2 Press ✓ to open the menus.
- 3 Use ▲ or ▼ to scroll to `DIAGNOSTICS`, and then press ✓.
- 4 Use ▲ or ▼ to scroll to `COMPONENT TEST`, and then press ✓.
- 5 Use ▲ or ▼ to scroll to `UPPER CASSETTE FEED DRIVE`, and then press ✓.

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to `EXIT DIAGNOSTICS`, and then press ✓.
- 2 The printer will re-boot.

Pressing the button cancels the test.











Component test: Tray 3 feed drive test

The tray 3 feed drive test can be used to check the tray 3 pick rollers. M23 rotates counter clockwise to drive the tray 3 mechanism.




- 1 Remove tray 2 and tray 3.


If tray 2 and tray 3 are not removed the test fails and MOVING SOLENOID AND MOTOR appears on the control panel.

There is not a solenoid, and M24 is not tested.

- 2 Press  to open the menus.
- 3 Use  or  to scroll to DIAGNOSTICS, and then press .
- 4 Use  or  to scroll to COMPONENT TEST, and then press .
- 5 Use  or  to scroll to LOWER CASSETTE FEED DRIVE, and then press .










Perform the following steps to exit the test:

- 1 Use  or  to scroll to EXIT DIAGNOSTICS, and then press .
- 2 The printer will re-boot.




Pressing the  button cancels the test.

Component test: Pre-registration test

The pre-registration test can be used to test M11 with the associated clutch (CL1) engaged. CL1 is also tested during the tray 1 feed motor test.

- 1 Disable the appropriate interlocks on the right side (ITB access) door.
- 2 Use  or  to scroll to DIAGNOSTICS, and then press .
- 3 Use  or  to scroll to COMPONENT TEST, and then press .
- 4 Use  or  to scroll to PRE-REGISTRATION, and then press .










Perform the following steps to exit the test:

- 1 Use  or  to scroll to EXIT DIAGNOSTICS, and then press .
- 2 The printer will re-boot.

Pressing the  button cancels the test.

Component test: Registration test

The registration test can be used to test M11 with the associated clutch (CL2) engaged. CL2 is OFF during the tray 1 feed motor test.

- 1 Disable the appropriate interlocks on the right side (ITB access) door.
- 2 Use  or  to scroll to DIAGNOSTICS, and then press .
- 3 Use  or  to scroll to COMPONENT TEST, and then press .
- 4 Use  or  to scroll to REGISTRATION, and then press .

Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓ .
- 2 The printer will re-boot.

Pressing the button cancels the test.

Component test: Face-up solenoid test

The face-up solenoid test can be used to test the face-up solenoid (SL2) for correct functionality.

- 1 Disable the interlocks on the left side (fuser access) door.
- 2 Use ▲ or ▼ to scroll to DIAGNOSTICS, and then press ✓ .
- 3 Use ▲ or ▼ to scroll to COMPONENT TEST, and then press ✓ .
- 4 Use ▲ or ▼ to scroll to FACE UP SOLENOID, and then press ✓ .
- 5 Check the mechanisms that SL2 drives in the right side (fuser access) door.

The solenoid “fires”, and several seconds later it releases. Defeating the right side interlocks and checking performing a visual test is suggested.








Perform the following steps to exit the test:

- 1 Use ▲ or ▼ to scroll to EXIT DIAGNOSTICS, and then press ✓ .
- 2 The printer will re-boot.

Pressing the button cancels the test.

Print stop test

The print stop test can be used to check the image on a belt before a secondary transfer occurs, stopping media at any point in the paper path to check the post-secondary transfer image condition, and to check the media condition at any point on the paper path.

- 1 Press  to open the menus.
- 2 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 3 Use  or  to scroll to `PRINT/STOP TEST`, and then press .
- 4 Select the desired millisecond delay (0 to 60,000). The printer displays `READY DIAGNOSTIC MODE`.
- 5 Send a print job from the control panel or from a PC.

The suggested delay times include:

0 to 3,000 milliseconds: Earliest page-stop point (60 mm from the top of the left side of the lower access door).

1,000 milliseconds: T1 (Y on belt)

1,500 milliseconds: T1 (M on belt)

2,000 milliseconds: T1 (C on belt)

3,000 milliseconds: T1 (K on belt)

4,000 milliseconds: ITB image at post charger

4,100 milliseconds: Page at pre-registration

4,500 milliseconds: ITB image is complete for all colors (YMCK)

5,000 milliseconds: Page at registration (buckled)

7,000 milliseconds: ITB image and page at mid-secondary transfer

7,500 milliseconds: Page just prior to duplex diverter

8,000 milliseconds: Page at mid-fuser

8,500 milliseconds: Two-thirds of ITB image cleaned

12,500 milliseconds: Page partially delivered to face-down output tray

To adjust the delay times, one millisecond equals about 0.14 to 0.15 mm (66 milliseconds for 10 mm) of image or media travel.

- 6 When the printer stops, remove the ITB.

Removing the ITB reduces the chance of toner sticking to the ITB when it is hot. Sticking toner might cause print-quality defects.

Be careful when stopping pages in the T2 area. Do not knock un-fused toner off the page into the printer.

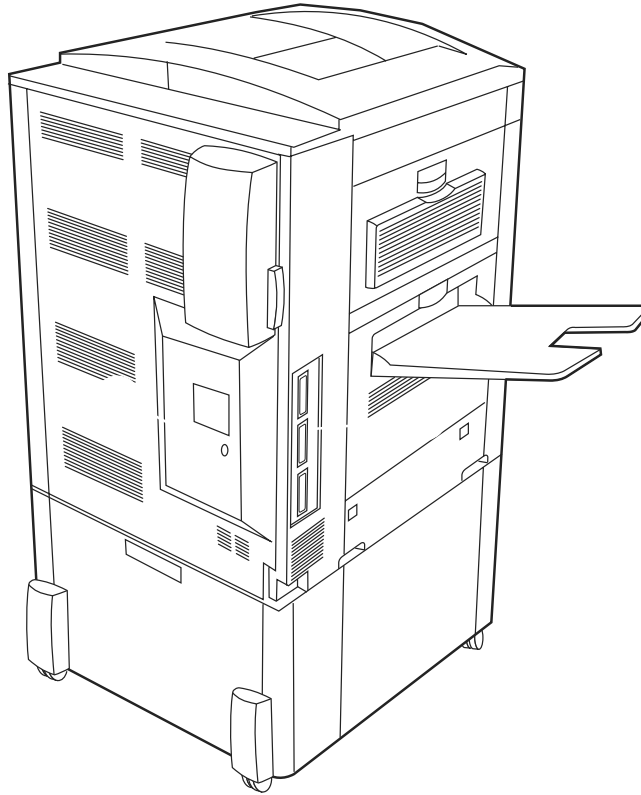
The printer stops about three milliseconds after the specified amount of time expires. Entering 0 immediately stops the page when the top of the page is detected. Also, the suggested delay times are approximate times on a letter-size configuration page, and varies with different media sizes and job size.

After the pages and images are checked, clear the paper path of any remaining media.

To exit the test, a power-cycle might be required when the jam is cleared.

Engine test button

The engine test button is located on the DC controller PCA. You can reach it through a hole (callout 1) at the right rear of the printer by using a small, non-metallic screwdriver or long, thin object.



Engine test button

Engine test print page

The engine test print page verifies that the print engine is functioning correctly. This test is very useful for isolating printer problems because the formatter is completely bypassed during an engine test. The engine test print prints a full page of horizontal lines across the entire printable area.

Media can be picked up from tray 2 or tray 3 if the formatter is installed. If the formatter is removed, the tray from which you do *not* want to print must be open. Also, make sure that the print cartridges are installed in the printer.

Make sure that the tray switch is set to standard size.

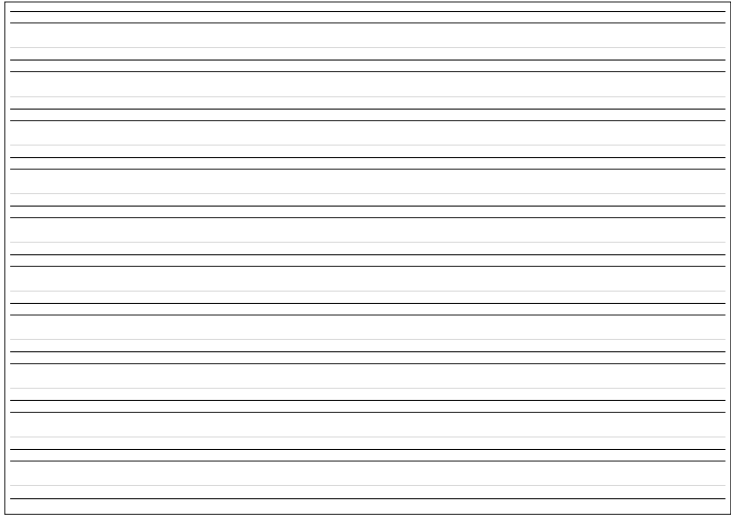
Follow these steps to perform an engine test print page if a formatter is installed:

- 1 Turn the printer on.
- 2 Use a non-metallic object to press the engine test button.

Follow these steps to perform an engine test print page if a formatter is *not* installed:

- 1 Turn the printer on, and wait until the printer finishes pressurizing the fuser and initializing the EP process.
- 2 Use a non-metallic object to press the engine test button.
- 3 When the printer is idle, press the engine test button again to print an engine test print page.

If the duplexer is installed, the test pattern is printed on both sides of the page. The page is printed from tray 3 if it is installed. If tray 3 is not installed, the page prints from tray 2.



Engine test print page

Formatter heartbeat LED

The formatter heartbeat (callout 2 in figure 252) is a blinking light that indicates that the formatter is functioning correctly. The formatter heartbeat is located above the Jet-Link connector on the left side of the printer.

If the LED is off, the formatter hardware is not seated correctly or is not functioning correctly. Re-seat the formatter hardware. If the LED is flashing, the formatter is functioning correctly. Look in other areas for the cause of the problem.








Information pages

From the control panel, you can print pages that show detailed information about the printer and its current configuration. The following information pages are available:

- Configuration page
- HP Jetdirect page
- Supplies status pages
- File directory page
- Usage page

For a complete list of the printer information pages, print a menu map. See “Menu map” in chapter 3.

To select and print items from the information menu:

- 1 Press  to open the menus.
- 2 Use  or  to scroll to **INFORMATION**, and then press .
- 3 Use  or  to scroll to the information page that you want, and then press .

Configuration page

Use the configuration page to view current printer settings, to help troubleshoot printer problems, or to verify installation of optional accessories, such as memory (DIMMs) and printer languages.

The content of the configuration page varies, depending on the options that are currently installed in the printer.

If any of the installed devices are not shown on the configuration page, make sure that the Jet-Link cabling is correctly connected and functional, and that dc power is available to the finishing device. Check and reseal suspect cable connections. If any of the cables are replaced, you must turn the printer off and on again to have the printer recognize the finishing device.


Supplies status pages

Use the supplies status pages to view the current printer supply status, to help troubleshoot printer problems, or to verify printer information.

Supplies page 1 elements


- A. Ordering information
- B. Print cartridge information
- C. Image drum information
- D. Recycling information

hp color LaserJet 9500 printers




Supplies Status Page 1


Ordering Information:
Hewlett-Packard Supplies can be ordered on the internet at <https://www.hp.com/go/ordersupplies/na> or by calling Hewlett-Packard. (Please refer to your printer User Guide for the telephone number.
For highest print quality always use genuine Hewlett-Packard supplies.

**Black Print Cartridge**
HP Part Number: C8550A


Estimated pages remaining: 180
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Cyan Print Cartridge**
HP Part Number: C8551A


Estimated pages remaining: 9000
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Magenta Print Cartridge**
HP Part Number: C8553A


ATTENTION: a non Hewlett-Packard supply has been detected. Certain features (such as remaining toner value data) may not be available as a result of using this non Hewlett-Packard supply.

**Yellow Print Cartridge**
HP Part Number: C8552A


Estimated pages remaining: 180
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Black Image Drum**
HP Part Number: C8560A


Estimated pages remaining: 180
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Cyan Image Drum**
HP Part Number: C8561A

Estimated pages remaining: 9000
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Cyan Image Drum**
HP Part Number: C8561A

Estimated pages remaining: 14370
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125

**Yellow Image Drum**
HP Part Number: C8562A

Estimated pages remaining: 180
(based on historical black page coverage of 1%)
Low reached: NO
Serial Number: 11535887
Pages printed with this supply: 125


Recycling Information:
Please return your genuine HP supplies to Hewlett-Packard. For more information see: <http://www.hp.com/go/recycle>.

Sample supplies status page (1 of 2)

Supplies page 2 elements


- A. Ordering information
- B. Image transfer kit information
- C. Image cleaning kit information
- D. Image fuser kit information
- E. Recycling information


hp color LaserJet 9500 printers




Supplies Status Page 2


Ordering Information:
Hewlett-Packard Supplies can be ordered on the internet at <https://www.hp.com/go/ordersupplies/na> or by calling Hewlett-Packard. (Please refer to your printer User Guide for the telephone number.
For highest print quality always use genuine Hewlett-Packard supplies.

**Image Transfer Kit** 94%
HP Part Number: C8555A





Pages Remaining: 16875

**Image Cleaning Kit** 100%
HP Part Number: C8554A



Pages Remaining: 17952

**Image Fuser Kit** 100%
HP Part Number: C8556A



Pages Remaining: 17952

Recycling Information:
Please return your used genuine HP supplies to Hewlett-Packard. For more information see:
<http://www.hp.com/go/recycle>

ENGLISH(1)


Sample supplies status page (2 of 2)

Usage page

Print a usage page from the control panel (or gain access to the information remotely from HP Web Jetadmin) to determine how many simplex or duplex pages of each media size have been scanned on the copy module and printed on the printer. Average toner coverage is approximated by counting pixels. Jams are not counted. The data cannot be reset manually, and values such as total print and scan impressions, toner coverage, serial number, default language, and default media size are backed up between the printer NVRAM and the hard disk.

The total page count on the usage page does not match the page count on the configuration page. The reasons for this include:

- the configuration page counts “clicks” and the usage pages counts letter/A4 equivalents
- the configuration page counts jammed pages and the usage page does not count jammed pages

hp color LaserJet 9500 printers

usage page (S/N JPBDB00391) 1

Product Name: hp color LaserJet 9500
Printer Name: hp color LaserJet 9500

Usage Totals (equivalent)

PRINTER Page Size	SIMPLEX			DUPLEX			TOTAL	
	Mono	Color	Units	Mono	Color	Units	Mono	Color
LETTER	343	1,484	1.0	797	9,114	2.0	1,937.0	19,712.0
LEGAL	0	0	1.3	0	0	2.6	0.0	0.0
A4	0	0	1.0	0	0	2.0	0.0	0.0
EXECUTIVE	0	0	0.8	0	0	1.6	0.0	0.0
11x17	1	204	2.0	3	37	4.0	14.0	556.0
A3	0	0	2.0	0	0	4.0	0.0	0.0
ENVELOPE #10	0	0	0.4	**	**	**	0.0	0.0
ENVELOPE MONARCH	0	0	0.3	**	**	**	0.0	0.0
ENVELOPE C5	0	0	0.6	**	**	**	0.0	0.0
ENVELOPE DL	0	0	0.4	**	**	**	0.0	0.0
B4(JIS)	0	0	1.5	0	0	3.0	0.0	2.0
B5(JIS)	0	0	0.7	0	0	1.4	0.0	0.0
ENVELOPE B5	0	0	0.7	**	**	**	0.0	0.0
CUSTOM	0	0	1.0	0	0	2.0	0.0	0.0
DPOSTCARD(JIS)	0	0	1.0	**	**	**	0.0	0.0
A5	0	0	0.5	0	0	1.0	0.0	0.0
8K	0	0	1.7	0	0	3.4	0.0	0.0
16K	0	0	0.8	0	0	1.6	0.0	0.0
EXECUTIVE(JIS)	0	0	1.1	0	0	2.2	0.0	0.0
LETTER-R	0	0	1.0	0	0	2.0	0.0	0.0
A4-R	0	0	1.0	0	0	2.0	0.0	0.0
B5(ISO)	0	0	1.0	0	0	2.0	0.0	0.0
8.5x13	0	0	1.1	0	0	2.2	0.0	0.0
TOTAL PRINTER USAGE							1951.0	20,268.0

Print Modes & Paper Path Usage (actual)

PRINT MODES USAGE			PAPER PATH USAGE		
Print Mode	Mono	Color	Source	Count	Destination
AUTO SENSE MODE	3105	3105	Envelope Feeder	0	Face Up
LIGHT MODE	0	0	Manual Feed Tray	1	Face Down
HEAVY MODE	0	0	MP Tray	37	External Bin
CARDSTOCK MODE	5	111	Tray 1	0	Other
TRANSPARENCY MODE	5	5	Tray 2	274	
ENVELOPE MODE	0	0	Tray 3	579	
LABEL MODE	0	0	External Tray	20943	
GLOSSY MODE	0	0	Other	109	
HP HGLOSSY MODE	7	261	TOTAL	21943	
TOUGH PAPER MODE	0	0			
BEST GLOSS MODE	0	0			
BEST HP HG MODE	0	0			
BEST TPAPER MODE	0	0			
TONER MODE	0	0			
BLISTERS MODE	0	0			
NHP HGLOSSY MODE	8	117			
BEST NHP HG MODE	0	167			
TOTAL					11063

Historical Printer Coverage

Black 2.7%	Magenta 1.3%
Cyan 1.5%	Yellow 1.5%

Sample usage page

File directory page

Use the file directory page to view current directory structures, to help troubleshoot printer problems, or to verify storage capabilities.

File directory page elements

A. Directory information

[illegible]

Sample file directory page

Electrical connection and contact failures

The printer has 23 high-voltage paths, and each path has four or five connectors. Two signs that indicate that there is a poor electrical connection include high-voltage arcing and a loss of high-voltage bias. Some of the most common connector problems include the following:

for connectors and flat flexible cables (FFCs):

- a service reconnection failure
- shipping/printing microvibrations and corrosion that cause intermittent connections

image drum (p-crg) internal and external connections

consumables memory failures and past-life consumables (also refills)

See the following for troubleshooting electrical connection problems:

Timing charts (page 112) in chapter 5

Wiring diagrams (page 114) in chapter 5

DC controller circuit (page 131) in chapter 5

DC controller operations (page 134) in chapter 5

To fix a connection failure

- 1 Open and close the doors (including the image drum door).
- 2 Reseat the consumables.
- 3 Check for poor contact or corrosion on the consumable and on the door connections.
- 4 Reseat the connectors, particularly the FFCs, after servicing the printer.
- 5 Turn the printer on again.

Signs that a bad connection might exist include:

sensor failures

motor stalls

beam detect errors

OPC velocity errors

ITB velocity errors

developer sleeve motor stalls

cartridge (p and t) memory errors

scanner velocity errors

formatter hangs

CPR failures

complete color plane dropouts

dead control panel

auger marks that change direction

reversing stepper motors

If any of these signs occur or if any of the related PCAs or assemblies are replaced, be careful when disconnecting and reconnecting connectors. The connectors can break easily.

Avoid touching any high-voltage contact. Skin oil can affect the connection.

If the problem persists after replacing the connector, remove and reseat all of the FFC cables. If the problem still persists, replace the appropriate ribbon cables.

Image formation and print-quality troubleshooting tools

The following tools are helpful in solving image formation and print quality problems.

Print-quality problems associated with the environment

The printer is operating in excessively humid or dry conditions. Make sure that the printing environment is within specifications. See “Specifications” on page 22 in chapter 1.

Print-quality problems associated with media

Many print-quality problems and media-damage problems such as excessive curl are caused by using unsupported media, by using supported media with the incorrect media-type settings, or by using unsupported media without a media-type setting. Using supported media and selecting the appropriate type setting from the control panel alleviates many of the print-quality problems that customers encounter.

Before troubleshooting print-quality problems, make sure that the customer is using supported media and that they are selecting the appropriate control panel type setting for the media they are using. Also, make sure to select the matching media-type setting in the printer driver to avoid media-type mismatch errors and prompts to load different media.

See “Media specifications” on page 31 in chapter 1 for more information about supported media and media selection.

Reseating consumables

Correct functionality of all of the consumables for the HP color LaserJet 9500 is dependent on correct seating to provide high-voltage continuity and correct registration. Turn off the printer and reseal the consumables if you suspect high-voltage contact problems or part registration problems.

Cleaning the post charger








Cleaning the post charger might eliminate some print-quality problems, particularly poor secondary transfer of black. See “Cleaning the post charger” on page 94 in chapter 4 for more information.

Cleaning the fuser input

Cleaning the fuser input might eliminate some print-quality problems, particularly discharge marks and other secondary transfer defects. See “Cleaning the fuser input” on page 94 in chapter 4 for more information.

Print-quality troubleshooting pages

Use the built-in print-quality troubleshooting pages to help diagnose and solve print-quality problems. The pages identify repeating defects, and isolate the repeating defects to a color plane and a consumable. Perform the following steps to print the print-quality troubleshooting pages:

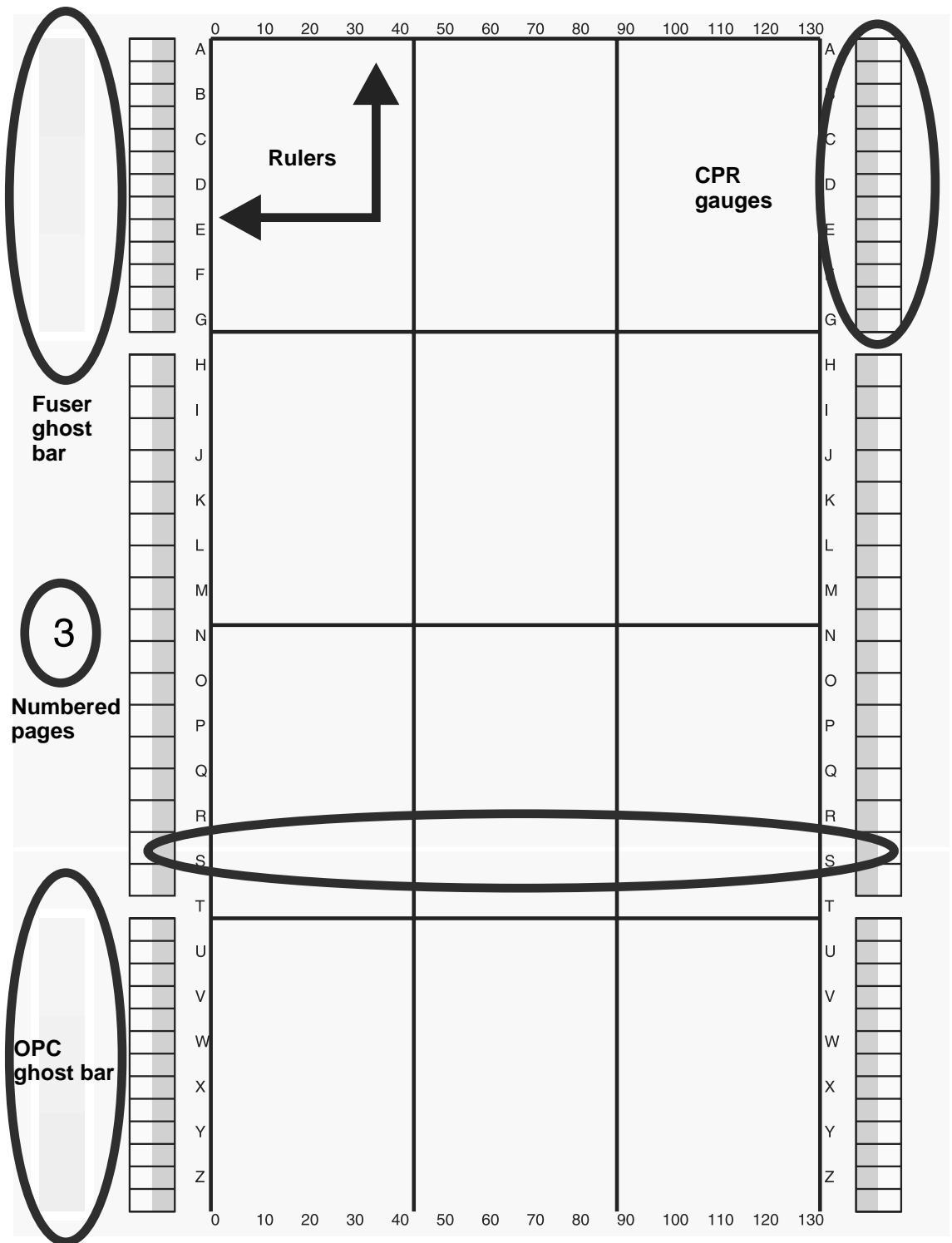
- 1 Press  to open the menus.
- 2 Use  or  to scroll to **DIAGNOSTICS**, and then press .
- 3 Use  or  to scroll to **PQ TROUBLESHOOTING**, and then press .
- 4 The printer returns to the **READY** state after printing the print-quality troubleshooting pages.

The print-quality troubleshooting pages include:

- two instruction pages
- five target pages
- one demonstration page
- one configuration page

Print-quality assessment page (1 of 2)

Print-quality assessment page (2 of 2)



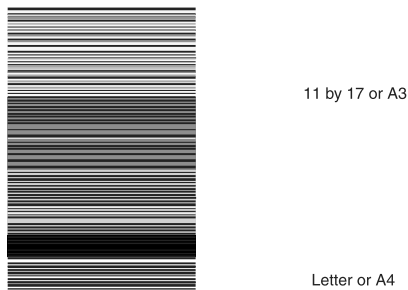
Print-quality assessment page attributes

Color band test

The color band test has primary colors (CMYK), secondary colors (RGB), and white arranged in 25 percent fill-stripes that are parallel to the feed direction. The test is useful when troubleshooting high-voltage arcing, as well as color plane separation, secondary color separation, and white (without toner) on the same page. Toner that is visible in the unprintable areas near the edges of the media might indicate that there is an arcing problem.








If you are troubleshooting high-voltage arcing, use a half-speed setting for media types (arcs appear more often at half-speed).

A color band test is useful in conjunction with a print stop test. See “Print stop test” on page 320 for more information.



Color band test page

Printing a color band test

- 1 Press  to open the menus.
- 2 Use  or  to scroll to **DIAGNOSTICS**, and then press .
- 3 Use  or  to scroll to **COLOR BAND TEST**, and then press .

The color band test prints on A3 or 11-by-17 media if one of those sizes is set as the default media size on the control panel.

The media type must be set to **PLAIN** or **ANY** for this test to print.

Engine test print page

The engine test print page verifies that the print engine is functioning correctly, and is helpful in troubleshooting print-quality problems. The engine test print prints a full page of horizontal lines across the entire printable area.

Media can be picked up from tray 2 or tray 3 if the formatter is installed. If the formatter is removed, the tray from which you do *not* want to print must be open. Also, make sure that the print cartridges are installed in the printer.

Make sure that the tray switch is set to standard size.

Follow these steps to perform an engine test print page if a formatter is installed:

- 1 Turn the printer on.

- 2 Use a non-metallic object to press the engine test button.

Follow these steps to perform an engine test print page if a formatter is *not* installed:

- 1 Turn the printer on, and wait until the printer finishes pressurizing the fuser and initializing the EP process.
- 2 Use a non-metallic object to press the engine test button.
- 3 When the printer is idle, press the engine test button again to print an engine test print page.

If the duplexer is installed, the test pattern is printed on both sides of the page. The page is printed from tray 3 if it is installed. If tray 3 is not installed, the page prints from tray 2.



Engine test print page

Laser/scanner adjustment page

See “Printing a laser/scanner adjustment page” on page 219 in chapter 6 for information on printing, reading, and interpreting the laser/scanner adjustment page. This page is helpful for assessing and correcting color plane registration problems.

This procedure can only be performed using A4- or letter-size media. Using A3 or 11-by-17 media gives invalid results.

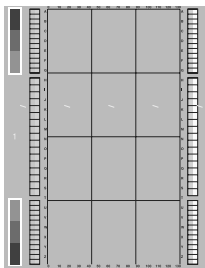
Door ruler and repeating defect frequencies

A metric ruler, located on the front left door of the printer, can be used for measuring the frequency of repetitive print-quality defects. The following table describes highlight frequencies and the associated EP process part.

Table 54. Repeating print-quality defect dimensions

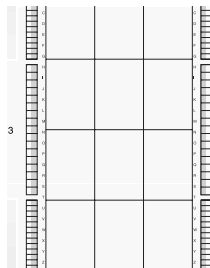
K developer (x1)	27 mm (1.06 inches)
CMY developer (x3)	30 mm (1.18 inches)
Charger roller (x4)	45 mm (1.77 inches)
T1 backing roller (x4 on ITB)	52 mm (2.04 inches)
T2 roller	71 mm (2.8 inches)
T2 backing roller (on ITB)	73 mm (2.87 inches)
OPC (x4)	98 mm (3.86 inches)
ITB driver roller	100 mm (3.93 inches)
Cleaning backing roller	100 mm (3.93 inches)
Space between T1s	100 mm (3.93 inches)
Fuser bottom	140 mm (5.51 inches)
Fuser top	148 mm (5.83 inches)

Sample defects and solutions



See “Repeating marks (98 mm)” on page 337 and “Repeating marks (45 mm)” on page 338.

See “Lines and bands appear perpendicular to feed direction” on page 341.



See “Lines, streaks or scratches appear parallel to feed direction” on page 344.

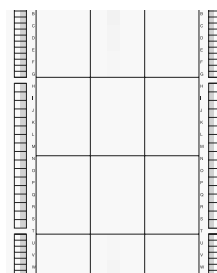
See “Diagonal bands or lines” on page 348.

See “Light or faint image and dropouts” on page 350.

See “Wavy brush marks” on page 354

See “Color plane misregistration” on page 355.

See “Primary color covers entire page” on page 357.



See “Ghosted image (98 mm)” on page 358.



See “Distorted or misplaced image” on page 361.

See “Poorly fused image” on page 362

See “Missing color plane” on page 364.

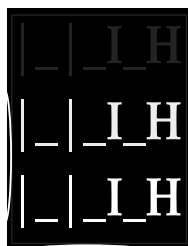
See “Blank” on page 365.



See “Hand or fingerprints” on page 365.

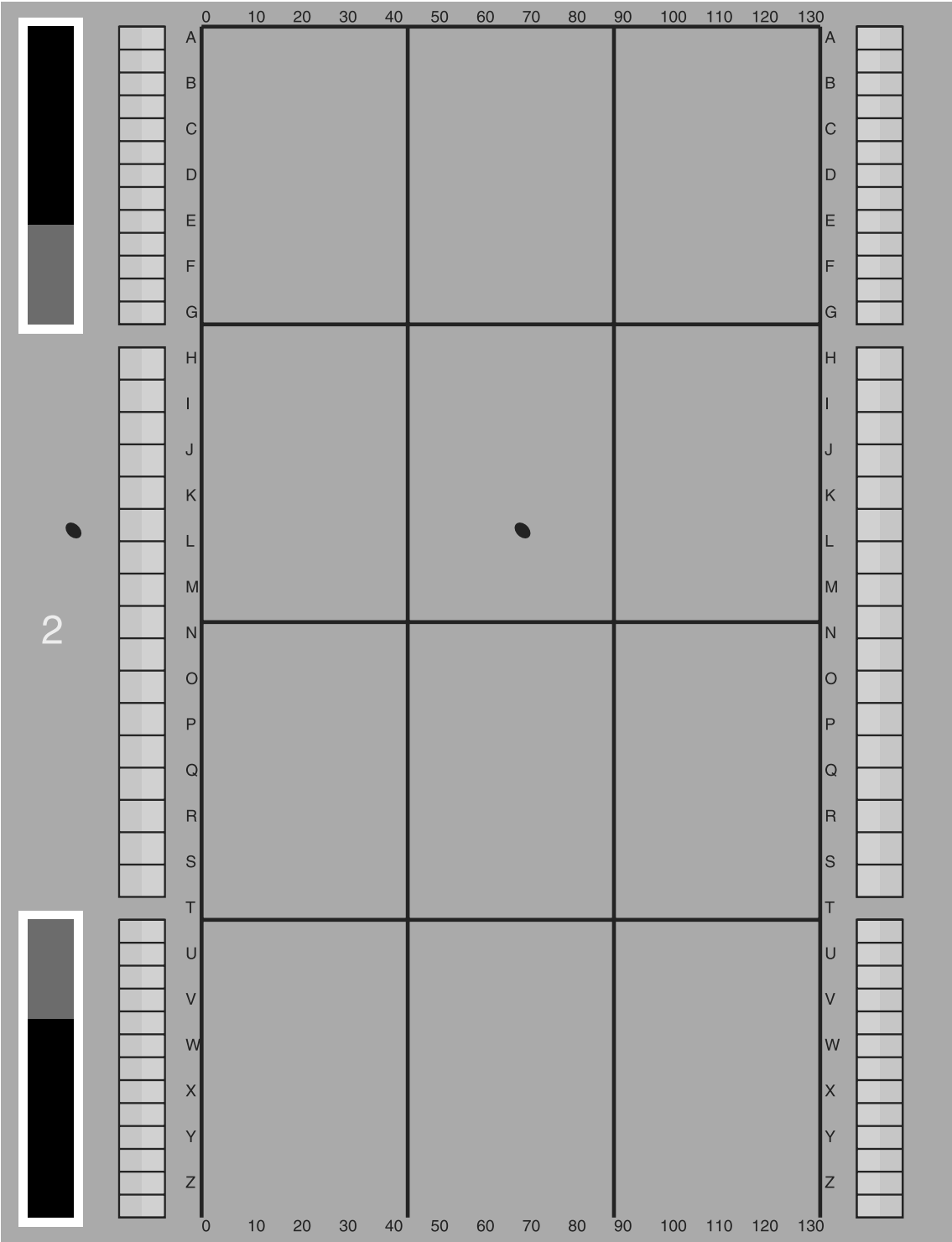


See “Fine, yellow dot background” on page 367.



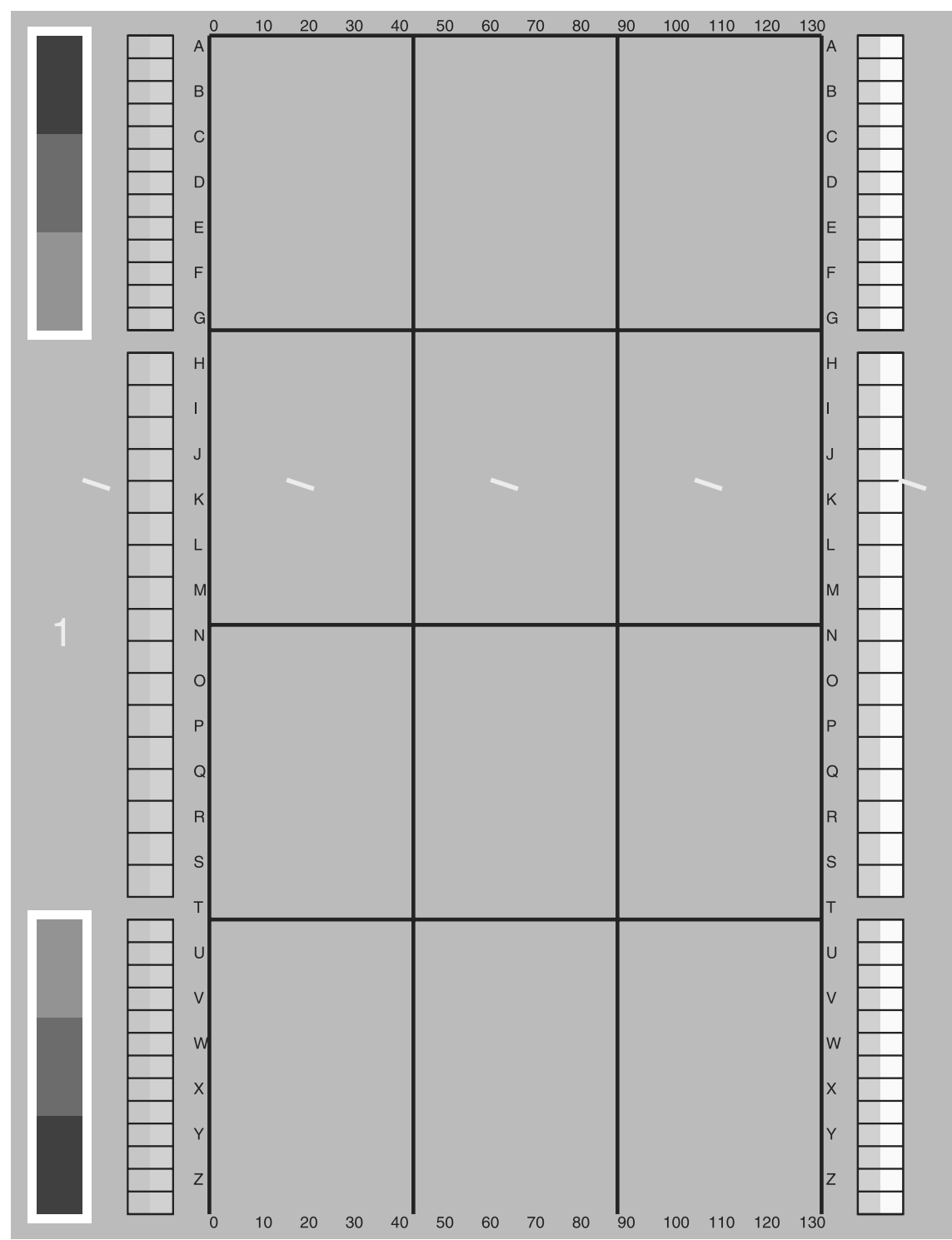
See “Toner halos or explosions occur around solid secondary colors” on page 368.

Repeating marks (98 mm)



Repeating marks (98 mm)

Repeating marks (45 mm)



Repeating marks (45 mm)

Table 55. Repeating marks

Description	Possible causes	Solution
Marks repeat every 98 mm	Contaminant is stuck to the surface of the OPC or the surface of the OPC is damaged.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
Marks repeat every 45 mm	Contaminant is stuck to the surface of the primary charging roller, or the surface of the primary charging roller is damaged.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
Marks repeat every 52 mm	Contaminant is stuck to the surface of the primary transfer backing roller, or the primary transfer backing roller is damaged.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to verify that the problem is isolated to a single color plane. 2 Replace the ITB.
Marks repeat every 30 mm in cyan, magenta, or yellow, or every 27 mm in black	Contaminant is stuck to the surface of the developer sleeve, or the surface of the developer sleeve is damaged.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
<p>Marks repeat every 3 to 4 pages for letter and A4, and every 2 to 3 pages for 11-by-17 and A3</p> <p>Marks appear in the same position, perpendicular to the feed direction</p>	Contaminant is stuck to the surface of the ITB, or the surface of the ITB is damaged.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to make sure that the defect appears in all colors, and that the repeat pattern is every 3 to 4, pages for letter and A4 and every 2 to 3 pages for 11-by-17 and A3. <p>Note The marks appear in the same position each time that they occur, perpendicular to the feed direction.</p> <ol style="list-style-type: none"> 2 Partially remove the ITB and check the surface for contamination or damage by rotating the flywheel on the right side of the belt. 3 If toner is fused to the belt, remove it by gently scraping it off using the edge of a non-serrated coin or similar smooth, rounded edge.
Marks repeat every 71 mm	Contaminant is stuck to the surface of the secondary transfer roller, or the surface of the secondary transfer roller is damaged.	<ol style="list-style-type: none"> 1 Remove the secondary transfer roller and check the surface for contamination or damage. 2 Clean or replace the secondary transfer roller if necessary.
Marks repeat every 149 mm	Contaminant is stuck to the surface of the upper fuser roller, or the surface of the upper fuser roller is damaged.	<ol style="list-style-type: none"> 1 Remove the fuser assembly and check the rollers for contamination or damage. 2 Contamination might be removed by gentle cleaning with a soft cloth, or by printing a few blank pages. Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, PROCESS CLEANING PAGE). 3 When surface damage exists or contamination cannot be cleaned, replace the fuser assembly. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p>

Table 55. Repeating marks (continued)

Marks repeat every 140 mm	Contaminant is stuck to the surface of the lower fuser roller, or the surface of the lower fuser roller is damaged.	<ol style="list-style-type: none">1 Remove the fuser assembly and check the rollers for contamination or damage.2 Contamination might be removed by gentle cleaning with a soft cloth, or by printing a few blank pages. Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, PROCESS CLEANING PAGE).3 When surface damage exists or contamination cannot be cleaned, replace the fuser assembly. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p>
Marks repeat parallel to the feed direction several times on a page, but with no regular frequency	Contamination exists on the post T2 static charge eliminating comb (fuser inlet).	<ol style="list-style-type: none">1 Lower the green lever, remove the secondary transfer roller, attach the blue brush to the green tongs (both are behind the right front door), and use the brush to clean the post T2 static charge eliminating comb (fuser inlet).2 Check electrical connections to the secondary transfer unit, and check for a good ground.3 Replace the high-voltage power supply.

Lines and bands appear perpendicular to feed direction

Lines and bands

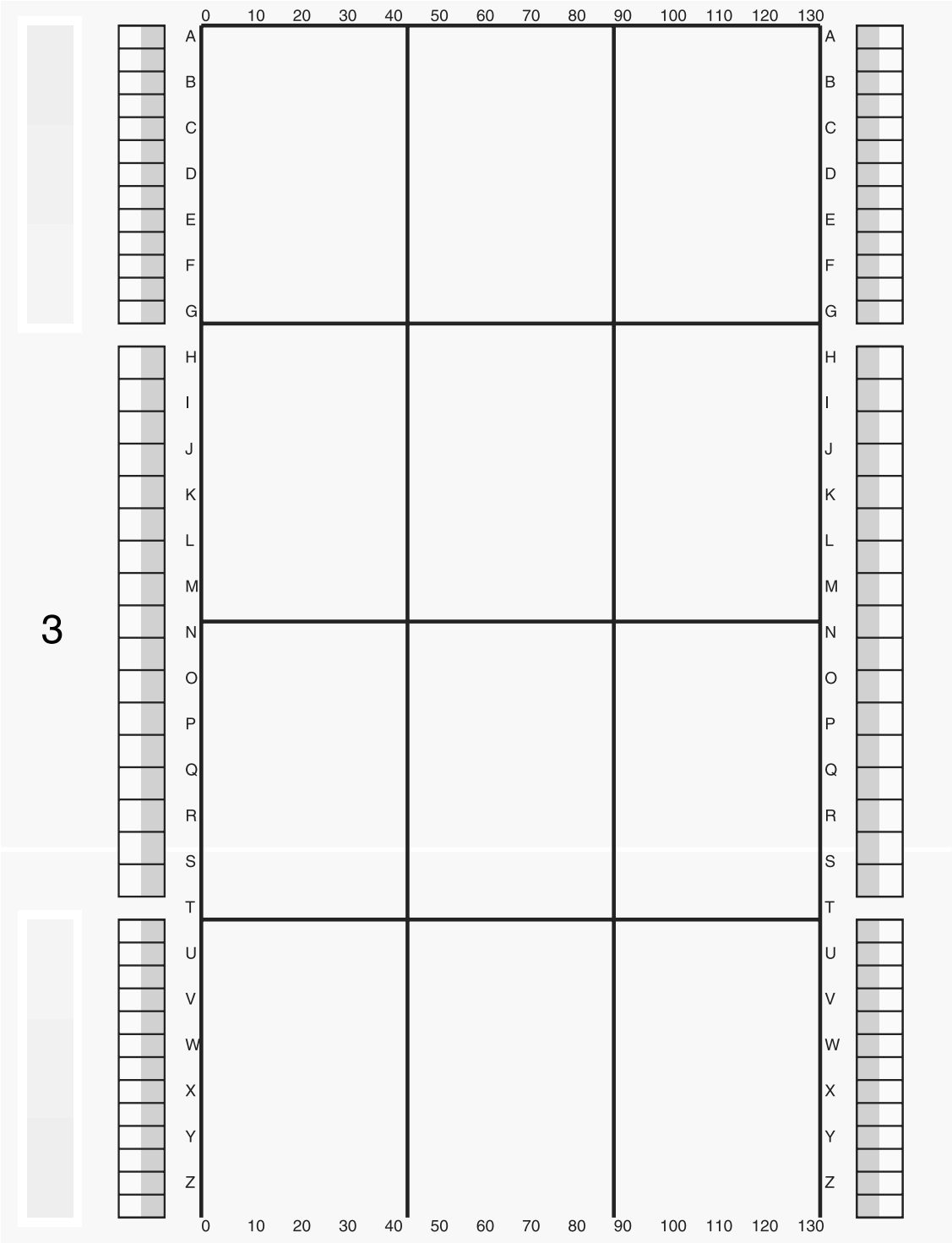
Table 56. Lines and bands

Table 57. Description	Possible cause	Solution
Light or dark lines repeat every 98 mm	Contaminant is stuck to the surface of the OPC, or the surface of the OPC is damaged or has been exposed to light.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
White lines repeat every 3 to 4 pages for letter and A4, and every 2 to 3 pages for 11-by-17 and A3	Contaminant is stuck to the surface of the ITB, or the surface of the ITB is damaged.	<ol style="list-style-type: none"> 1 Partially remove the ITB and check the surface for contamination or damage by rotating the flywheel on the right side of the belt. 2 If toner is fused to the belt, remove it by gently scraping it off using the edge of a non-serrated coin or similar smooth, rounded edge.
Light lines repeat every 149 mm	Contaminant is stuck to the surface of the upper fuser roller, or the surface of the upper fuser roller is damaged.	<ol style="list-style-type: none"> 1 Remove the fuser assembly, and check the rollers for contamination or damage. 2 Contamination might be removed by gentle cleaning with a soft cloth, or by printing a few blank pages. Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, and PROCESS CLEANING PAGE). 3 When surface damage exists or contamination cannot be cleaned, replace the fuser assembly. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p>
Light lines repeat every 140 mm	Contaminant is stuck to the surface of the lower fuser roller, or the surface of the lower fuser roller is damaged.	<ol style="list-style-type: none"> 1 Remove the fuser assembly, and check the rollers for contamination or damage. 2 Contamination might be removed by gentle cleaning with a soft cloth, or by printing a few blank pages. Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, PROCESS CLEANING PAGE). 3 When surface damage exists or contamination cannot be cleaned, replace the fuser assembly. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p>
Bands/dark lines (47 mm band on heavy stock in half-speed mode)	A T1 vibration exists.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media being used. 3 Change the high coverage 2 setting (CONFIGURE DEVICE, OPTIMIZE MENU) to ON, which prints yellow dots in an 8-by-8 mm pattern for half- and full-speed printing (opposed to 8-by-8 mm in full speed and 10-by-10 mm in half speed). <p>Note High coverage 1 and high coverage 2 are not mutually exclusive. If both items are turned on, the yellow dots turn off.</p>

Table 56. Lines and bands (continued)

Bands/dark lines (50/100 mm bands)	A T1 vibration exists.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media being used. 3 Change the high coverage 3 setting (CONFIGURE DEVICE, OPTIMIZE MENU) to ON, which slightly increases the OPC/ITB speed mismatch.
<p>Bands/dark lines</p> <p>Cardstock band (37 mm from trailing edge of ledger, and 115 mm from trailing edge of letter, on media heavier than 120 g/m² printed in full speed modes)</p>	A T2 nip vibration causes band at T1.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media used. 3 Change the high coverage 3 setting (CONFIGURE DEVICE, OPTIMIZE MENU) to ON, which slightly increases the OPC/ITB speed mismatch.
Bands of gloss or density differences repeating at fuser frequency (149 mm or 140 mm)	A flat spot on the fuser roller is caused by unplugging the printer (rather than using the power button to turn it off).	<ol style="list-style-type: none"> 1 Correct the cause of the power interruption. 2 Replace the fuser.
<p>Band (scan direction ripple)</p> <p>Dark lines 3 to 5 mm apart perpendicular to the feed direction (lines are heaviest in the middle of the page)</p>	The ITB is defective.	Replace the ITB.

Lines, streaks or scratches appear parallel to feed direction



Lines, streaks, or scratches appear parallel to feed direction (1 of 2)

Lines, streaks, or scratches appear parallel to feed direction (2 of 2)

Table 58. Lines, streaks, or scratches appear parallel to feed direction

Description	Possible causes	Solution
White fine/clear	A laser beam is blocked.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Remove the laser assembly and the image drum for the indicated color. 3 Use a flashlight to examine the area above the toner cartridge area. Carefully clean the area and remove any obstructions. 4 Check the laser beam path for obstructions. 5 Replace the laser scanner assembly.
	The laser scanner assembly mirror is contaminated.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the laser scanner assembly.
	A circumference scratch exists on the developing cylinder or on the OPC.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
	A circumference scratch exists on the OPC.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Replace the image drum for the indicated color.
Clear white (continuous)	A post T1 obstruction is moving toner on the ITB.	<ol style="list-style-type: none"> 1 Check the areas near the surface of the ITB (post primary transfer to secondary transfer) for obstructions that might move toner. 2 Correct if necessary.
	A post T2 obstruction is moving pre-fused toner on the page.	<ol style="list-style-type: none"> 1 Check the areas above the media (post secondary transfer to fuser) for obstructions that might move toner. 2 Correct if necessary.

Table 58. Lines, streaks, or scratches appear parallel to feed direction (continued)

	A circumference scratch exists, or there is contamination on the ITB.	<ol style="list-style-type: none"> 1 Partially remove the ITB and check the surface for contamination or damage by rotating the flywheel on the right side of the belt. 2 If toner is fused to the belt, remove it by gently scraping it off using the edge of a non-serrated coin or similar smooth, rounded edge. 3 Replace the ITB if surface damage exists or contamination cannot be cleaned.
	A circumference scratch exists on the upper fuser roller.	<ol style="list-style-type: none"> 1 Remove the fuser assembly and check the rollers for contamination or damage. 2 Contamination might be removed by gentle cleaning with a soft cloth or by printing a few blank pages. 3 Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, PROCESS CLEANING PAGE). 4 Replace the fuser assembly if surface damage exists or contamination cannot be cleaned. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p>
	The ITB drive roller is damaged or deformed.	Replace the ITB.
White wide/ blurred	The post charger is contaminated or damaged.	<ol style="list-style-type: none"> 1 Clean the post charger assembly. 2 Check the high-voltage path from the post charger power supply to the post charger assembly on the ITB assembly for continuity and good connections. Check for good grounding connections. 3 Check power connection to the post charger power supply. 4 Replace the ITB.
Brown wide streak (sometimes accompanied by a 59.A0 error)	A cleaning blade or seat-latch failure exists.	<ol style="list-style-type: none"> 1 Remove and reseal the toner collection bottle and the cleaning blade, making sure that both seat and latch correctly. 2 Replace the cleaning blade if necessary. 3 After the cleaning blade fail is corrected, select CALIBRATE NOW on the control panel.
Roller marks (wide streaks parallel to feed direction) on heavy, glossy, or plastic media	This is usually caused by out-of-specification media. Post-fuser roller pressure causes different gloss-level streaks and sometimes produces waves in the media.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media being used. 3 Use a straight-through paper path (tray 1 to the face-up bin) and manual duplex to avoid as many post-fuser rollers as possible. <p>Note Onsite visits and parts replacement (such as printer parts or consumables) will not help to alleviate roller marks.</p>

Table 58. Lines, streaks, or scratches appear parallel to feed direction (continued)

Line parallel to the feed direction (feed direction ripple) Dotted line parallel to the feed direction (most common in cyan)	The ITB is defective.	Replace the ITB
Wide streaks of density variation parallel to the feed direction	The ITB is defective (belt wave).	<ol style="list-style-type: none">1 Try a different type of media.2 Print a darker fill or a different pattern fill.3 Replace the ITB.
Fine, straight scratches in the fused toner	This usually occurs on very heavy media. Warm, still toner is scratched by media guide ribs.	<ol style="list-style-type: none">1 Make sure that the media being used is within specifications.2 Make sure that the media-type setting on the control panel is appropriate for the media being used. <p>Note Selecting the appropriate media-type setting turns on the paper path cooling fans that cool the fused toner faster and lessen the ribbed effect.</p> <ol style="list-style-type: none">3 Media and/or toner dust can accumulate on the diverter and delivery feed assemblies after more than 40,000 pages are printed. Check for contamination and replace the assemblies if necessary.4 If duplexing, consider manual duplex.5 Try printing to the face-up bin.

Diagonal bands or lines

Diagonal bands or lines

Table 59. Diagonal bands or lines

Description	Possible causes	Solution
Diagonal banding or an angled plaid-appearing density variation (50 degree angle and are about 15 mm apart)	This might be a temporary problem that occurs in heavy or solid color fill pages printed in large quantities. It is caused by a failure to charge toner evenly.	<ol style="list-style-type: none"> 1 Print several sets of print-quality troubleshooting pages to try to fix the problem. If this does not work, it isolates the problem to a single color plane. 2 Reseat the image drum that matches the diagonal band pattern color. 3 Check the high-voltage power supply and connections to the image drum. Check for good grounding connections in the image drum door. 4 Replace the image drum matching the diagonal band pattern color.
Pages are marked with diagonal or V-shaped lines of smudged dark brown toner deposits	<p>The cleaning blade or the ITB is past life recommendations.</p> <p>The cleaning blade is bent into a backward “J” shape as the ITB runs underneath it. This creates enough drag to possibly cause a registration roller motor or ITB motor abnormal error (see the description of error 59.A0).</p> <p>Blade tucks appear to be more common when image drums, the cleaning blade, and the ITB are new. The problem is more common in high temperature and high humidity environments. Some blade tucks cause a 59.A0 error before a page is printed. In this case, check the image on the ITB.</p>	<ol style="list-style-type: none"> 1 Reseat the cleaning blade assembly. 2 Replace the cleaning blade assembly. 3 Replace the ITB if necessary (it is usually not damaged).

Light or faint image and dropouts

Light or faint image and dropouts

Table 60. Light or faint image and dropouts

Description	Possible causes	Solution
Poor primary transfer	<p>Bad density calibration exists.</p> <p>Insufficient T1 bias exists for the particular primary color.</p> <p>Poor contact exists between the high-voltage power supply and the primary transfer roller.</p> <p>The primary transfer roller is damaged.</p> <p>The high-voltage power supply is defective.</p>	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Reseat the ITB and the image drum that appears on the print-quality troubleshooting pages. 3 Check the high-voltage paths from the high-voltage power supply to the image drum that appears on the print-quality troubleshooting pages. Check and clean the contacts and the connectors. Check for good grounding connections in the image drum door. 4 Check the event log for calibration failures, and troubleshoot the calibration process if errors are found. Check the density calibration sensor window for blockage or contamination, and then select CALIBRATE NOW on the control panel. <p>Note Calibration errors are not reported as errors on the control panel.</p> <ol style="list-style-type: none"> 5 If the problem is severe, replace the image drum that appears on the print-quality troubleshooting pages. 6 For midtones that are too light, try changing the (color) density setting in the CONFIGURE DEVICE, PRINT QUALITY, ADJUST COLOR menu. Settings can be adjusted for each color plane. <ul style="list-style-type: none"> • Cyan density = 0 (default), -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 • Magenta density = 0 (default), -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 • Yellow density = 0 (default), -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 • Black density = 0 (default), -5, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5 <p>Note The default is zero for each color. A lower number might result in lighter or less dense midtones for the particular color plane. A positive number might result in darker or denser midtones for that color plane.</p> <p>Note These changes are universal and apply to all printed pages regardless of media type.</p> <p>Note These settings control midtones (solid color and very light color fills will not be affected) for each color plane.</p> <ol style="list-style-type: none"> 7 Replace the ITB. 8 Replace the high-voltage power supply.
	The developer has deteriorated.	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Print 20 pages of solid color in the indicated color. 3 Replace the image drum for the indicated color.

<p>Poor secondary transfer</p>	<p>Secondary transfer bias is not sufficient for complete transfer on this type of media.</p> <p>Poor contact exists between the secondary transfer roller and the high-voltage power supply.</p> <p>Poor ITB ground contact exists.</p> <p>Bad density calibration exists.</p> <p>Poor physical contact exists between the ITB and the secondary transfer assembly.</p> <p>The secondary transfer assembly or the secondary transfer roller is damaged.</p> <p>The high-voltage power supply is defective.</p> <p>The post charger is defective.</p>	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media being used. <p>Note Transfer occurs better on smooth media. Exceptionally rough media will probably encounter secondary transfer problems that cannot be addressed.</p> <ol style="list-style-type: none"> 3 Remove, check, and reseal the ITB and secondary transfer roller. Replace them if necessary. 4 Check the event log for calibration failures. Check the density calibration sensor window for blockage or contamination, and select <code>CALIBRATE NOW</code> on the control panel. 5 Check the bias contacts between the secondary transfer roller and the high-voltage power supply. Clean or repair them if necessary. 6 Check the event log for calibration errors, and troubleshoot the calibration process if errors are found. <p>Note Calibration errors are not reported as errors on the control panel.</p> <ol style="list-style-type: none"> 7 Clean the post charger assembly. 8 Check the high-voltage path from the post charger power supply to the post charger assembly on the ITB assembly for continuity and good connections. Check for good grounding connections. 9 Check the power connection to the post charger power supply. 10 Change the transfer down/up setting in the <code>CONFIGURE DEVICE, OPTIMIZE</code> menu. Try decreasing the transfer setting (<code>DOWN 1</code> or <code>DOWN 2</code>). This might result in darker images on certain medias. <p>Note Some media might show an opposite reaction to settings. <code>DOWN</code> settings might result in a lighter image, and <code>UP</code> settings might result in a darker image.</p> <p>Note Try other media type settings before using this option. Optimize settings are global and apply to all media types. If this is a temporary solution, remember to reset it when the job is complete.</p> <p>Note It is possible to set <code>TRANSFER UP 1, 2</code> and <code>TRANSFER DOWN 1, 2</code> to <code>ON</code> at the same time. If multiple bits are set, the default is used (all <code>OFF</code>).</p> <ol style="list-style-type: none"> 11 Replace the secondary transfer assembly. 12 Replace the high-voltage power supply.
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Poor leading edge transfer (also missing toner, and discharge marks exist on the leading edge)	Leading edge secondary transfer bias is not sufficient for complete transfer for this particular media.	<p>1 Make sure that the media being used is within specifications.</p> <p>2 Make sure that the media type setting on the control panel is appropriate for the media being used.</p> <p>3 Change the LEADING EDGE setting under the CONFIGURE DEVICE, OPTIMIZE, LEADING EDGE DOWN/UP menu. First, try setting LEADING EDGE DOWN to ON. Depending on the type of media, you might get better results setting LEADING EDGE UP to ON.</p> <p>Note It is best to try other media types first because this is a universal setting that applies to all pages printed regardless of the media type.</p>
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Wavy brush marks

Wavy brush marks

Table 61. Wavy brush marks

Description	Possible causes	Solution
Primary color toner background covering the entire page, often with a sinusoidal (brush-like) wave pattern	Poor developing bias contact exists. An image drum cleaning brush failure exists because of bad connection or toner overload. The OPC or carrier has deteriorated. The high-voltage power supply is defective.	<div>1</div> Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. <div>2</div> Reseat the image drum that matches the wavy brush-pattern color. <div>3</div> Check the high-voltage power supply and connections to the image drum. Check for good grounding connections in the image drum door. <div>4</div> Replace the image drum that matches the wavy brush-pattern color. <div>5</div> Replace the high-voltage power supply.

Color plane misregistration

Color plane misregistration

Table 62. Color plane misregistration

Description	Table 63. Possible causes	Solution
One primary color plane is misregistered from the other three	<p>A bad calibration exists.</p> <p>An image drum is not seated correctly.</p> <p>A laser scanner is misaligned.</p> <p>A process cartridge drive assembly is defective.</p> <p>A laser scanner is defective.</p> <p>A DC controller PCA is defective.</p>	<p>1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane.</p> <p>2 Reseat the image drum for the misregistered color.</p> <p>3 Check the event log for calibration failures, and check the density calibration sensor window for blockage or contamination.</p> <p>4 Make sure that the sensor window cleaning mechanism is functioning correctly.</p> <p>5 Open and close the right front door a few times to actuate the sensor window cleaning mechanism, and then select CALIBRATE NOW on the control panel.</p> <p>6 Print a laser alignment page to determine if a laser scanner is misaligned. Adjust the laser scanner if necessary.</p> <p>7 Replace the laser scanner of the indicated color. Test the new laser with a laser alignment page and adjust it if necessary.</p> <p>8 Replace the process cartridge drive assembly.</p> <p>9 Replace the DC controller PCA.</p>
All primary color planes are mis-registered from each other	<p>A bad calibration exists.</p> <p>A sensor window is dirty or blocked.</p> <p>The ITB or the ITB drive is defective.</p> <p>The DC controller PCA is defective.</p>	<p>1 Check the event log for calibration failures, and check the density calibration sensor window for blockage or contamination.</p> <p>2 Make sure that the sensor window cleaning mechanism is functioning correctly.</p> <p>3 Open and close the right front door a few times to actuate the sensor window cleaning mechanism, and select CALIBRATE NOW on the control panel.</p> <p>4 Check the ITB drive mechanism for correct movement. Replace it if necessary.</p> <p>5 Check the ITB for damage. Replace it if necessary.</p> <p>6 Replace the DC controller PCA.</p>

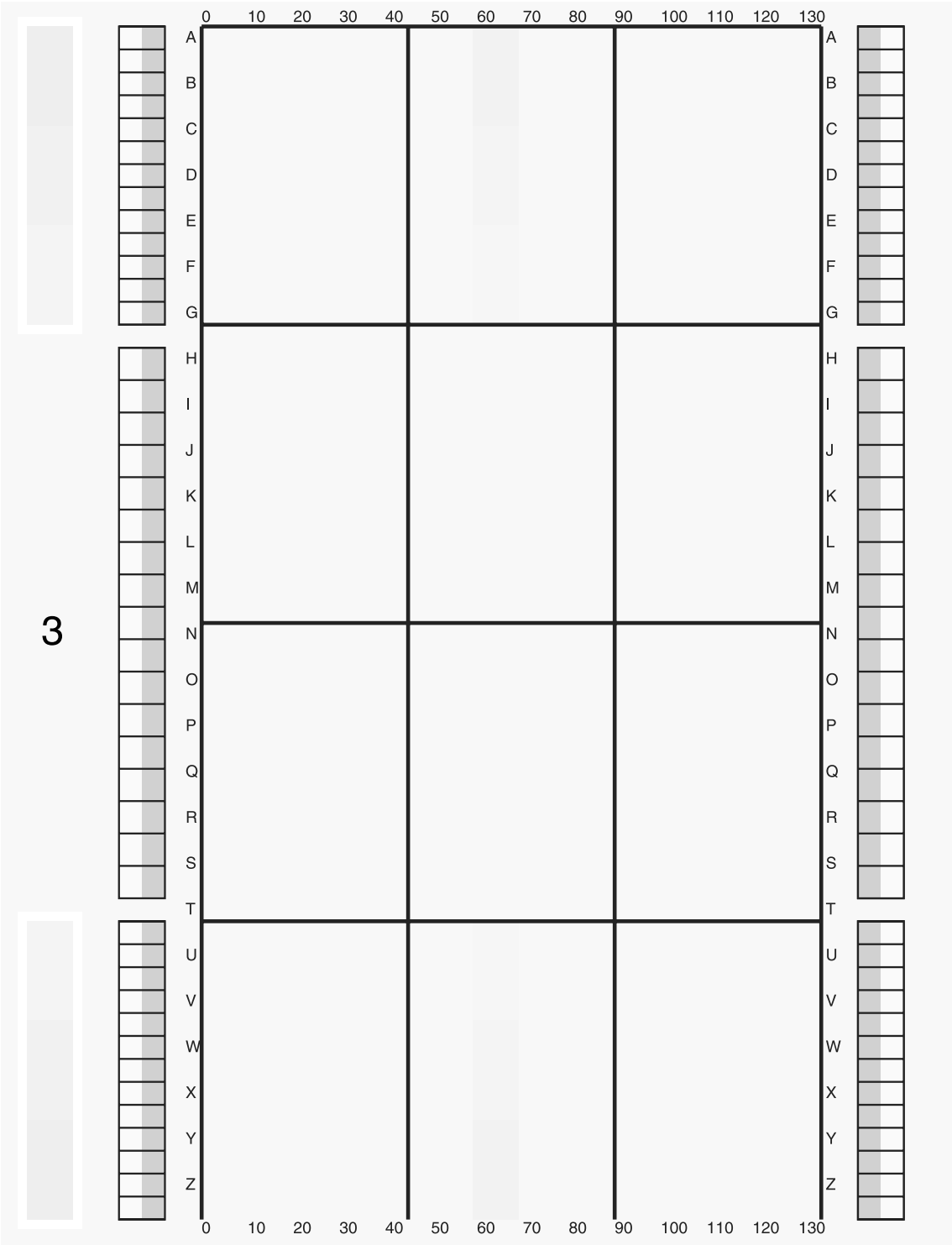
Primary color covers entire page

Primary color covers entire page

Table 64. Primary color covers entire page

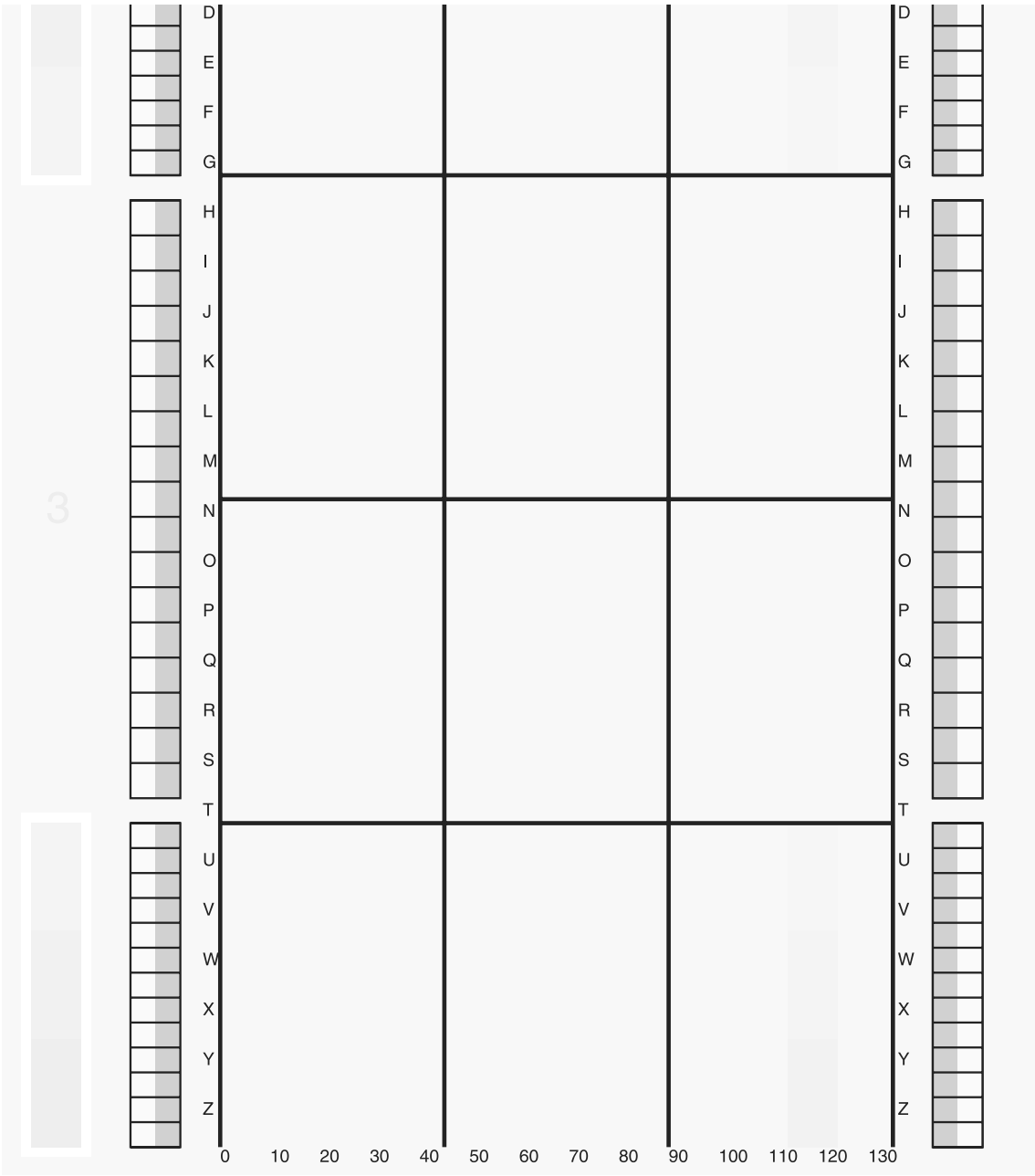
Description	Possible causes	Solution
A primary color (such as black) covers the entire page regardless of the intended page colors. The background color might have sinusoidal waves, similar to brush marks, in it.	Poor contact exists between the primary charging roller of the indicated color and the high-voltage power supply. A primary charging roller has deteriorated. The high-voltage power supply is defective.	1 Reseat the image drum of the indicated color. 2 Check the high-voltage contacts between the image drum and the print engine. Check for continuity back to the high-voltage power supply. 3 Replace the image drum for the indicated color. 4 Replace the high-voltage power supply.

Ghosted image (98 mm)



Ghosted image (98 mm)

Ghosted image (140 mm)



Ghosted image (140 mm)

Table 65. Ghosted image

Description	Possible causes	Solution
<p>OPC ghost (ghosted image at 98 mm that can be a positive or negative ghost)</p>	<p>The OPC ground is poor.</p> <p>The primary transfer bias contact is poor.</p> <p>The high-voltage power supply is defective.</p>	<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane, and to isolate fuser ghosts (148 mm repeat) from OPC ghosts (98 mm repeat). Fuser ghosts will ghost into the third column of the print-quality troubleshooting page, and OPC ghosts will ghost into the second column of the print-quality troubleshooting page. 2 For an OPC ghost, remove and reseal the image drum for the indicated color. 3 Check the high-voltage contacts between the image drum and the print engine back to the high-voltage power supply. 4 Replace the image drum for the indicated color. 5 Replace the high-voltage power supply. <p>Note Some ghosting cannot be eliminated. In that situation, the customer can change the page layout to avoid the ghosted image.</p>
<p>OPC ghost (ghosted image at 140 mm that can be a positive or negative ghost)</p>		<ol style="list-style-type: none"> 1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane, and to isolate fuser ghosts (140 mm repeat) from OPC ghosts (98 mm repeat). Fuser ghosts will ghost into the third column of the print-quality troubleshooting page, and OPC ghosts will ghost into the second column of the print-quality troubleshooting page. 2 Make sure that media being used is within specifications. 3 Make sure that the media type setting on the control panel is appropriate for the media being used. 4 Remove the fuser assembly and check the rollers for contamination or damage. 5 Contamination might be removed by gentle cleaning with a soft cloth, or by printing a few blank pages. Run a fuser cleaning page (CONFIGURE DEVICE, PRINT QUALITY, PROCESS CLEANING PAGE). 6 Replace the fuser assembly if surface damage exists or contamination cannot be cleaned. <p>Note Always troubleshoot the other components in the printer for the original cause of the contamination or roller damage before installing a new fuser assembly.</p> <p>Note Some ghosting cannot be eliminated. In that situation, the customer can change the page layout to avoid the ghosted image.</p>

Distorted or misplaced image



Distorted or misplaced image

Table 66. Distorted or misplaced image

Description	Possible causes	Solution
Entire image is misplaced, distorted, or skewed on the page	The media is out of specification. Paper-path or feed problems exist. A tray is damaged or needs an adjustment. The laser scanner is faulty. The DC controller PCA is faulty.	1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane.
		2 If a media-feed problem is suspected, make sure that the media being used is within specifications.
		3 Check the paper path for obstructions, and check the feed rollers for damage.
		4 Feed media from different trays to isolate the problem.
		5 If the problem can be isolated to a single color plane with the print-quality troubleshooting pages, reseal the image drum for the indicated color.
		6 Replace the indicated laser scanner if necessary.
		7 Replace the DC controller PCA.

Poorly fused image

Poorly fused image (1 of 2)



Poorly fused image (2 of 2)

Table 67. Poorly fused image

Description	Possible causes	Solution
Image is poorly fused to the page (toner falls or rubs off in places)	<p>The media is out of specification.</p> <p>The PAPER TYPE setting is incorrect for the media being used.</p> <p>The fuser is faulty or damaged.</p> <p>The low-voltage power supply is faulty.</p>	<p>1 Make sure that the media being used is within specifications.</p> <p>2 Make sure that the media type setting on the control panel is appropriate for the media being used.</p> <p>3 Replace the fuser.</p> <p>4 Replace the low-voltage power supply.</p>

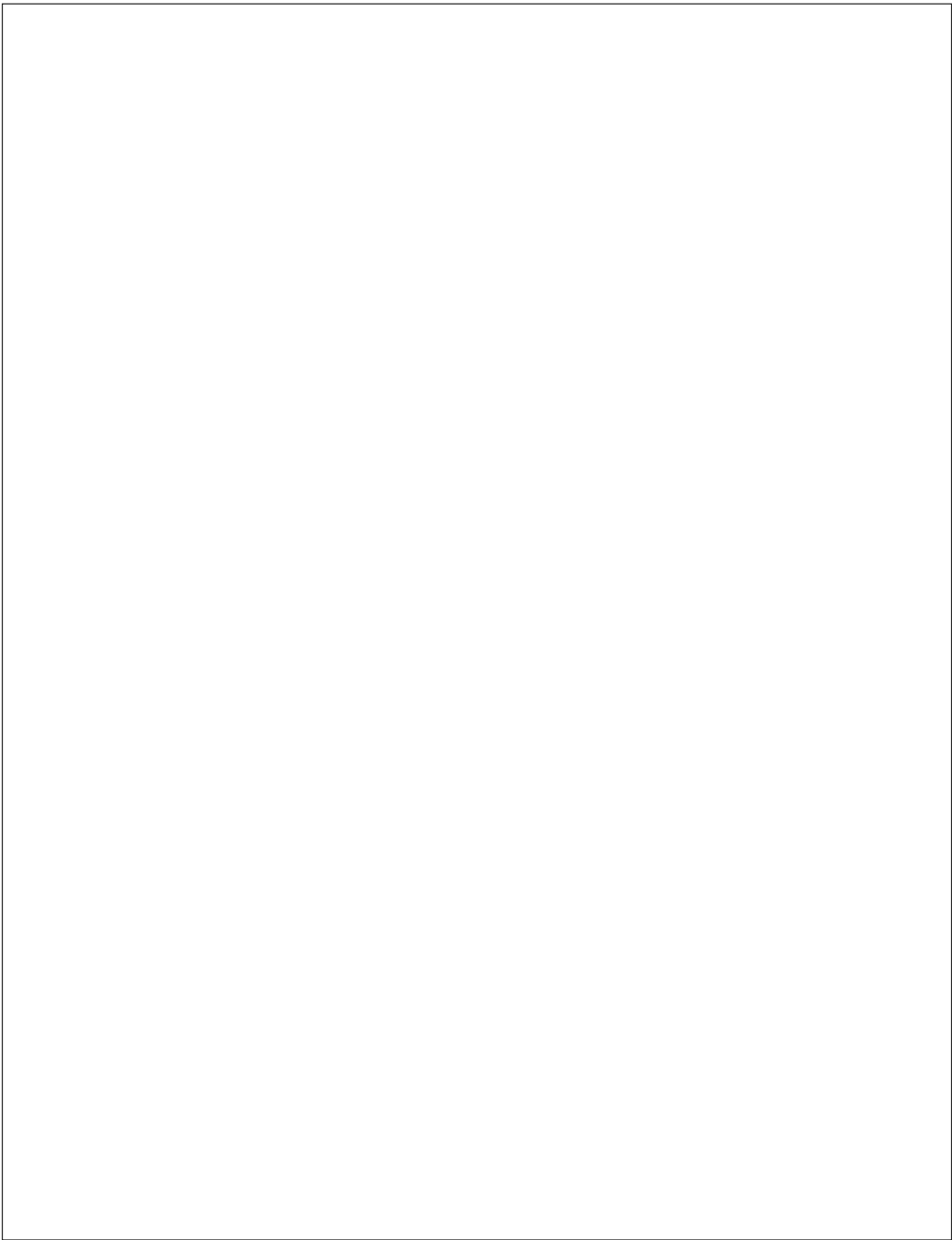
Missing color plane

Missing color plane

Table 68. Missing color plane

Description	Possible causes	Solution
Image prints with one primary color plane missing	Primary transfer (OPC to belt) of a particular color fails because: Primary transfer bias is missing. Image drum, primary charging, or developing biases are missing. A laser scanner is faulty or a laser path is blocked. The high-voltage power supply is faulty. The DC controller PCA is faulty.	1 Print a set of print-quality troubleshooting pages to isolate the problem to a single color plane. 2 Remove and reseal the image drum for the indicated color. 3 Check the high-voltage contacts between the indicated image drum and the print engine back to the high-voltage power supply. 4 Replace the image drum for the indicated color. 5 Remove and reseal the ITB. Check the primary transfer bias contacts for damage or corrosion. Check the ITB ground. Check the T1 roller of the indicated color for correct positioning and spring tension. 6 Replace the ITB if necessary. 7 Check the laser path between the laser scanner assembly and the image drum for blockage. 8 Check the connectors between the DC controller PCA and the indicated laser scanner assembly. Reconnect them if necessary. 9 Replace the laser scanner for the indicated color. Test the new laser with a laser alignment page, and adjust it if necessary. 10 Replace the high-voltage power supply. 11 Replace the DC controller PCA.

Blank



Blank

Table 69. Blank

Description	Possible causes	Solution
All pages are blank	The high-voltage power supply is defective.	1 Print a set of print-quality troubleshooting pages to eliminate the possibility of a communication, driver, or software program problem.
	The DC controller PCA is defective.	2 If the blank pages persist, replace the high-voltage power supply.
		3 Replace the DC controller PCA.

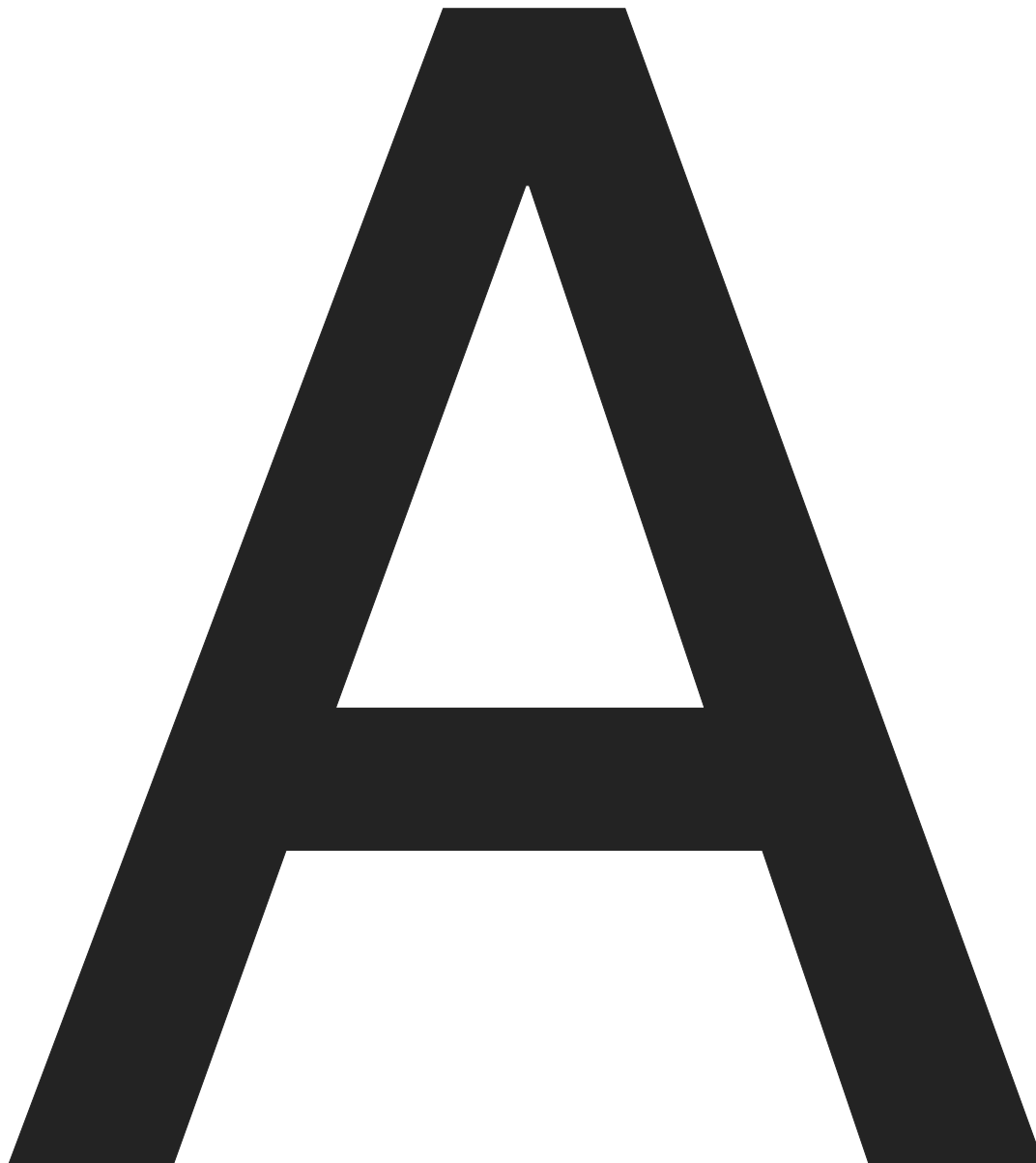
Hand or fingerprints

Hand or fingerprints

Table 70. Hand or fingerprints

Description	Possible causes	Solution
Clear finger and handprints appear on the printed page	Handprints or fingerprints exist on the ITB (possibly from installation or jam clearing).	This defect usually clears up by printing a few pages. Tell the customer to print 10 to 15 pages on lower-cost media, and to not touch the ITB.

Fine, yellow dot background

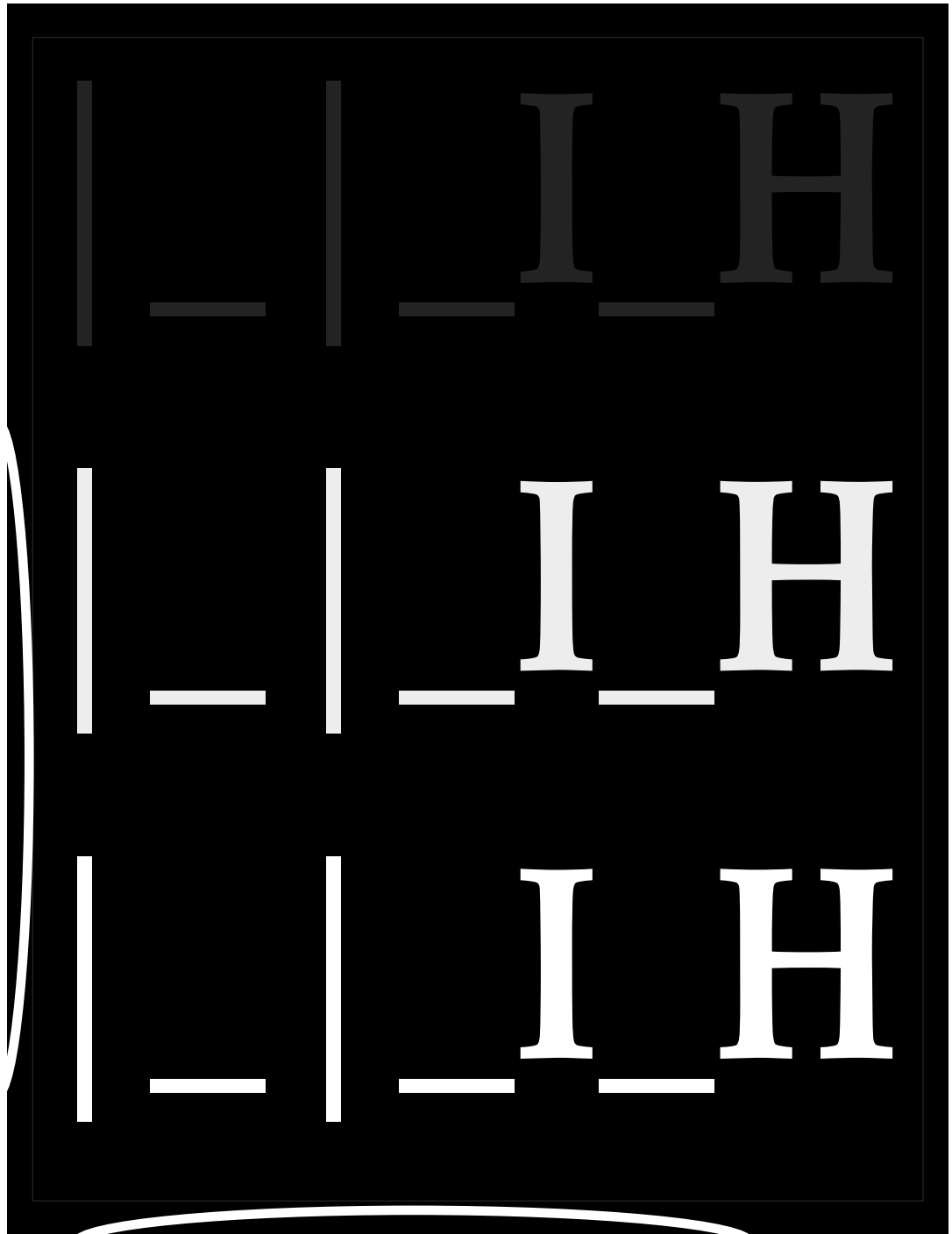


Fine, yellow dot background

Table 71. Fine, yellow dot background

Description	Possible causes	Solution
A fine, yellow dot pattern background on all printed pages	<p>The HP color LaserJet 9500 uses a yellow dot background for counterfeit tracking.</p> <p>It takes advantage of a less-noticeable yellow dot pattern to reduce banding (particularly at 47 mm from start of solid or heavy halftone fill).</p>	<p>If the 47 mm band countermeasure is undesirable, it can be turned off by using the control panel (CONFIGURE DEVICE, PRINT QUALITY, OPTIMIZE, HIGH COVERAGE 1, set to ON). The user might notice an increase in banding. See “High coverage 1” on page 371.</p> <p>Note The anti-counterfeiting pattern cannot be turned off.</p> <p>Note The yellow print cartridge has an extra measure of yellow toner so that the use of yellow dot patterns does <i>not</i> negatively affect the life of the yellow print cartridge.</p>

Toner halos or explosions occur around solid secondary colors



Toner halos or explosions

Table 72. Toner halos or explosions

Description	Possible causes	Solution
<p>Toner halos or explosions form in the white areas around solid, heavy coverage</p> <p>Toner halos or explosions might appear on the second side (page 1) of a duplexed page (usually in cases of low humidity)</p>	<p>Toner moves away from the solid fill at the time of secondary transfer.</p>	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications. 2 Make sure that the media type setting on the control panel is appropriate for the media being used. 3 Keep media wrapped until it is used. 4 Select colors that are lower coverage (lighter and closer to primary). 5 The customer might try different settings under PRINT QUALITY, OPTIMIZE, TRANSFER (DOWN or UP, depending on the media). Some testing might be necessary to find the optimal setting. <p>Note Onsite visits and parts replacement (such as printer parts and consumables) will not alleviate toner explosions.</p>

Control panel print-quality adjustments

















There are several control panel options that might help address some print-quality problems. These settings should be used with discretion and only after making sure that the media being used is supported, and that the appropriate media type is specified from the control panel.

T1 adjustment

The HP color LaserJet 9500 features automatic color calibration to provide high-quality color output. In some situations, you can manually adjust the density balance of the four primary toner colors. The available range for each color is from -5 to +5. The default value is 0.

Performing this procedure changes the color balance of the printer by altering primary transfer biases and affects *all* print jobs.

This procedure only has an affect on midtone colors. Solid or very light fills are not affected.











- 1 Press  to open the menus.
- 2 Use  or  to scroll to `CONFIGURE DEVICE`, and then press .
- 3 Use  or  to scroll to `PRINT QUALITY`, and then press .
- 4 Use  or  to highlight `ADJUST COLOR`.
- 5 Use  or  to highlight the desired color.
- 6 Use  or  to highlight the correct density setting.
- 7 Press  to select the density setting.
- 8 Press  to set the density for the next color.
- 9 After setting the density for each color, press .

The default values is 0 for each color, a greater negative number might result in lighter or less dense mid-tones for a particular color plane, and a greater positive number might result in darker or more dense mid-tones for a particular color plane.

T2 adjustment

These settings control T2 current to correct for media types with poor secondary transfer with the predefined media types.

When poor secondary transfer (light images) occurs, make sure that the media being used is supported and that the appropriate media-type setting is selected in the control panel. If these are correct, decrease the transfer setting (down 1 or down 2). This might result in a darker image, depending on the type of media. Some medias might experience better secondary transfer using the up 1 or up 2 setting.

- 1 Press  to open the menus.
- 2 Use  or  to scroll to `CONFIGURE DEVICE`, and then press .
- 3 Use  or  to scroll to `OPTIMIZE`, and then press .
- 4 Use  or  to scroll to `TRANSFER DOWN/UP`, and then press .

The T2 settings include:

```
TRANSFER DOWN 1=OFF/ON
TRANSFER DOWN 2=OFF/ON
TRANSFER UP 1=OFF/ON
TRANSFER DOWN 2=OFF/ON
```

It is possible to set `TRANSFER UP 1`, `2`, and `TRANSFER DOWN 1`, `2` to `ON` at the same time. The default is used (all `OFF`) in this situation.

Leading edge

The leading edge settings are used to compensate for poor transfer, missing toner, discharge marks, and mottled appearance on the leading edge. Try setting the printer to LEADING EDGE DOWN first. Depending on the type of media, you might get better results setting LEADING EDGE UP to ON. Switching LEADING EDGE DOWN and LEADING EDGE UP to ON decreases the T2 leading edge bias one step from nominal.

The settings include LEADING EDGE DOWN=OFF/ON (default value is OFF) and LEADING EDGE UP=OFF/ON (default value is OFF).

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to CONFIGURE DEVICE, and then press ✓.
- 3 Use ▲ or ▼ to scroll to OPTIMIZE, and then press ✓.
- 4 Use ▲ or ▼ to scroll to LEADING EDGE DOWN/UP, and then press ✓.

High coverage 1

The HP color LaserJet 9500 implements a very fine yellow dot pattern that eliminates most banding associated with a dry EP process. The dot patterns are controlled by the high coverage 1 and high coverage 2 settings. The default value is OFF for high coverage 1, high coverage 2, and high coverage 3.

High coverage 1 and high coverage 2 are not mutually exclusive. If both items are turned on, the yellow dots turn off.

High coverage 1 is designed for customers to turn off the yellow dot pattern. Perform the following steps to set high coverage 1:

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to CONFIGURE DEVICE, and then press ✓.
- 3 Use ▲ or ▼ to scroll to OPTIMIZE, and then press ✓.
- 4 Use ▲ or ▼ to scroll to HIGH COVERAGE 1, and then press ✓.

The settings include:

OFF: The yellow dots are in a 10-by-10 mm pattern for half-speed printing, and an 8-by-8 mm pattern for full-speed printing.

ON: The yellow dots are off.

High coverage 2

High coverage 2 is designed to reduce 47 mm bands in half-speed printing modes. If a line reoccurs every 47 mm from the start of a strip of color in half-speed printing modes, turn the item to ON. Otherwise, leave the item OFF. Perform the following steps to set high coverage 2:

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to CONFIGURE DEVICE, and then press ✓.
- 3 Use ▲ or ▼ to scroll to OPTIMIZE, and then press ✓.
- 4 Use ▲ or ▼ to scroll to HIGH COVERAGE 2, and then press ✓.

The settings include:











OFF: The yellow dots are in a 10-by-10 mm pattern for half-speed printing, and an 8-by-8 mm pattern for full-speed printing.

ON: The yellow dots are in an 8-by-8 mm pattern for half-speed printing and full-speed printing.

High coverage 3

High coverage 3 is designed to reduce 50 mm or 100 mm bands in full-speed print modes. The high coverage 3 setting eliminates 50 mm or 100 mm bands and the cardstock band (37 mm from the trailing edge of ledger and 115 mm from the trailing edge of letter for media heavier than 120 g/m²).

The bands are reduced by adjusting the OPC/ITB speed mismatch. If a line or band recurs at 50 mm or 100 mm intervals or 37 mm from the trailing edge of ledger and 115 mm from the trailing edge of letter on media larger than 120 g/m², turn this item ON.

- 1 Press  to open the menus.
- 2 Use  or  to scroll to CONFIGURE DEVICE, and then press .
- 3 Use  or  to scroll to OPTIMIZE, and then press .
- 4 Use  or  to scroll to HIGH COVERAGE 3, and then press .

The settings include:

OFF: speed mismatch of 101.5 percent (default)

ON: speed mismatch of 102 percent

Do *not* change this setting to ON unless the bands are very objectionable because as a result, 47 mm banding might increase.

Print-quality problems associated with jams

Make sure that all media is cleared from the paper path.

The media does not pass through the fuser, which causes image defects to appear on subsequent documents. Print two or three pages to clean the printer. If the problem persists, see the next section.

Print a fuser cleaning page. Press CONFIGURE DEVICE, then press PRINT QUALITY, and then press PROCESS CLEANING PAGE.

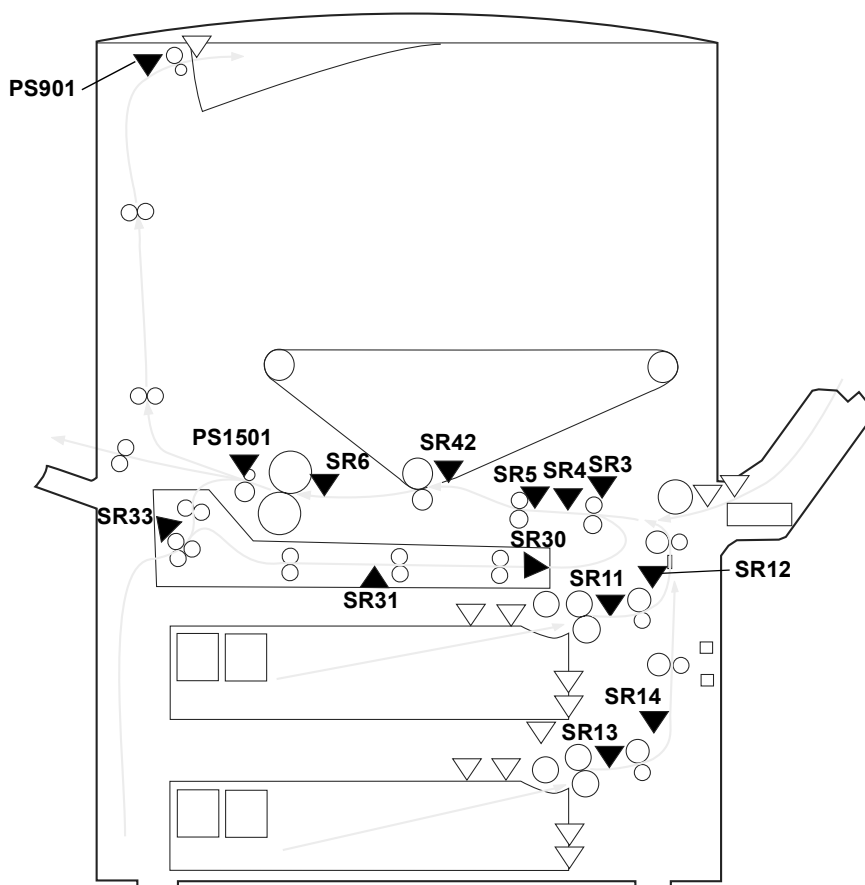
Media and paper-path troubleshooting tools

Before beginning media and paper-path troubleshooting, check that the media meets the specifications listed in “Media specifications” on page 31 in chapter 1. Also, on the control panel make sure that the appropriate media type is set to support the media being used. Out-of-specification, poor quality, and incorrect media handling can cause jams and image defects.

Problems with print media are sometimes difficult to detect. Follow a standard troubleshooting procedure to help isolate media-related problems. Follow these steps:

- Determine the problem source: print media or printer (page 378)
- Isolate the source of the jam (page 379)
- Isolate a media brand (page 380)
- Isolate a media type (page 380)
- Space requirements (page 27) in chapter 1
- Engine test button (page 321)
- Stored and loaded correctly (page 39) in chapter 1
- Media specifications (page 31) in chapter 1

Paper path jam sensors



Paper path jam sensors

Table 73. Paper path jam sensors

Sensor	Sensor name	Sensor	Sensor name
SR3	Registration sensor	SR14	Tray 3 sensor B
SR4	Transparency motor	SR30	Duplexer media re-feed sensor
SR5	Multifeed sensor	SR31	Duplexer media path sensor
SR6	Fuser input sensor	SR33	Duplexer reverse sensor
SR11	Tray 2 sensor A	SR42	T2 input sensor
SR12	Tray 2 sensor B	PS901	Face-down output sensor
SR13	Tray 3 sensor A	PS1501	Fuser output sensor

Action for all media jams includes removing the media, checking the flags, testing the sensor with diagnostics, and checking the connectors from the sensor to the DC controller using the wiring diagram.

The printer reports jams as 13 errors. These are described in detail in the numerical error message section of this chapter. See “Numerical error messages” on page 400.

Table 74. Media jams by location

Jam location	Description	Name	Message	Action
All doors	A door open jam is reported if the following sensors detect media when a door is opened or closed: Tray 2 sensor A (SR11) Tray 2 sensor B (SR12) Tray 3 sensor A (SR13) Tray 3 sensor B (SR14) Registration sensor (SR3) Fuser output sensor (PS1501) Face-down output sensor (PS901)	Door open jam	13.05.00 JAM INSIDE PAPER PATH	<ol style="list-style-type: none"> 1 Close all of the doors. 2 Clear the jam. 3 Check the front door interlock switches and all of the connections.
Input accessory or lower right door	Late media from input accessory.	Late media from input accessory	13.20.JJ JAM INSIDE PAPER PATH	<ol style="list-style-type: none"> 1 Open tray 4 and the right side door to check for jammed media. 2 Check the paper path between tray 4 and the printer. 3 Check the tray-size guides. 4 Replace the pickup, separation, or feed rollers.
Input unit or lower right door	The media is detected by tray 2 sensor A and tray 2 sensor B after recovering from sleep mode or when the printer is turned on.	Residual media jam in media path 2	13.32.00 JAM INSIDE PAPER PATH or 13.32.00 JAM INSIDE LOWER RIGHT DOOR	<ol style="list-style-type: none"> 1 Check the indicated tray. 2 Check the tray-size guides. 3 Open the lower right door and remove the jammed media.

Table 74. Media jams by location (continued)

Jam location	Description	Name	Message	Action
Lower right door or pickup unit	The media did not reach the tray 2 sensor B within a specified amount of time. The media did not reach the tray 3 sensor B within a specified amount of time.	Media delay jam at media feed area 1	13.01.00 JAM INSIDE LOWER RIGHT DOOR or 13.01.00 JAM IN TRAY X	<ol style="list-style-type: none"> 1 Check the indicated tray or open the lower right door. 2 Remove the jammed or loose media. 3 Check the tray-size guides. 4 Replace the pick, separation, or feed rollers.
Upper right door	The media from any input source did not reach the registration sensor within a specified amount of time.	Media delay jam at media feed area 2	13.03.00 JAM INSIDE UPPER RIGHT DOOR or 13.03.00 JAM INSIDE LOWER RIGHT DOOR	<ol style="list-style-type: none"> 1 Open the tray 1 door (ITB access) and remove the jammed media. 2 Make sure that the tray 1 door is completely closed. 3 Check the paper path and tray 1 for damage. 4 Check for media in the lower right door area.
Upper right door	The multifeed sensor detects a stack height of more than 0.5 mm (0.019 inch)	Multifeed jam	13.15.00 JAM INSIDE UPPER RIGHT DOOR	<ol style="list-style-type: none"> 1 Check the registration area for jammed media. 2 If the job is multifeed, check for supported media, and check the pick, separation, and feed rollers in the source tray. 3 If the media is fed from tray 1, check the separation pad. 4 Check the registration rollers for correct functionality.
Upper right door	The registration sensor (SR3) indicates that media fed from tray 1 is longer than what is specified by the formatter.	Too long media jam	13.06.00 JAM INSIDE UPPER RIGHT DOOR	<ol style="list-style-type: none"> 1 Remove the media from tray 1. 2 Open the ITB access door and remove the jammed media. 3 Check for supported media and correct-size specification on the control panel.
Upper right door, lower left door, or front doors	The T2 upstream sensor, fuser upstream sensor, or fuser output sensor detect media when the door is closed.	Residual media in media path 1	13.20.00 JAM INSIDE PAPER PATH	<ol style="list-style-type: none"> 1 Remove any residual media near T1 and the fuser. 2 Check the three sensors for correct movement and functionality. 3 Make sure that the fuser, ITB, and T2 roller are seated correctly.

Table 74. Media jams by location (continued)

Jam location	Description	Name	Message	Action
Upper right door or front doors	A page did not reach the fuser upstream sensor within a specified amount of time.	ITB wrap jam	13.1D.00 JAM INSIDE PAPER PATH	<ol style="list-style-type: none"> 1 Remove the ITB and check for residual media. Make sure that the ITB is seated correctly and the green lever is moved to the correct position. 2 Check the fuser upstream sensor for missing flag or poor movement. 3 Check for supported media. 4 Check the discharge comb area for damage or contamination.
Lower left door	The fuser output sensor detects media after a specified amount of time.	Media stay jam at the fuser unit	13.06.00 JAM INSIDE LOWER LEFT DOOR or 13.06.00 JAM INSIDE PAPER PATH	<ol style="list-style-type: none"> 1 Check for residual media inside and near the fuser. 2 Remove the fuser and check the exit sensor for correct movement and functionality. 3 Check the fuser rollers for damage or contamination. 4 Check the post fuser paper path for jams. 5 Reseat the fuser.
Upper right door or front doors	The media did not reach the fuser output sensor within a specified amount of time.	Media delay jam at the fuser unit	13.05.00 FUSER JAM LOWER LEFT DOOR or 13.05.00 JAM INSIDE FRONT DOOR	<ol style="list-style-type: none"> 1 Remove the duplexer. 2 Remove the fuser. 3 Check the post secondary transfer area and the fuser inlet area.
Upper right door or lower left door	The printer detects media wrapping around the fuser roller.	Fuser wrap jam	13.1C.00 FUSER JAM LOWER LEFT DOOR	<ol style="list-style-type: none"> 1 Check for supported media and media-type settings on the control panel. 2 Check for residual media inside and near the fuser. 3 Remove the fuser and check the exit sensor for correct movement and functionality. 4 Check the fuser rollers for damage and contamination. 5 Check the post fuser paper path for any obstruction. 6 Reseat the fuser.

Table 74. Media jams by location (continued)

Jam location	Description	Name	Message	Action
Lower left door	The media did not reach the switchback sensor within a specified amount of time.	Media delay jam at the reversing area	13.11.00 JAM INSIDE LOWER LEFT DOOR or 13.10.00 JAM INSIDE DUPLEXER	<ol style="list-style-type: none"> 1 Check the seating of the duplexer, fuser, and fuser access door. 2 Check the face-down and duplexer diverters for correct functionality. 3 Check the fuser and duplexer area feed roller driver trains.
Lower left door	The switchback sensor detects media after a specified amount of time.	Media stay jam at the media reversing area	13.11.00 JAM INSIDE LOWER LEFT DOOR or 13.11.00 JAM INSIDE DUPLEXER	<ol style="list-style-type: none"> 1 Remove the duplexer and check for residual media. 2 Check the seating of the duplexer, fuser, and fuser access door. 3 Check the face-down and duplexer diverters for correct functionality. 4 Check the fuser and duplexer area feed roller driver trains.
Lower left door or duplexer	The media did not reach the duplex delivery sensor within a specified amount of time.	Media delay jam at the media path to the duplexer	13.12.00 JAM INSIDE DUPLEXER	<ol style="list-style-type: none"> 1 Remove the duplexer. 2 Check the inside of the duplexer and the duplexer cavity for residual media. 3 Check the duplex delivery sensor for correct movement and functionality. 4 Check the registration guides for correct movement. 5 Check the feed rollers and drive gear trains for damage.
Lower left door or duplexer	The duplex delivery sensor detects media after a specified amount of time.	Media stay jam at the media path to the duplexer	13.13.00 JAM INSIDE DUPLEXER	<ol style="list-style-type: none"> 1 Remove the duplexer. 2 Check the inside of the duplexer and the duplexer cavity for residual media. 3 Check the duplex delivery sensor for correct movement and functionality. 4 Check the registration guides for correct movement. 5 Check the feed rollers and drive gear trains for damage.

Table 74. Media jams by location (continued)

Jam location	Description	Name	Message	Action
Lower left door or duplexer	The duplex stay sensor detects media when the doors are closed.	Duplexing stay jam (re-feed)	13.29.00	<ol style="list-style-type: none"> 1 Remove the duplexer. 2 Check the inside of the duplexer and the duplexer cavity for residual media. 3 Check the duplex delivery sensor for correct movement and functionality.
Lower left door	The media did not reach the face-down output sensor within a specified amount of time.	Media delay jam at the face-down tray	13.09.00 JAM INSIDE LOWER LEFT DOOR or 13.09.00 JAM INSIDE UPPER LEFT DOOR	<ol style="list-style-type: none"> 1 Check the face-down output sensor for correct movement and functionality. 2 Check the face-down and duplex diverters for correct functionality. 3 Check for deformed or misaligned delivery rollers. 4 Check the delivery feed assembly drive gear train. 5 Make sure that the upper and lower left doors are completely closed.
Lower left door or output unit	The face-down output sensor detects media after a specified amount of time.	Media stay jam at face-down tray	13.0A.00 JAM INSIDE TOP OUTPUT BIN or 13.0A.00 JAM INSIDE UPPER LEFT DOOR	<ol style="list-style-type: none"> 1 Check for residual media near the face-down output sensor. 2 Check for obstructions in the paper path. 3 Check the feed rollers and drive gear trains for damage.
Upper left door or output unit	The face-down output sensor detects media after performing an auto-flush.	Residual media in media path 3 jam	13.3E.00 JAM INSIDE TOP OUTPUT BIN or 13.3E.00 JAM INSIDE UPPER LEFT DOOR	<ol style="list-style-type: none"> 1 Check for residual media near the face-down output sensor. 2 Check for obstructions in the paper path. 3 Check the feed rollers and drive gear trains for damage.

Determine the problem source: print media or printer

When determining the cause of a printer failure, make a distinction between problems that relate to the printer and problems that involve print media. Often a problem that seems to be related to the printer is actually a matter of poor print-media selection or handling. To determine whether a problem is caused by the printer or by the media, try a few simple steps to remedy the situation:

Turn the media over in the tray to print on the reverse side.

Rotate the sheets 180 degrees (end to end) to feed with a different leading edge.

If the symptoms cease or change, assume that the problems are caused by the print media.

Using the straightest paper path

Some problems can be avoided by using the straightest available paper path. Usually this means media feeds from tray 1, and exits into the face-up bin. This path is recommended for envelopes and labels.

Determine if problem is caused by the duplexing process

Media that has just made a pass through the printer can show increased media curl. Media curl increases image dropout, and creates pickup and stacking problems. When the second pass is made, print media might not meet the specifications for moisture and curl. Dry media can hold static charges that affect print quality and stacking of the duplexed page. Media shrinkage resulting from a second pass through the printer can cause image misalignment on the duplexed page.

Isolate the source of the jam

Define the source of the media that jams.

Determine where media jams occur

Check where the leading edge of the media stops when a jam occurs.

Determine whether the printer is experiencing misfeeds or multifeed jams

The following are some possible causes of misfeeds or multifeed jams:

- The media might be too heavy or too light. Check basis weight and measure caliper. See “Basis weight field test” in chapter 1.

- The media might be too smooth. Check the finish.

- The customer might be attempting to print embossed media, pre-printed forms, or perforated media that does not meet HP specifications. See “Media specifications” in chapter 1.

- The media might be loaded incorrectly. Turn over the sheets in the tray to determine if in-ream curl is causing misfeeds.

- The customer might be fanning media before loading it into the tray.

- The customer might be adding media in small amounts. Do not add small amounts of media or mix types of media in the tray.

- The printer or media storage environment might be too humid or too dry. See “Storing print media” in chapter 2.

Print-quality problems associated with media

Use media that meets HP specifications. See “Supported media and capacity for input and output” on page 32 in chapter 1

- The media that you are using is too heavy or too light for the printer.

- The driver/printer is set incorrectly. Change the media-type setting to match the media the customer is using.

- The media is excessively rough. Use a smoother, xerographic media.

- The moisture content of the media is uneven, too high, or too low. Use media from a different source or from an unopened ream of media.

- The media is designed for inkjet, offset press, or another program. Make sure that the media is for laser or xerographic programs.

- The transparencies that you are using are not designed for the HP color LaserJet 9500. Use only transparencies that are designed for HP color LaserJet printers.

Isolate a media brand

If the printer jams with only one brand of media, try to remedy the situation:

- Try switching media brands.

- If the media ream in use appears to be old, open a fresh ream of the same media and load it correctly into the printer. If the problem disappears, investigate storage and handling conditions.

Isolate a media type

When jams and other problems occur frequently, it is often because the customer is using a special media. Customers must only use print media that conforms to all Hewlett-Packard specifications, and should always test media before purchasing large quantities. Media should be tested before storage to verify quality printing results. Then, if problems arise, storage or handling conditions can isolate the most likely cause. Some types of media that might cause problems include the following:

- adhesive labels
- envelopes
- transparencies
- preprinted forms and letterhead
- embossed media
- perforated media
- chemically treated media
- synthetic media
- coated media
- other special media

See “Media specifications” on page 31 in chapter 1 for more information about these types of media.

Media will not feed from tray x when printing from a software program; the paper-path test works fine

Make sure that the correct media size is set:

- all trays: from the control panel
- tray 2, tray 3, or tray 4: reset the media guides in the correct position in the failing tray
- make sure that the custom-size switch setting is correct

Wrinkling envelopes

- make sure that the input tray is tray 1
- make sure that the output destination is the face-up bin
- place the fuser levers in the up position and retry the envelopes
- try new media (make sure that the envelopes are within specifications; see “Media specifications” on page 31 in chapter 1)

Poor fusing

- make sure that the fuser levers are in the down position for cut sheet media
- make sure that all packing spacers are removed from inside the printer
- try new media (make sure that the media is within specifications; see “Media specifications” on page 31 chapter 1)
- make sure that the proper fusing mode for the media is set in the control panel
- make sure that the ac power does not fluctuate out of range during the print cycle

Overhead transparency defects

Overhead transparencies can experience any of the image-quality problems that other type of media can, in addition to defects that are specific to transparencies. In addition, because transparencies are pliable as they pass through the paper path, they can be marked by the media-handling components.

Allow transparencies to cool at least 30 seconds before handling them.

In the printer driver **Paper** tab, select **Transparency** as the media type. Also, make sure that the tray is correctly configured for transparencies.

Check that the transparencies meet the specifications for this printer. See “Supported media and capacity for input and output” in chapter 1. For more information, see the *HP LaserJet Printer Family Print Media Guide*.

Handle transparencies by the edges. Skin oil on the surface of transparencies can cause spots and smudges.

Small, random dark areas on the trailing edge of solid fill pages might be caused when transparencies stick together in the output bin. Try printing the job in smaller batches.

If the selected colors are not what you expected when printed, select different colors in the software program or printer driver.

If you are using a reflective overhead projector and the images are too dark when projected, use a standard overhead projector instead.

Jams occur when media either does not reach or move past a sensor along the paper path in a specific amount of time. If a jam occurs, a 13.XX PAPER JAM message appears on the control panel.

Media jam

Jams occur most often when the following conditions exist:

- media trays are not loaded correctly
- the print media does not meet the specifications listed in the *HP LaserJet Printer Family Print Media Guide*
- the media is in poor condition
- the printer needs to be cleaned

If a jam occurs, a 13.XX PAPER JAM message appears on the control panel. For detailed descriptions of the 13.XX messages and the actions recommended to resolve the errors, see “Numerical error messages” on page 400.

The following table provides some basic information about general jam troubleshooting.

Table 75. General jam troubleshooting

Check	What to do
	Verify the frequency of the jam with the customer. Print or display the event log to determine jam history. See “Event log page” on page 386.
	See “Engine test button” on page 321 and “Sensor test (interactive)” on page 311 to isolate the problem.
	See “Engine test button” on page 321 and “Sensor test (interactive)” on page 311 to isolate the problem.

Table 75. General jam troubleshooting

Check	What to do
	Make sure that the media-type setting matches the media being used. Try known good media. See the <i>HP LaserJet Printer Family Print Media Guide</i> .
	Attempt to duplicate the jam. See “Engine test button” on page 321. Inspect the paper path and all paper-path mechanical assemblies that are in advance of the leading jam.
	Observe the customer while he or she loads the media. See proper media-handling procedures in the <i>HP LaserJet Printer Family Print Media Guide</i> .
	Make sure that the media level is <i>not</i> above the maximum fill marks in the media trays. Observe the customer while he or she loads media in the trays.
	Make sure that the tray 2 and the tray 3 media guides are set correctly on all sides. For tray 4, make sure that all adjustments are set correctly (front, back, and side at the top and bottom of the tray).
	Check the paper path and paper-path rollers.
	Were the pick and separation rollers replaced with the transfer kit?
	Make sure that the switch is set correctly for the media selected.

Customer print job

Ask the customer to send a print job from the problem source(s) to the problem destination(s). Try to recreate the jam errors by having the customer perform a paper-path test. See “Engine test button” on page 321.

When verifying print jobs, make sure that all of the settings are selected to reflect the customer's preferences. Keep in mind that the software program settings take priority over driver settings, which take priority over the control panel settings. If a single setting is not present in the software program, but is set in the driver, the driver setting overrides the control panel settings.

HP Web Jetadmin can override media types and sizes in certain conditions. See the *HP LaserJet 9500 Series Printer User Reference Guide* for more information.

Clearing jams

Open and close all of the printer covers to clear control panel message. After removing a sheet of media, you might need to check other areas for the presence of other media.

All portions of a jammed piece of media must be removed or you might experience repeated jams.

If the jam persists, make sure that you have located and removed all scraps of media from inside the printer.

Clearing repeated jams

- 1 Make sure that the media is loaded correctly in trays and that all width guides are set correctly (not skewed).
- 2 Try turning over the stack of media in the tray. If you are using letterhead media, try printing from a different tray.

- 3 Do *not* use previously printed media or torn, worn, or irregular media.
- 4 Check the media specifications. If it is outside of the recommended specifications, problems might occur. See the *HP LaserJet Printer Family Print Media Guide*.
- 5 The printer might be dirty. See “Cleaning the printer and accessories” on page 93.

Tests for troubleshooting paper-path problems

The following tests are useful in troubleshooting paper-path and media-related problems.

Print stop test

See “Print stop test” on page 320 for more information.

Paper-path test











See “Paper-path test (and automatic sensors test)” on page 310 for more information.

Sensor test

See “Sensor test (interactive)” on page 311 for more information.

Tray alignment adjustment

Use this menu item to adjust the front-to-back (duplex) alignment of the four margins.

- 1 Press  to open the menus.
- 2 Use  or  to scroll to `CONFIGURE DEVICE`, and then press .
- 3 Use  or  to scroll to `PRINT QUALITY`, and then press .
- 4 Use  or  to scroll to `SET REGISTRATION`, and then press .
- 5 Follow the printed instructions.

Noise troubleshooting tools

Try to isolate the origin of the noise by using the various hardware diagnostics and component tests on page 309. Each component test (such as motors, solenoids, and clutches) can be run individually to see if the noise is associated with a particular component part.

Try to determine when the noise occurs by printing from different input sources, changing the duplex option, and selecting a different tray. This might isolate the noise to a particular part or stage in the printing process.

It is normal for the fuser to make a cracking or popping noise when the printer is turned on and off. This sound results from the fuser rollers separating when the printer is turned off and pressurizing when the printer is turned on. The sound might also occur after a media jam. The fuser rollers separate when the printer is turned off and after a jam to avoid flat spots on the fuser rollers and to facilitate clearing a jam.

Make sure to read the exact text of the control panel message, including the error message number and the text, in order to locate the error message in the error tables. This control panel stores enhanced information.

Messages that appear on the control panel provide six categories of information. Each message category is assigned a priority. If more than one condition occurs at the same time, the highest priority message appears. When it is cleared, the next priority message appears, and so on. The following are messages and their priorities:

Status messages—Status messages communicate the current state of the printer. Whenever the printer is ready and online, the printer status message `READY` appears unless warning messages are pending. When the printer is performing a task, such as a reset or a test, the associated printer status message appears. When the task is complete, the message returns to `READY` or `PAUSED`, depending on the current state of the printer.

Warning messages—Warning messages are messages that are important enough that the user must acknowledge them, but not serious enough to cause the printer to stop the printing process. They are usually transient in nature but they can affect the output, and so a record of their occurrence is important. Warnings generally alternate with the `READY` (or `PAUSED`) status message and remain on the control panel until the user presses `✓`. Warnings appear in most-recent order (FIFO) with duplicates removed.

Error messages—Error messages communicate to the customer that some action must be performed, such as adding media or clearing a jam. Some errors are considered auto-continuable, because the error message appears on the control panel for 10 seconds, and then the printer clears the message and continues normal operation. Pressing a control panel key during the 10-second period cancels the auto-continue feature and initiates the function of the key that was pressed. Error messages are limited to 19 seven-bit characters (or 9 two-byte characters) per line up, and to two lines. Unlike status and warning messages, error messages stop the printing process. The customer has to either fix the problem or give the printer a different command. If the customer can continue past the error conditions without actually fixing the problem, then the customer should be able to perform the task by pressing `✓`. If only one option is available when the customer presses `✓`, printing should continue by applying the option shown. If more than one option is available when the customer presses `✓`, the options are listed with the most logical option listed first and highlighted.

Critical error messages—Critical error messages communicate printer failures to the customer. Generally, turning power off and then on is required for the printer to resume normal operation. If the critical error persists, the printer might require service and the customer must request a service call. Critical errors are not auto-continuable.

Output device warning messages—These messages are similar to the warning messages described previously, except that they relate to the output device. By default, the message is all that appears if the output device does not provide any additional help. The prompt at the bottom of the control panel does not appear.

Output device error messages—These messages are similar to the error messages that are described above, except that they relate to the output device. By default, the message is all that appears if the output device does not provide any additional help. The prompt at the bottom of the control panel does not appear.

Control panel and event log message format

The control panel messages have the following format:

```
13.XY.ZZ JAM INSIDE DUPLEXER
40 EIO X BAD TRANSMISSION
```

The equivalent event log messages have the following format:

```
3 0 13.xy.zz JAM INSIDE DUPLEXER
1 0 40.00.00 0 EIO X BAD TRANSMISSION
```

Print a configuration page to identify the input or output device that is configured. Notice that the error format only identifies the Jet-Link device number and the device type; it does not identify the input or output device.

Event log page

Use the event log to diagnose and troubleshoot printer errors and intermittent failures. You can print or show the event log from the control panel (select `PRINT EVENT LOG` or `SHOW EVENT LOG`).








The event log is a first in, first out (FIFO) ordered listing of the last 50 events. The printed event log is printed in four columns that show event number, page count, error code, and description or personality. The description or personality gives detail to the error messages. This information is more useful for troubleshooting.

The following items are tracked and shown on the event log:

- critical errors (some errors that do not appear on the control panel)
- jams
- sensors sensing out of range
- unexpected media size
- complex pages
- buffer overflow

Print an event log

The printer internal event log stores the 50 most recent events, and can be printed at any time. To print the event log:

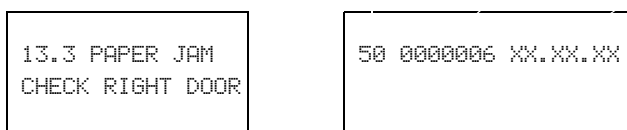
- 1 Press  to open the menus.
- 2 Use  or  to scroll to `DIAGNOSTICS`, and then press .
- 3 Use  or  to scroll to `PRINT EVENT LOG`, and then press .
- 4 The event log prints. The message `PRINTING EVENT LOG` appears on the control panel.

Show an event log

Using the event log that appears on the control panel, the customer can scroll through the contents of the event log from the control panel. Select this to show the 50 most recent events, with the most recent listed first. Use ▲ or ▼ to scroll through the event log contents. If the event log is empty, the message EVENT LOG EMPTY appears on the control panel.

Follow these steps to show the event log:

- 1 Press ✓ to open the menus.
- 2 Use ▲ or ▼ to scroll to DIAGNOSTICS, and then press ✓.
- 3 Use ▲ or ▼ to scroll to SHOW EVENT LOG, and then press ✓.
- 4 The event log appears on the control panel.



Example of events on the event log

Whenever a 13.XX message appears on the control panel, a good practice is to clear the jammed media from the printer, press [Stop] to stop printing, and print the event log. Even if you cannot print the event log, you can read it on the control panel by using the above steps to display an event log.

Interpret an event log

Each individual entry in the log is called an “event,” while all errors occurring at the same page count are called an event.

Use the numerical error message table to associate errors in the event log with the control panel error message. For each error or event, follow the recommended action that is listed in the numerical error message table starting on page 400.

- 1 Check the event log for specific error trends in the last 10,000 printed pages.
- 2 Ask the customer for any observed error trends. (For example, do jams tend to occur in a specific area of the printer?)
- 3 Record any specific error trends.

Sample event log page

hp color LaserJet 9500 printers



event log page

1

Current Page Count: 110 Serial Number: 0060251114

Number	Page Count	Event	Description or Personality
50	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
49	4720	59.10.00	Printer Error
48	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
47	4720	59.10.00	Printer Error
46	4722	59.11.00	Printer Error
45	4720	59.10.00	Printer Error
44	4720	59.10.00	Printer Error
43	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
42	4720	59.10.00	Printer Error
41	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
40	0	59.10.00	Printer Error
39	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
38	4720	59.10.00	Printer Error
37	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
36	4720	59.10.00	Printer Error
35	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
34	4720	59.10.00	Printer Error
33	4720	59.10.00	Printer Error
32	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
31	4720	59.10.00	Printer Error
30	4720	13.11.07	EXTERNAL INPUT DEVICE PAPER JAM
29	4720	59.10.00	Printer Error
28	4720	59.10.00	Printer Error
27	4720	13.32.00	PRINTER COULD NOT AUTOMATICALLY EJECT PAPER
26	4721	59.10.00	Printer Error
25	4720	59.10.00	Printer Error
24	4720	59.10.00	Printer Error
23	4720	59.10.00	Printer Error
22	0	59.10.00	Printer Error
21	4539	59.10.00	Printer Error
20	4350	59.10.00	Printer Error
19	4353	59.10.00	Printer Error
18	4330	13.20.00	PRINTER COULD NOT AUTOMATICALLY EJECT PAPER
17	4332	59.10.00	Printer Error
16	4160	59.10.00	Printer Error
15	4160	59.10.00	Printer Error
14	4160	59.10.00	Printer Error
13	4160	59.10.00	Printer Error
12	4160	59.10.00	Printer Error
11	4160	59.10.00	Printer Error
10	4160	59.10.00	Printer Error
9	4160	59.10.00	Printer Error
8	4160	59.10.00	Printer Error
7	4160	59.10.00	Printer Error
6	4160	59.10.00	Printer Error
5	4167	49.210A	Image Drum HV
4	4167	59.10.00	Printer Error
3	3630	54.30.00	Printer Error
2	3630	59.10.00	Printer Error
1	3611	13.20.00	PRINTER COULD NOT AUTOMATICALLY EJECT PAPER

Sample event log page

Error message interpretation

Messages appear on the control panel to indicate printer operation errors. Within the groupings listed below, the alphabetical error messages are listed first, followed by the numerical error messages.

Make sure to check all of the connections and the connectors if an error message appears soon after repairing the printer.

Perform the following steps if a message appears that is not listed in this section:

- turn the printer off, and then turn the printer on again
- make sure that the newest DC controller, formatter, and paper-handling firmware are loaded in the printer
- perform an engine test (page 321) without the formatter installed to isolate the problem to the engine or the formatter

Alphabetical error messages

Table 76. Alphabetical error messages

Message	Description or explanation	Recommended action
ACCESS DENIED MENUS LOCKED	The printer control panel function that you are trying to gain access to is locked to prevent unauthorized access.	See the network administrator for the correct password.
BAD DUPLEXER CONNECTION	The duplexer is not connected correctly to the printer.	<ol style="list-style-type: none">1 Turn the printer off and remove the duplexer.2 Make sure that the duplexer is for the HP color LaserJet 9500 (there should <i>not</i> be a fan installed in the duplexer).3 Turn the printer on and check for other error messages.4 Check the electrical contacts on the duplexer and on the printer for damage or obstructions.5 Turn the printer off.6 Reinstall the duplexer and then turn the printer on again.7 If the error persists, check connector J124 on the DC controller PCA.8 Check connector J1 on the low-voltage power supply, J201 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA.9 Replace the duplexer.
<BINNAME> FULL	The specified bin is full and must be emptied for printing to continue. This should be considered a warning if a job is not pending for output to the full bin. When a job is sent to the full bin, it becomes an error.	<ol style="list-style-type: none">1 Empty the bin to continue printing.2 If the bin is empty, inspect the tray-full sensor flag for damage. Also, make sure that the flag moves smoothly.3 Check connector J901 on the face-down delivery PCA, and connector J821 on the DC controller PCA.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
CHECKING PAPER PATH	The engine is rotating its rollers to check for possible jams and to clear them automatically.	No action is necessary.
CHECKING PRINTER	The engine is performing an internal test.	<ol style="list-style-type: none"> 1 No action is usually necessary. 2 If the printer stops when the message CHECKING PRINTER appears, turn the printer off and then turn the printer on again. Also, perform the following: <ul style="list-style-type: none"> • Check the entire paper path for residual media, and remove any media that is found. • Check the paper-path sensors for correct movement and functionality. • Turn the printer off, remove all optional devices (such as EIOs, extra memory, finishing devices, and high-capacity inputs), and then turn the printer on again. • Perform an engine test <p style="text-align: center;">without the formatter installed to isolate the problem to the engine or to the formatter.</p>
CHOSEN PERSONALITY NOT AVAILABLE alternates with READY	A print job requested a printer language (personality) that is not available with this printer. The job is not printed and is cleared from memory.	Print the job by using a printer driver for a different printer language, or add the requested language to the printer (if available).
CLEAN POST CHARGER	<p>The post charger requires cleaning. This warning message is prompted when the REPLACE BLACK CARTRIDGE message is cleared and the black cartridge count is reset. Printing should continue when this message appears.</p> <p>When the user opens the upper right door or cycles power when this message appears, the control panel should pop to the menu item CHARGER CLEANED in the RESETS submenu.</p>	<ol style="list-style-type: none"> 1 Clean the post charger. See in chapter 4. 2 Select YES when prompted about having cleaned the post charger.
CLEARING PAPER PATH	The printer jammed, or the printer is turned on and media is detected in the printer path. The printer is automatically attempting to eject the pages.	No action is necessary.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
CLOSE FRONT OR LOWER LEFT DOOR	The front left or left side lower doors are open.	<ol style="list-style-type: none"> 1 Close the front left or the left side lower doors to continue printing. 2 If the door was open when the printer was turned on, close the door, turn the printer off, and then turn the printer on again. 3 Make sure that the interlock switch and the sensor flag are functioning correctly. Replace them if necessary. 4 Check connector J1701L on the left door switch, intermediate connector J3018, and connector 821 on the T driver PCA.
CLOSE FRONT OR UPPER RIGHT DOOR	The front or upper right doors are open.	<ol style="list-style-type: none"> 1 Close the right front or the right side upper door to continue printing. 2 If the door was open when the printer was turned on, close the door, turn the printer off, and then turn the printer on again. 3 Make sure that the interlock switch and the sensor flag are functioning correctly. Replace them if necessary. 4 Check connector J1701R on the right door switch, intermediate connector J3085, and connector 809 on the T driver PCA.
CLOSE LOWER RIGHT DOOR	The right side lower door is open.	<ol style="list-style-type: none"> 1 Close the right side lower door to continue printing. 2 If the door was open when the printer was turned on, close the door, turn the printer off, and then turn the printer on again. 3 Make sure that the interlock switch and the sensor flag are functioning correctly. Replace them if necessary. 4 Check connector J1041 on the pickup PCA, intermediate connector J3000, and connector J118 on the DC controller PCA.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
CLOSE UPPER LEFT DOOR	The left side upper door is open.	<ol style="list-style-type: none"> 1 Close the left side upper door to continue printing. 2 If the door was open when the printer was turned on, close the door, turn the printer off, and then turn the printer on again. 3 Make sure that the interlock switch and the sensor flag are functioning correctly. Replace them if necessary. 4 Check connector J3017 on the upper left door switch, intermediate connector J3016, and connector J821 on the T driver PCA.
DETECTABLE SIZE IN TRAY X RECOMMEND MOVE SWITCH TO STANDARD	A tray is loaded with standard-size media, and the switch in the tray is set to custom.	<ol style="list-style-type: none"> 1 Move the switch to the standard position. 2 Make sure that the media guides are against the media.
DISK DEVICE FAILURE alternates with READY	The EIO hard disk had a critical failure and can no longer be used.	<ol style="list-style-type: none"> 1 Turn off the printer. 2 Remove and reinstall EIO hard disk. 3 Turn the printer on again. 4 If the error persists, replace the EIO hard disk.
DISK FILE OPERATION FAILED alternates with READY	The requested operation could not be performed. You might have attempted an illegal operation, such as trying to download a file to a nonexistent directory.	<ol style="list-style-type: none"> 1 Check the file name and try again. 2 Check the driver settings to see if any job retention features are selected.
DISK FILE SYSTEM IS FULL alternates with READY	The disk file system has reached its maximum capacity.	<p>Delete files from the EIO hard disk and then try again. Using the control panel, delete stored jobs that are not needed.</p> <p>Note HP Web Jetadmin can also be used to delete files and fonts.</p>
DISK IS WRITE PROTECTED alternates with READY	The disk device is protected and no new files can be written to it.	Fonts and forms cannot be stored on the disk when the disk is write-protected. Use the Windows-based HP Web Jetadmin or the Macintosh-based HP LaserJet Utility to remove the write protections from the disk.
EIO DISK X SPINNING UP	The EIO hard disk in slot X is spinning up its platter.	No action is necessary.
EVENT LOG EMPTY	The user is attempting to view an empty event log by selecting SHOW EVENT LOG from the control panel.	No action is necessary.
FLASH DEVICE FAILURE alternates with READY	The flash DIMM had a critical failure and can no longer be used.	Remove the flash DIMM and replace it with a new one.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
FLASH FILE OPERATION FAILED alternates with READY	The requested operation could not be performed. You might have attempted an illegal operation, such as trying to download a file to a nonexistent directory.	Check the file name and try again.
FLASH FILE SYSTEM IS FULL alternates with READY	The flash disk or file system has reached maximum capacity.	<ol style="list-style-type: none"> 1 Delete files from the flash DIMM or the EIO hard disk, and then try again. 2 Use HP Web Jetadmin to download or delete files and fonts (see the download utility help for more information). 3 Using the control panel, delete stored jobs that are not needed.
FLASH IS WRITE PROTECTED alternates with READY	The flash file is protected, and no new files can be written to it.	Use an unprotected file.
INCORRECT PIN	The wrong PIN is used.	Return to the previous screen and retype the PIN.
INSERT OR CLOSE TRAY X	The specified tray is missing or open.	<ol style="list-style-type: none"> 1 Close or insert the specified tray to continue printing. 2 If the error appears when the tray is installed correctly, check connector J52 for tray 2, connector J54 for tray 3, intermediate connector J3001, and connector J120 on the DC controller PCA.
INSTALL CLEANER	The cleaner is not installed or is not installed correctly.	<ol style="list-style-type: none"> 1 Make sure that the transfer cleaner is installed correctly and that the cleaning kit is within life specifications. 2 Remove and reseal the cleaner and the toner collection bottle. 3 Open the front doors and lightly tap on the waste toner bottle. Close the front doors and check to see if the error goes away. 4 Make sure that the front doors are completely closed. 5 If the error persists, check the sensor flag mechanism in the toner collection bottle to make sure that it moves correctly. 6 Replace the cleaning kit. 7 Check connectors J1403, J1402, and J1401 on the waste sensor assembly; intermediate connector J3081; and connector J821 on the T driver PCA. 8 Replace the waste sensor assembly.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
INSTALL TRANSFER BELT	The ITB is not installed or cannot be detected.	<ol style="list-style-type: none"> 1 Open the front doors, lower the green lever, and then remove and reseat the ITB. 2 Check the connector on the right side of the ITB for damage. Replace the ITB if necessary. 3 Check the harness and the connectors that support the ITB fan and the thermistor (J3022), and check connector J131 on the DC controller.
INSTALL TRANSFER ROLLER	The second transfer roller is not installed, or there is a problem when it is lifted into position.	<ol style="list-style-type: none"> 1 Make sure that the secondary transfer roller is installed correctly. Reseat the secondary transfer roller if necessary. 2 Defeat the front door interlocks and check the secondary transfer roller for correct up and down movement. 3 Check for continuity from the secondary transfer assembly high-voltage contacts to the high-voltage power supply. 4 Check connector J3036 on the registration motor (M11) and connector J117 on the DC controller. 5 Check the four lift arms on the secondary transfer assembly for bonds or damage that might inhibit correct movement up. Repair or replace the lift arms if necessary. 6 Check the secondary transfer clutch (CL3) for correct functionality, and check connectors J3030, J3026, and J121 on the DC controller. 7 Replace the secondary transfer assembly.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
LOAD TRAY X [TYPE] [SIZE] alternates with TO USE ANOTHER TRAY PRESS ✓	A job is sent that requires a specific type and size of media that is not available, or the tray-size detection mechanism failed.	<ol style="list-style-type: none"> 1 Make sure that the requested size and type of media is loaded correctly into the specified tray. 2 Press ✓ to use a type and size of media that is available in another tray. 3 For tray 2, check connectors J52 and J3023 on the tray 2 media detection switch. 4 For tray 3, check connectors J54 and J3024 on the tray 3 media detection switch. 5 Check intermediate connectors J3001, J3076, and J3077; and connectors J120 and J122 on the DC controller PCA. 6 Check the upper and lower cassette paper-width and length-detection switches for correct operation. Replace the switches if necessary. 7 Replace the DC controller PCA.
MANUALLY FEED [TYPE] [SIZE] alternates with TO CONTINUE PRESS ✓	The printer is waiting for media to be loaded in tray 1 for a manual feed.	<ol style="list-style-type: none"> 1 Load the requested media into tray 1. Make sure that the media is loaded all the way into the tray. 2 To override the error, press ✓ if the media you want is available in another tray. 3 Press ✓ to use a type and size that is available in another tray. 4 If the media is loaded in tray 1 but is not detected, check the tray 1 sensor flag for correct operation. 5 Check connector J3005 on the tray sensor, intermediate connectors J3004 and J3002, and connector J119 on the DC controller PCA. 6 Replace the DC controller PCA.
NO JOB TO CANCEL	<p>The button was pressed, but there is no active job or buffered data to cancel.</p> <p>The message appears for approximately two seconds before the printer returns to the READY state.</p>	No action is necessary.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
NON-HP CARTRIDGE DETECTED	This message appears when a new print cartridge is installed and it is not a HP print cartridge. It is either a refilled cartridge or a cartridge made by another manufacturer. This message appears until the user installs a genuine HP print cartridge or presses the override key (). The NON-HP CARTRIDGE IN USE message appears for approximately 30 seconds.	<ol style="list-style-type: none"> 1 Remove and replace the indicated print cartridge, and make sure that genuine HP print cartridges are installed. If the print cartridges are not HP print cartridges, replace them with genuine HP print cartridges. 2 Press to continue printing. <p>Note Moving a print cartridge that is reporting a low or out condition to another printer might cause the print cartridge to report as a non-HP print cartridge.</p> <ol style="list-style-type: none"> 3 Check connectors J16, J17, J18, and J19 on the print cartridge antenna units, and connectors J1006, J1007, J1008, and J1009 on the T driver PCA. 4 Check the e-label on the print cartridge, and check the antenna unit. Replace the print cartridge if you suspect a faulty e-label. 5 Replace the T driver PCA. 6 Replace the DC controller PCA.
RAM DISK DEVICE FAILURE alternates with READY	The RAM disk had a critical failure and can no longer be used.	Turn the printer off, and then turn the printer on again to clear the error.
RAM DISK FILE OPERATION FAILED alternates with READY	The requested operation could not be performed. You might have attempted an illegal operation, such as trying to download a file to a nonexistent directory.	<ol style="list-style-type: none"> 1 Try again with a different file or directory. 2 Check the driver settings to see if any job retention features are selected.
RAM DISK FILE SYSTEM IS FULL alternates with READY	The RAM disk has reached maximum capacity.	<ol style="list-style-type: none"> 1 Delete files and then try again, or turn the printer off and then turn the printer on again to delete all of the files on the device. (Delete files using HP Web Jetadmin, another software utility, or from the control panel. See the Help for more information.) 2 If the error persists, increase the size of the RAM disk and change the RAM disk size from the CONFIGURE DEVICE menu at the control panel.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
RAM DISK IS WRITE PROTECTED alternates with READY	The RAM disk is protected, and no new files can be written to it.	No action is necessary.
REMOVE AND SHAKE <COLOR> CARTRIDGE	The T-crg (print cartridge) motor cannot turn the indicated print cartridge.	<p>1 Remove and check the indicated print cartridge and the printer side for damaged drive linkages. Shake the print cartridge a few times, reseal the print cartridge, turn the printer off, and then turn the printer on again. Replace the print cartridge or the drive linkages if necessary.</p> <p>Note Make sure that the print cartridges, when stored, were not exposed to high temperatures.</p> <p>2 Check connector 814 on the T driver PCA.</p> <p>3 Check color-appropriate connections near the motor:</p> <ul style="list-style-type: none"> • K: J3046 • C: J3047 • M: J3048 • Y: J3049 <p>4 Replace the T driver PCA.</p> <p>5 Replace the DC controller PCA.</p>
RESEND UPGRADE	An error exists in the printer firmware upgrade.	Resend a valid firmware image.
ROM DISK DEVICE FAILURE alternates with READY	The ROM disk had a critical failure and cannot be used.	Turn the printer off, and then turn the printer on again to clear the error.
ROM DISK FILE OPERATION FAILED alternates with READY	The requested operation could not be performed. You might have attempted an illegal operation, such as trying to download a file to a non-existent directory.	No action is necessary.
ROM DISK FILE SYSTEM IS FULL alternates with READY	The ROM disk reached its maximum capacity.	Delete files and then try again, or turn the printer off and then turn the printer on again to delete all of the files on the device. (Delete files by using HP Web Jetadmin, another software utility, or the control panel. See the Help for more information.)
ROM DISK IS WRITE PROTECTED	The ROM disk is protected, and no new files can be written to it.	Try using a new disk that is not write protected.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
ROTATE PAPER IN TRAY X alternates with READY	Tray X is loaded with letter or A4 media in the portrait orientation, but the job that used the tray did not specify booklet-making. The media in tray X needs to be rotated.	<ol style="list-style-type: none"> 1 Rotate the media or change the booklet-making option for the job. (The printer will not print until this step is followed.) 2 If the media is landscape, the printer continues printing, but a message appears on the control panel that the print job prints faster if the media is rotated. 3 For tray 2, check connectors J52 and J3023 on the tray 2 media-detection switch. 4 For tray 3, check connectors J54 and J3024 on the tray 3 media-detection switch. 5 Check intermediate connectors J3001, J3076, J3077, and connectors J120 and J122 on the DC controller PCA. 6 Check the tray 2 and tray 3 media-width and length-detection switches for correct operation. Replace the switches if necessary. 7 Replace the DC controller PCA.
SIZE MISMATCH TRAY=[SIZE]	Tray X is loaded with media that is longer or shorter in the feed direction than the size configured for the tray.	Reconfigure the tray or move the media to a tray configured for that size.
TRAY X EMPTY [TYPE] [SIZE]	Tray X is detected as empty.	<ol style="list-style-type: none"> 1 Load media into tray X. 2 Reseat the media in tray X. 3 Check the lifter gear of the paper pickup unit for damage. Replace the lifter gear or paper pickup unit if necessary. 4 Check connector J11 and J13 on the lifter motor, intermediate connector J3001, and connector J120 on the DC controller PCA. 5 Check the media detection flag for damage or obstructed movement. 6 Adjust or replace the paper pickup unit if necessary. 7 Replace the DC controller PCA.
TRAY X OPEN alternates with READY	The specified tray is open or is not closed completely.	<ol style="list-style-type: none"> 1 Close the specified tray. 2 If this error appears with the tray installed correctly, check connector J52 for tray 2, connector J54 for tray 3, intermediate connector J3001, and connector J120 on the DC controller PCA.

Table 76. Alphabetical error messages (continued)

Message	Description or explanation	Recommended action
TRAY X SIZE=*SELECTED SIZE alternates with TO CHANGE, MOVE SWITCH IN TRAY X	The custom switch is in the standard position, and a custom value from the menu is selected.	Move the switch to the custom position or reset the menu value to a standard size.
TYPE MISMATCH TRAY X=[TYPE]	The printer detected a different type of media in the paper path coming from the tray (X) than the type of media that is specified for the tray.	<ol style="list-style-type: none"> 1 Make sure that the correct media is loaded in the tray. 2 Check the driver settings to make sure that the expected media type is selected. This setting must match the setting in step 3. 3 Check the media-type settings at the control panel to make sure that the printer is set for the media type that is in the tray. 4 See the printer software online help for more information.
UNABLE TO COPY JOB	A job cannot be copied because of a memory, disk, or configuration problem. Only one copy is produced.	<ol style="list-style-type: none"> 1 The disk might be full. Try removing unneeded files from the disk. 2 Uncheck the hard disk in the driver.
UNABLE TO STORE JOB	A job cannot be stored on the printer because of a memory, disk, or configuration problem.	<ol style="list-style-type: none"> 1 The disk might be full. Try removing unneeded files from the disk. 2 Uncheck the hard disk in the driver.

Numerical error messages

Table 77. Numerical error messages

Message	Explanation	Recommended action
<p>10.XX.YY SUPPLIES ERROR</p> <p>Note Replacing the image drum might correct the problem temporarily because the drum contains toner for about 50 pages. If the problem reoccurs after the image drum is replaced, check the print cartridge or the toner delivery system.</p>	<p>The printer cannot read or write to at least one print cartridge or image drum memory tag, or at least one memory tag is missing.</p> <p>XX description 00 = e-label memory data error 10 = e-label memory is missing 20 = refilled, non-HP supply (only appears in the event log) 30 = cloned cartridge/supply (only appears in the event log) 90 = toner replenishment malfunction reported by the image drum</p> <p>YY description 00 = black print cartridge 01 = cyan print cartridge 02 = magenta print cartridge 03 = yellow print cartridge 05 = black image drum 06 = cyan image drum 07 = magenta image drum 08 = yellow image drum</p> <p>When a 10.20.YY or 10.30.YY error occurs, a question mark is placed on the gas gauge of the supply or supplies with the error. These errors are noted in the event log and NON HP SUPPLY IN USE appears on the control panel.</p> <p>If multiple supplies have this error, a 10.XX.YY error is displayed for the first supply detected with the error. When the error corresponding to the first supply is resolved, another 10.XX.YY error is displayed for the next supply. This continues for all of the supplies errors.</p> <p>Note The consumables gas gauge and supplies status menu are always updated to indicate all supplies with a supplies memory error, even though the message refers to a single supply.</p> <p>Note 00 = memory data error might be caused when using non-HP supplies.</p>	<p>1 In the instance of 10.00, 10.20 and 10.30 errors, check if refilled cartridges or drums are used. Replace them with HP consumables.</p> <p>Note If a drum or cartridge reached a "low" or "out" condition and was moved to a different printer, it might be reported as a NON HP SUPPLY.</p> <p>2 Turn the printer off, and then turn the printer on again to possibly clear the error.</p> <p>3 Replace the indicated supply.</p> <p>4 Check the print cartridge or image drum e-label indicator for damage. Replace the print cartridge or the image drum if necessary.</p> <p>5 For print cartridges, check:</p> <ul style="list-style-type: none"> connectors J16, J17, J18, and J19 on the antenna PCAs. connectors J1001, J1006, J1007, J1008, and J1009 on the memory controller PCA. connector J802 on the T driver PCA. <p>6 For image drums, check:</p> <ul style="list-style-type: none"> connectors J12, J13, J14, and J15 on the antenna PCAs. connectors J1001, J1002, J1003, J1004, and J1005 on the memory controller PCA. connector J802 on the T driver PCA. <p>7 Replace the antenna PCA for the indicated cartridge or drum.</p> <p>8 Replace the T driver PCA.</p> <p>9 Replace the DC controller PCA.</p> <p>In the instance of a 10.90.YY error, the image drum is reporting toner concentration-to-carrier is very low. This error might occur when non-HP supplies are used. Make sure that the toner delivery system and shutters are functioning correctly.</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.01.00 JAM INSIDE LOWER RIGHT DOOR or 13.01.00 JAM IN TRAY X	A media delay jam occurred in the paper pickup area. The media did not reach the tray 2 delivery sensor B (SR12) or the tray 3 delivery sensor B (SR14) within the specified time. If this error reoccurs, it is a 13.01.00 JAM IN TRAY X error.	<ol style="list-style-type: none"> 1 Remove the media from the lower right door, tray 2 and tray 3, and the upper right door (ITB access) if necessary. 2 Check the tray-size guides for correct settings. 3 Check the tray 2 delivery sensor B and the tray 3 delivery sensor B (SR12 and SR14; see) for correct functionality, and check the supporting connectors to the DC controller PCA. 4 Replace the pick and feed rollers if necessary. 5 Replace the PIU.
13.03.00 JAM INSIDE UPPER RIGHT DOOR or 13.03.00 JAM INSIDE LOWER RIGHT DOOR	A media delay jam occurred in the registration area. The media from any input source did not reach the registration sensor (SR3) within the specified time. If this error reoccurs, it is a 13.03.00 JAM INSIDE LOWER RIGHT DOOR error.	<ol style="list-style-type: none"> 1 Remove the media from the tray 1/registration area. 2 Check that the tray 1 assembly is aligned and closes correctly. 3 Check the registration sensor (SR3; see) for correct functionality, and check the supporting connectors to the DC controller PCA.
13.05.00 FUSER JAM LOWER LEFT DOOR or 13.05.00 JAM INSIDE FRONT DOOR	A media delay jam occurred before the fuser. The media did not reach the fuser output sensor (PS1501) within the specified time. If this error reoccurs, it is a 13.05.00 JAM INSIDE FRONT DOOR error.	<ol style="list-style-type: none"> 1 Remove the jammed media from the ITB and the fuser area through the lower/left door or the front doors. Removing the fuser and ITB might be helpful. 2 Check the fuser output sensor (PS1501; see) and its flag for correct functionality, and check the supporting connectors to the DC controller PCA.
13.06.00 JAM INSIDE LOWER LEFT DOOR or 13.06.00 JAM INSIDE PAPER PATH	A media stay jam occurred in the fuser. The media is detected at the fuser output sensor (PS1501) longer than the specified time. If this error reoccurs, it is a 13.06.00 JAM INSIDE PAPER PATH error.	<ol style="list-style-type: none"> 1 Remove the jammed media from the fuser area through the lower/left door or the front doors. Removing the fuser might be helpful. 2 Check the fuser output sensor (PS1501; see) and its flag for correct functionality, and check the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.07.00 JAM INSIDE UPPER RIGHT DOOR	A multifeed jam occurred. Multiple pages, with a stack height of more than 0.5 mm, arrived at the multifeed sensor (SR5) on the registration assembly.	<ol style="list-style-type: none"> 1 Remove the media from the registration area. 2 Make sure that the media being used is within specifications, and that the correct media type settings for the media being used are set on the control panel. 3 Check the tray pickup and feed rollers. Replace the rollers if necessary. 4 Check the separation pad if the media is fed from tray 1. 5 Check the multifeed sensor (SR5; see) flag on the registration assembly for damage or binding. 6 Check the multifeed sensor (SR5; see) for correct functionality, and check the supporting connectors to the DC controller PCA. 7 Check connector J3101 near the multifeed sensor, intermediate connectors J3100 and J3037, and connector J121 on the DC controller PCA. 8 Replace the registration assembly. See . 9 Replace the DC controller PCA. See .
13.09.00 JAM INSIDE LOWER LEFT DOOR or 13.09.00 JAM INSIDE UPPER LEFT DOOR	A media delay jam occurred. The media did not reach the face-down output sensor (PS901) within the specified time. If this error reoccurs, it is a 13.09.00 INSIDE UPPER LEFT DOOR error.	<ol style="list-style-type: none"> 1 Remove the media from the fuser access area, the duplex diverter, or the face-down delivery area through the lower left or upper left doors. 2 Check the face-down and duplex diverters for correct functionality. 3 Check for deformed rollers. 4 Make sure that the upper and lower left doors are completely closed. 5 Check the face-down output sensor (PS901; see) for correct functionality, and check the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.0A.00 JAM INSIDE TOP OUTPUT BIN or 13.0A.00 JAM INSIDE UPPER LEFT DOOR	A media stay jam occurred in the face-down tray. The printer detected that media is at the face-down output sensor longer than the specified time. If this error reoccurs, it is a 13.0A.00 JAM INSIDE UPPER LEFT DOOR error.	1 Remove the media from the fuser access area, the duplex diverter, or the face-down delivery area through the left lower door and the left upper door. 2 Check the face-down sensor (PS901; see) for correct functionality, and check the supporting connectors to the DC controller PCA.
13.10.00 JAM INSIDE LOWER LEFT DOOR or 13.10.00 JAM INSIDE DUPLEXER	A media stay jam occurred in the reversing area. The media did not reach the duplexer media reverse sensor (SR33) within the specified time. If this error reoccurs, it is a 13.10.00 JAM INSIDE DUPLEXER error.	1 Check for obstructions and residual media in the paper path in the post fuser and duplex diverter area. 2 Make sure that the lower left door closes correctly. 3 Check the duplex diverter mechanism and the duplex diverter solenoid for correct functionality. 4 Check the duplexer media reverse sensor (SR33; see) for correct functionality. 5 Check the supporting connectors to the DC controller PCA.
13.11.XY JAM IN INPUT ACCESSORY	Media is late from tray 4. Note XY can be 05, 06, 07, 08, 09, or 10.	1 Check for jammed media by opening tray 4 and opening the lower right door. 2 Check the paper-path transition between tray 4 and the print engine. 3 Check the tray-size guides for correct settings. 4 Replace the pickup rollers and the feed rollers if they are worn.
13.11.00 JAM INSIDE LOWER LEFT DOOR or 13.11.00 JAM INSIDE DUPLEXER	A media stay jam occurred in the reversing area. The duplexer reverse sensor (SR33) detects residual media beyond the specified time. If this error reoccurs, it is a 13.11.00 JAM INSIDE DUPLEXER error.	1 Check for obstructions and residual media in the paper path in the post fuser and duplex diverter area. 2 Make sure that the lower left door closes correctly. 3 Check the duplex diverter mechanism and the duplex diverter solenoid for correct functionality. 4 Check the duplexer reverse sensor (SR33; see) for correct functionality. 5 Check the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.11.05 JAM IN INPUT ACCESSORY	A page is jammed in the paper path at the registration area. A pickup delay jam occurred.	<ol style="list-style-type: none"> 1 Clear the jam in the indicated area. 2 Close the door so the printer attempts to clear the paper path. 3 Perform a paper-path test. 4 If the error persists, replace the paper pickup assembly.
13.11.06 PICKUP STATIONARY JAM	A page is jammed in the pickup area of the input accessory.	<ol style="list-style-type: none"> 1 Clear the jam in the indicated area of the input device. 2 Remove the media from the right door of the printer engine.
13.11.07 JAM IN INPUT ACCESSORY	A page is jammed in the right door area. A page stopped in the registration area.	<ol style="list-style-type: none"> 1 Clear the jam in the indicated area. 2 Close the door so the printer attempts to clear the paper path. 3 If the error persists, replace the vertical transfer unit.
13.11.08 JAM IN INPUT ACCESSORY	A page is jammed in the paper path at the vertical transfer unit registration area. A paper delivery delay jam occurred.	<ol style="list-style-type: none"> 1 Clear the jam in the indicated area. 2 Close the door so the printer attempts to clear the paper path. 3 Make sure that the vertical transfer sensor is functional. 4 If the error persists, replace the vertical transfer sensor. 5 Replace the vertical transfer unit.
13.11.09 JAM IN INPUT ACCESSORY	A page is jammed in the paper path at the right door area. A paper delivery stationary jam occurred.	<ol style="list-style-type: none"> 1 Clear the jam in the indicated area. 2 Close the door so the printer attempts to clear the paper path. 3 Replace the paper path connection unit. 4 Replace the vertical registration assembly. 5 If the error persists, replace the diverter.
13.11.10 RESIDUAL JAM IN DELIVERY AREA	A page is jammed in the delivery area when the power is turned on or when the front door is closed.	<ol style="list-style-type: none"> 1 Clear the jam. 2 Turn the printer off, and then turn the printer on again. 3 Replace the paper path connection unit. 4 Replace the vertical registration assembly.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.12.00 JAM INSIDE DUPLER	A media delay jam occurred in the duplexer. The media did not reach the duplex media path sensor (SR31) within the specified time.	<ol style="list-style-type: none"> 1 Remove the duplexer and check for correct seating, residual media, or obstructions. 2 Check the inside of the duplex and the duplex cavity for residual media or obstructions. 3 Check the duplex side registration guides for free movement. Replace the duplex if necessary. See . 4 Check the feed rollers and the drive gear trains for damage. Replace them if necessary. 5 Check the duplex media path sensor (SR31; see) for correct functionality, and check the supporting connectors to the DC controller PCA.
13.12.11 JAM IN LEFT ACCESSORY	A staple jam exists in the stapling unit.	<ol style="list-style-type: none"> 1 Clear the jam. 2 Turn the printer off, and then turn the printer on again. 3 Test the staple sliding motor (M8). 4 Make sure that the stapler unit slides to the home position at power on. 5 Make sure that the staple cartridge is installed correctly. 6 Make sure that no damaged staples exist in the staple cartridge or in the stapler unit. 7 Test another staple cartridge. 8 Check all of the cable connections at the module and at the controller PCA. 9 Replace the stapler unit. 10 Replace the controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.12.21 JAM IN LEFT ACCESSORY	A jam (initial jam) exists in the flipper assembly.	<ol style="list-style-type: none"> 1 Clear the jam. 2 Turn the printer off, and then turn the printer on again. 3 Clean the optical entry sensor. 4 Make sure that the entry sensor moves freely, and run the sensor check mode to test the entry sensor. 5 Calibrate the flipping sensor D/A clear. 6 Activate the reverse motor (M9) to make sure that the motor activates the assembly. 7 Make sure that the paper guide wire is positioned correctly. 8 Replace the flipper assembly. 9 Replace the controller PCA.
13.12.22 JAM IN LEFT ACCESSORY	A jam (stay jam) exists in the flipper assembly.	Perform the steps for a 13.12.21 error.
13.12.23 JAM IN LEFT ACCESSORY	A jam (delay jam) exists in the flipper assembly.	Perform the steps for a 13.12.21 error.
13.12.31 JAM IN LEFT ACCESSORY	A jam (initial jam) exists in the paper-path area.	<ol style="list-style-type: none"> 1 Make sure that the printer and the finishing device are installed on a flat, solid surface. 2 Make sure that the printer is processing media correctly. 3 Clear the jam. 4 Turn the printer off, and then turn the printer on again. 5 Replace the controller PCA. 6 Make sure that the media in use meets specifications. 7 Replace the whole unit. 8 Replace the flipper assembly.
13.12.32 JAM IN LEFT ACCESSORY	A jam (stay jam) exists in the paper-path area.	Perform the steps for a 13.12.31 error.
13.12.33 JAM IN LEFT ACCESSORY	A jam (delay jam) exists in the paper-path area.	Perform the steps for a 13.12.31 error.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.12.34 JAM IN LEFT ACCESSORY	A jam (ejectors jam) exists in the paper-path area.	<ol style="list-style-type: none"> 1 Clear the jam. 2 Turn the printer off, and then turn the printer on again. 3 Make sure that the stapled jobs meet the required specifications. 4 Make sure that the number of sheets per document are within specifications. 5 Make sure that the media in use meets specifications. 6 Make sure that the stapler is the home position. 7 Replace the whole unit.
13.12.41 JAM IN LEFT ACCESSORY	A jam (initial jam) exists in the folding/booklet area.	<ol style="list-style-type: none"> 1 Make sure that there is no media inside the output device at power on. 2 Make sure that the booklet meets specifications. 3 Clear the jam. 4 Turn the printer off, and then turn the printer on again. 5 Activate the staple-fold motor (M7) to make sure that the assembly works. 6 Perform the booklet adjustments as needed. 7 Check all cable connections at the module and at the controller PCA. 8 Replace the folding mechanism. 9 Replace the controller PCA.
13.12.42 JAM IN LEFT ACCESSORY	A jam (stay jam) exists in the folding/booklet area.	Perform the steps for a 13.12.41 error.
13.12.43 JAM IN LEFT ACCESSORY	A jam (delay jam) exists in the folding/booklet area.	Perform the steps for a 13.12.41 error.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.12.51 JAM IN LEFT ACCESSORY	A jam (initial jam) exists in the booklet bin area.	<ol style="list-style-type: none"> 1 Clear the jam. 2 Make sure that the booklet meets specifications. 3 Turn the printer off, and then turn the printer on again. 4 Activate the booklet bin sliding motor (M10) to make sure that the assembly works. 5 At power on, make sure that the booklet stopper moves completely in and out. 6 Check all cable connections at the module and at the controller PCA. 7 Replace the booklet bin. 8 Replace the controller PCA.
13.12.52 JAM IN LEFT ACCESSORY	A jam (stay jam) exists in the booklet bin area.	Perform the steps for a 13.12.51 error.
13.12.53 JAM IN LEFT ACCESSORY	A jam (delay jam) exists in the booklet bin area.	Perform the steps for a 13.12.51 error.
13.13.00 JAM INSIDE DUPLEXER	<p>A media stay jam occurred in the duplexer.</p> <p>The media did not reach the duplexer media path sensor (SR31) within the specified time.</p>	<ol style="list-style-type: none"> 1 Remove the duplexer and check for correct seating, residual media, or obstructions. 2 Check the inside of the duplexer and the duplex cavity for residual media or obstructions. 3 Check the duplexer side registration guides for free movement. Replace the duplexer if necessary. 4 Check the feed rollers and the drive gear trains for damage. Replace them if necessary. 5 Check the duplex media path sensor (SR31; see Figure 13-13) for correct functionality, and check the supporting connectors to the DC controller PCA. 6 If the error persists, replace the duplexer. See Table 77.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.1C.00 FUSER JAM LOWER LEFT DOOR	A fuser wrap jam occurred. The printer detected that media is wrapped around the fuser roller.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications, and that the correct media type settings for the media being used are set on the control panel. 2 Remove the media from the fuser through the lower left door. Removing the fuser assembly might be helpful. 3 Check the fuser output sensor (PS1501; see) and its flag for correct functionality, and check the supporting connectors to the DC controller PCA. 4 Check the fuser rollers for damage or contamination. Verify fuser integrity by printing a demo or configuration page. 5 Replace the fuser assembly if necessary. See .
13.1D.00 JAM INSIDE PAPER PATH	An ITB wrap jam occurred. The media did not reach the fuser input sensor (SR6) within the specified time.	<ol style="list-style-type: none"> 1 Make sure that the media being used is within specifications, and that the correct media type settings for the media being used are set on the control panel. 2 Remove and check the ITB for residual media. 3 Check the T2 area for residual media. 4 Check the ITB for media-caused damage. Replace the ITB if necessary. 5 Check the fuser input sensor (SR6; see) for correct functionality, and check the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.20.00 JAM INSIDE PAPER PATH	A residual media jam occurred in the paper path. The T2 input sensor (SR42), the fuser input sensor (SR6), and/or the fuser output sensor (PS1501) detect media when the printer doors are closed.	<ol style="list-style-type: none"> 1 Check the paper path from the registration area to the T2 area and through the fuser. If there is jammed media, remove the ITB and fuser. Remove the jammed media. 2 Check the right side lower door area for residual media or jammed sensor flags. 3 Check the T2 input sensor (SR42), the fuser upstream sensor (SR6), and the fuser output sensor (PS1501) for correct flag movement and functionality (see). 4 Check connectors J3207 and J121 on the DC controller. 5 Check the supporting connectors to the DC controller PCA.
13.25.00 JAM INSIDE UPPER RIGHT DOOR	The media is detected as longer than what is configured on the control panel, as reported by the registration sensor (SR3).	<ol style="list-style-type: none"> 1 Check for supported media, and that the media size for the tray is correctly set on the control panel. 2 Make sure that the software program or the driver settings are requesting the size of media that is in the tray. (This is particularly important if the tray size is set to ANY SIZE because the printer registers that the media is the size requested from the job.)
13.29.00 JAM INSIDE DUPLEXER	A re-feeding jam occurred in the duplexer. The duplexer media re-feed sensor (SR30) detects media when the printer doors are closed.	<ol style="list-style-type: none"> 1 Remove the duplexer, and check the inside of the duplexer and the duplex cavity for residual media. 2 Check the duplexer media re-feed sensor (SR30; see) for correct functionality, and check the supporting connectors to the DC controller PCA. 3 If the error persists, replace the duplexer. See .
13.3E.00 JAM INSIDE TOP OUTPUT BIN or 13.3E.00 JAM INSIDE UPPER LEFT DOOR	Residual media is detected under the face-down output sensor (PS901). If this error reoccurs, it is a 13.3E.00 JAM INSIDE UPPER LEFT DOOR error.	<ol style="list-style-type: none"> 1 Remove the media from the face-down delivery area. 2 Check the face-down output sensor (PS901; see) for correct functionality, and check the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
13.32.00 JAM IN TRAY X or 13.32.00 JAM INSIDE LOWER RIGHT DOOR	Residual media is detected in or near tray 2 or tray 3 as indicated at power on, or when the printer is coming out of PowerSave mode. If this error reoccurs, it is a 13.32.00 JAM INSIDE LOWER RIGHT DOOR error.	<ol style="list-style-type: none"> 1 Remove the media from the pickup area of tray 2 or tray 3 through the tray or the lower right door. 2 Check the tray-size guides for correct settings. 3 Check the tray 2 media path sensor A (SR11) and the tray 2 media path sensor B (SR12) for correct functionality (see Figure 13-1). Check the supporting connectors to the DC controller PCA. 4 Check the tray 3 media path sensor A (SR13) and the tray 3 media path sensor B (SR14) for correct functionality (see Figure 13-2). Check the supporting connectors to the DC controller PCA.
20 INSUFFICIENT MEMORY alternates with TO CONTINUE PRESS ✓	This message indicates that more data has been received from the computer than fits in the printer internal memory. Press ✓ to continue printing. Only the amount of data that fits in the printer internal memory is printed. The remainder of the job is cancelled.	Press ✓ to print the transferred data (some data might be lost), and then simplify the print job or install additional memory.
21 PAGE TOO COMPLEX alternates with TO CONTINUE PRESS ✓	The page-formatting process was not fast enough for the printer. There might be some data lost on the page that was being formatted when the error occurred.	<ol style="list-style-type: none"> 1 Press ✓ to print the transferred data (some data might be lost). 2 The page protection item appears in the CONFIGURE DEVICE - DEFAULTS - EVENTS - menu, and should be set to ON to print the page. 3 When the page is successfully printed, PAGE PROTECT=ON, should be set back to AUTO. 4 If this error appears often, simplify the print job.
22 EIO X BUFFER OVERFLOW	Too much data was sent to the EIO card in the specified slot (X). An improper communications protocol might be in use.	<ol style="list-style-type: none"> 1 Press ✓ to print the transferred data (some data might be lost). 2 Check the host configuration.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
22 PARALLEL I/O BUFFER OVERFLOW alternates with TO CONTINUE PRESS ✓	Too much data was sent to the parallel port.	<ol style="list-style-type: none"> 1 Check for a loose cable connection, and be sure to use a high-quality cable. (Some non-HP parallel cables might be missing pin connections or might otherwise not conform to the IEEE-1284 specification.) 2 This error can occur if the print driver in use is not IEEE-1284 compliant. For best results, use the HP print driver that came with the printer or download the latest HP driver for this printer at http://www.hp.com/support/lj9500. 3 Press ✓ to clear the error (data will be lost).
22 SERIAL I/O BUFFER OVERFLOW	The printer serial buffer overflowed during a busy state.	Press ✓ to print the transferred data (some data might be lost)
40 BAD SERIAL TRANSMISSION	A serial data error (parity, framing, or line overrun) occurred during the reception of data from the computer.	Press ✓ to clear the error and continue printing.
40 EIO X BAD TRANSMISSION	The connection between the printer and the EIO card in the specified slot has been abnormally broken.	Press ✓ to clear the error and continue printing.
41.X PRINTER ERROR alternates with TO CONTINUE PRESS ✓	<p>A temporary printing error occurred.</p> <p>X description</p> <ul style="list-style-type: none"> 1 = unknown misprint error 2 = beam detect misprint 3 = media feed error (size) 5 = media feed error (type) 6 = ITB detection error 	<ol style="list-style-type: none"> 1 Press ✓ to clear the error and continue printing. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 If the error persists, troubleshoot the laser system (41.2), the media feed mechanisms, the media size/type settings, and the ITB seating.
41.3 UNEXPECTED SIZE TRAY X alternates with TO CHANGE SIZE PRESS ✓	Tray (X) is loaded with media that is longer or shorter in the feed direction than the size configured for the tray.	<ol style="list-style-type: none"> 1 Check the media size definition for the specified tray. If necessary, reconfigure the media size defined for the tray. 2 Press ✓ to get to TRAY X SIZE=. Reconfigure the size in a tray so that the printer uses a tray with the size that is required for the print job. 3 If the error does not clear, turn the printer off, and then turn the printer on again. 4 If the error persists, check the tray size sensor mechanisms, the registration sensor for correct functionality, and the supporting connectors to the DC controller PCA.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
<p>41.5 UNEXPECTED TYPE TRAY X alternates with TO CHANGE TYPE PRESS ✓</p>	<p>Tray (X) is loaded with media that is not of the same type configured for the tray.</p> <p>Note The printer only detects media or OHTs.</p>	<ol style="list-style-type: none"> 1 Check the media type definition for the specified tray. 2 If necessary, reconfigure the media type for the tray. 3 If the error does not clear, turn the printer off, and then turn the printer on again. 4 If the error persists, check the transparency sensor for correct functionality. Check connector J3032 on the transparency sensor, intermediate connector J3027, and connector J121 on the DC controller PCA.
<p>49.XXYY PRINTER ERROR</p>	<p>A critical formatter firmware error occurred which caused the processor on the formatter to cease operation.</p> <p>Note Unique subcodes are constructed by creating a unique error of an 8-bit component ID (XX) and an 8-bit component specific error (YY). The component ID and component specific error are useful in determining which part of the firmware failed.</p>	<p>Note The printer 49 errors are usually <i>not</i> fixed by replacing the formatter.</p> <ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Make sure that the customer is using a known good software program, good driver, good cabling, and good connections. 3 Print a configuration page to make sure that the printer has the most recent release of formatter firmware. If necessary, flash the printer with new firmware. 4 Check all of the accessory hardware, such as memory DIMMs and EIO devices, on the formatter by removing them. (Removing the hardware eliminates them as possible causes of the error.) 5 If the error persists, the formatter might need to be replaced. See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
50.X	<p>A fuser error occurred. Power cycle the printer to continue.</p> <p>X description</p> <p>1 = low fuser temperature</p> <p>2 = fuser detected not coming to operating temperature after a jam or open door</p> <p>3 = high fuser temperature</p> <p>6 = open fuser heating circuit between the fuser and low-voltage power supply</p> <p>7 = fuser pressure release mechanism failure</p>	<p>1 Remove the fuser and check it for damage or jammed media.</p> <p>2 Make sure that the printer is plugged into appropriate ac voltage.</p> <p>3 Turn the printer off, let it cool for 10 minutes, and then turn the printer on again to possibly clear the error.</p> <p>4 Replace the fuser.</p> <p>5 Check the fuser/print engine electrical connectors J3019 for damage.</p> <p>6 Check connector J1501 on the fusing sensor PCA and connector J115 on the DC controller PCA.</p> <p>7 Check for a fuser drive or fuser motor failure. Replace if necessary. See or</p> <p>8 Replace the power supply unit. See</p> <p>9 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
51.XY PRINTING ERROR alternates with TO CONTINUE CYCLE POWER	<p>A laser scanner assembly laser error occurred.</p> <p>X description 1 = beam detect error 2 = laser error</p> <p>Y description 0 = no color K = black C = cyan M = magenta Y = yellow</p>	<p>CAUTION When servicing the printer with the top cover off, cover the top of the printer to prevent light leaks which might blind the laser/scanner beam detect sensors.</p> <ol style="list-style-type: none"> 1 Check the FFCs for damage, and make sure that they are correctly centered and seated in the connectors. Replace the FFCs if necessary. 2 The following are color-specific steps: Check connector J3012 on the laser driver PCA, connector J3056 on the scanner motor, connector J3061 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA. Check connector J3011 on the laser driver PCA, connector J3059 on the scanner motor, connector J3062 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA. Check connector J3010 on the laser driver PCA, connector J3053 on the scanner motor, connector J3063 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA. Check connector J3009 on the laser driver PCA, connector J3050 on the scanner motor, connector J3064 on the beam detect PCA, connectors J812 and J817 on the T driver PCA, and connector J108 on the DC controller PCA. 3 Check FFC connectors J103 and J106 on the DC controller PCA, J9002 on the formatter cage, and J801 on the T driver PCA. 4 Replace the necessary laser scanner unit. See 5 Replace the T driver PCA. See 6 Replace the DC controller PCA. See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
52.X PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	<p>A laser scanner assembly error occurred.</p> <p>X description 1 = scanner error 2 = scanner startup error 3 = scanner rotation error</p> <p>Y description 0 = no color K = black C = cyan M = magenta Y = yellow</p>	<p>CAUTION When servicing the printer with the top cover off, cover the top of the printer to prevent light leaks which might blind the laser/scanner beam detect sensors.</p> <p>1 The following are color-specific steps:</p> <p>Check connector J3012 on the laser driver PCA, connector J3056 on the scanner motor, connector J3061 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA.</p> <p>Check connector J3011 on the laser driver PCA, connector J3059 on the scanner motor, connector J3062 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA.</p> <p>Check connector J3010 on the laser driver PCA, connector J3053 on the scanner motor, connector J3063 on the beam detect PCA, connectors J812 and J815 on the T driver PCA, and connector J110 on the DC controller PCA.</p> <p>Check connector J3009 on the laser driver PCA, connector J3050 on the scanner motor, connector J3064 on the beam detect PCA, connectors J812 and J817 on the T driver PCA, and connector J108 on the DC controller PCA.</p> <p>2 Check FFC connectors J103 and J106 on the DC controller PCA, J9002 on the formatter cage, and J801 on the T driver PCA.</p> <p>3 Check the FFCs for damage, and make sure that they are correctly centered and seated in the connectors. Replace the FFCs if necessary.</p> <p>4 Replace the necessary laser scanner unit. See</p> <p>5 Replace the T driver PCA. See</p> <p>6 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
53.10.05 PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	A DIMM is installed in both the 168-pin DIMM slot 4 and in the 100-pin DIMM slot 5.	This is an invalid configuration. DIMMs cannot be installed in both slots at the same time. Remove one of the DIMMs, or move one of the DIMMs to a different slot.
53.XY.ZZ PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	A problem exists with the printer memory. X DIMM type 1 = RAM Y device location 1 = DIMM slot 1 2 = DIMM slot 2 3 = DIMM slot 3 4 = DIMM slot 4 ZZ error number 0 = unsupported memory 1 = unrecognized memory 2 = unsupported memory 3 = failed RAM test 4 = exceeded maximum RAM size 5 = invalid DIMM speed	Turn the printer off, and then replace the DIMM that caused the error.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
54.XX PRINTER ERROR	<p>The printer 54 errors indicate sensor abnormalities. Sensor abnormalities are caused by failed or blocked sensors, or sensors reporting results outside an expected range.</p> <p>Note Some 54 errors do not stop the printing process, and are only noted in the event log but <i>not</i> on the control panel.</p> <p>XX description 00 = ITB misalignment (check the event log for a 54.27 error and cycle power to recover) 01 = environmental temperature sensor output is abnormal (appears only in the event log) 05 = OHT sensor failure (appears only in the event log) 06 = density sensor failure</p> <p>Note For errors 11 through 14, the density is set to the highest or lowest possible value. This usually occurs because the calibration patches are not on the ITB correctly. These errors appear only in the event log.</p> <p>11 = yellow density sensor (the engine detects abnormality in the yellow density control and the engine default is used) 12 = magenta density sensor (the engine detects abnormality in the magenta density control and the engine default is used) 13 = cyan density sensor (the engine detects abnormality in the cyan density control and the engine default is used) 14 = black density sensor (the engine detects abnormality in the black density control and the engine default is used)</p> <p>Note Errors 15 through 18 only appear in the event log and printing continues.</p> <p>15 = yellow CPR sensor (the engine cannot detect the yellow CPR pattern on the ITB) 16 = magenta CPR sensor (the engine cannot detect the magenta CPR pattern on the ITB)</p>	<ol style="list-style-type: none"> 1 Check that all of the environmental requirements are met. 2 Turn the printer off, and then turn the printer on again. 3 Check connector K3013 on the temperature/humidity sensor, intermediate connector J3085, and connector J807 on the T driver PCA. 4 Replace the temperature/humidity sensor. See 5 Replace the T driver PCA. See 6 Replace the DC controller PCA. See <ol style="list-style-type: none"> 1 Check the cleaning blade and ITB for evidence of a cleaning blade failure (which might cause the density calibration to fail). 2 Check the right door actuated cleaning mechanism for correct functionality. 3 Select CALIBRATE NOW and PRINT STOP TEST on the control panel to check correct formations of the calibration swatches on the ITB. If the swatches are light or missing a color, check the T1 components, image drum, and print cartridge for the missing or light color. Also, check for malformed or too light swatches, stray toner from cleaning failures, and ITB damage. 4 Check connector J3014 at the density sensor, intermediate connector J3072 and J3080, and connector J808 on the T driver PCA. 5 Replace the density/color registration sensor assembly. See 6 Replace the T driver PCA. See 7 Replace the DC controller PCA. See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
54.XX PRINTER ERROR (continued)	<p>17 = cyan CPR sensor (the engine cannot detect the cyan CPR pattern on the ITB) 18 = black CPR sensor (the engine cannot detect the black CPR pattern on the ITB) 20 = CPR sensor (output is abnormal or the engine cannot detect any of the CPR patterns on the ITB)</p> <p>Note Errors 21 through 24 indicate a toner concentration sensor failure.</p> <p>21 = yellow image drum t/d ratio sensor 22 = magenta image drum t/d ratio sensor 23 = cyan image drum t/d ratio sensor 24 = black image drum t/d ratio sensor 27 = ITB misalignment sensor</p> <p>Note 27 = ITB misalignment sensor appears in the event log, but it might appear as a 54.00 error on the control panel.</p> <p>28 = clean density/CPR sensor warning (only appears in the event log)</p> <p>Note For error 28, the <code>CLEAN SENSORS 54.28.01</code> (density sensor is dirty) or <code>CLEAN SENSORS 54.28.02</code> (CPR sensor is dirty) appears on the event log.</p> <p>29 = clean density/CPR sensor failed (only appears in the event log and <code>CLEAN SENSORS</code> appears on the control panel) 30 = halftone calibration error</p>	<p>1 Clean the OHT sensor.</p> <p>2 Check the transparency sensor for correct functionality.</p> <p>3 Check connectors J3032 on the transparency sensor, intermediate connector J3027, and connector J121 on the DC controller PCA.</p> <p>1 Check the color and the tray 1 dependent items for the specified color.</p> <p>2 Defeat the right side upper door (ITB access) interlocks and check during a calibration that the density patches are formed correctly on the ITB.</p> <p>3 Print a laser alignment page to check for adjustable CPR problems.</p> <p>4 Check the cleaning blade and ITB for evidence of a cleaning blade failure (which might cause the density calibration to fail), and check the ITB for damage.</p> <p>5 Check the right door actuated cleaning mechanism for correct functionality.</p> <p>6 Select <code>CALIBRATE NOW</code> and <code>PRINT STOP TEST</code> on the control panel to check correct formations of the calibration swatches on the ITB (set to 7,000 milliseconds for a CPR pattern check). If the swatches are light or missing a color, check the T1 components, image drum, and print cartridge for the missing or light color. Also, check for malformed or too light swatches, stray toner from cleaning failures, and ITB damage.</p> <p>7 Check the ITB for smooth belt rotation and belt travel. Replace the ITB if movement problems or damage exists.</p> <p>8 Check connector J3073 and J3074 at the CPR sensors, intermediate connector J3080, and connector J808 on the T driver PCA.</p> <p>9 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
54.XX PRINTER ERROR (continued)		<p>10 Replace the density/color registration sensor assembly. See</p> <p>11 Replace the T driver PCA. See</p> <p>1 Turn the printer off, and then turn the printer on again to clear the error.</p> <p>2 Check the indicated image drum for damaged high-voltage contacts, and check the contacts for continuity to the high-voltage power supply.</p> <p>3 Check the image drum high-voltage pins on the print engine.</p> <p>4 Check the following connectors:</p> <ul style="list-style-type: none"> a Yellow: J3040 and J804 on the T driver PCA. b Magenta: J3038 and J804 on the T driver PCA. c Cyan: J3044 and J805 on the T driver PCA. d Black: J3042 and J805 on the T driver PCA. <p>5 Replace the indicated image drum. (Make sure that the printer is turned off, and then turned on again after the image drum is replaced.) See</p> <p>6 Replace the T driver PCA. See</p> <p>7 Replace the DC controller PCA. See</p> <p>1 Remove the ITB and check the belt for correct alignment and movement.</p> <p>2 Replace the ITB and seat it correctly.</p> <p>3 Check connector J3075 and J618 on the P driver PCA.</p> <p>4 Replace the ITB. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
54.XX PRINTER ERROR (continued)		<p>5 Replace the P driver PCA. See</p> <p>6 Replace the DC controller PCA. See</p> <p>1 Make sure that the density/color sensor shutter is in the open position when the front right door is closed.</p> <p>2 Open and close the front right door to clean the sensor assembly.</p> <p>3 Adjust or replace the sensor cleaning assembly that is actuated by the front right door.</p> <p>4 Replace the density/color registration sensor assembly. See</p> <p>1 Check the right door actuated cleaning mechanism for correct functionality.</p> <p>2 Adjust or replace the sensor cleaning assembly that is actuated by the front right door.</p> <p>3 Replace the density/color registration sensor assembly. See</p>
55.XX PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	<p>The engine is not communicating with the formatter.</p> <p>The communication link between the formatter and the DC controller PCA is lost.</p>	<p>1 Turn the printer off, and then turn the printer on again to clear the error.</p> <p>2 Turn the printer off and reseal the formatter.</p> <p>3 Print a configuration page to make sure that the formatter has the latest firmware image. If it does not, perform a flash upgrade.</p> <p>4 Check the connectors on the FFC between the formatter cage and the DC controller PCA.</p> <p>5 Replace the DC controller PCA. See</p> <p>6 Replace the formatter. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
56.X PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	A temporary printer error occurred.	<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Turn the printer off and reseal the formatter. 3 Print a configuration page to make sure that the formatter has the latest firmware image. If it does not, perform a flash upgrade. 4 Check the connectors on the FFC between the formatter cage and the DC controller PCA. 5 Replace the DC controller PCA. See 6 Replace the formatter. See
57.X0 PRINTER ERROR	<p>The printer detects that a fan motor has failed.</p> <p>X description 1 = cartridge fan (FM 3) 3 = low-voltage power supply fan (FM5) 5 = face-up delivery paper path fans (FM1 or FM6) 6 = paper-path fan (FM2) 7 = fuser fan (FM4) 9 = ozone/exhaust fan (FM7)</p>	<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Check the indicated fan, and check for correct movement of the blades and motor. 3 Check the connectors that apply to the X error: 1: J3078 and J820 on the T driver PCA. 3: J3 on the low-voltage power supply, and J102 on the DC controller PCA. 5: J3079 and J3087 at the fans, intermediate connector J086, and J811 on the T driver PCA. 6: J818 on the T driver PCA. 7: J819 on the T driver PCA. 9: J3089 at the fan, and J823 on the T driver PCA. 4 Check connector J1 on the low-voltage power supply, J210 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA. 5 Replace the fan if voltage is supplied to it at power on and it fails. See chapter 6. 6 Replace the T driver PCA. See 7 Replace the DC controller PCA if X = 3 (FM5). See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
58.X0 PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	<p>A printer error occurred where a memory tag CPU error was detected. Cycle power to continue.</p> <p>X description: 1 = N/A 2 = air temperature sensor 3 = CPU 4 = power supply</p>	<p>1 Turn the printer off, and then turn the printer on again to clear the error.</p> <p>2 If the error persists, reseal the print cartridges and the image drums.</p> <p>3 Check the memory tag on the consumables for damage. Replace the consumable if it is damaged. See</p> <p>4 Check the antenna assemblies for each consumable, and the connections to the memory board.</p> <p>5 Replace the memory board.</p> <p>6 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	<p>The printer detects a motor that fails to turn or fails to turn at speed.</p> <p>X description 0 = motor error (<i>not</i> possible for the HP color LaserJet 9500) 1 = motor startup error 2 = motor rotation error 3 = fuser motor startup error 4 = fuser motor rotation error 5 = image drum motor startup error 6 = image drum motor rotation error 8 = developer motor failure 9 = ITB motor startup error A = ITB motor rotation error D = registration motor starting error E = registration motor rotation error</p> <p>Note 59.XY errors with X = A, D, or E noted in the log appear as 59.10.00, 59.13.00, and 59.14.00 respectively (59.XX.YY), where XX is a decimal conversion of the hexadecimal control panel display error.</p> <p>Note Print cartridge motor errors are indicated as REMOVE AND SHAKE <COLOR> CARTRIDGE.</p> <p>Y description 0 = no color K = black C = cyan M = magenta Y = yellow</p>	<p>Note If turning the printer off and on again does not resolve the 59.00 or 59.A0 error, remove and reinstall the image transfer cleaner.</p> <p>There are no 59 errors associated with the print cartridge motor errors. When the engine reports a fail to rotate for these motors, the error REMOVE AND SHAKE <COLOR> CARTRIDGE appears.</p> <ol style="list-style-type: none"> 1 Remove and check the indicated print cartridge. Check the engine for damaged drive linkages. 2 Gently shake the print cartridge, reseal it, and turn the printer on. 3 Turn the printer off, and then turn the printer on again to clear the error. 4 Use the hardware diagnostic tools from the control panel to test each motor for correct functionality. 5 Check connector J1 on the low-voltage power supply, J210 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA. 6 Replace the print cartridge and the drive linkages if necessary. <p>Note Make sure that the print cartridges, when stored, were not exposed to high temperatures.</p> <ol style="list-style-type: none"> 7 Check connector 814 on the T driver PCA. 8 Check the color-appropriate connectors: <ul style="list-style-type: none"> • K: J3046 near the motor • C: J3047 near the motor • M: J3048 near the motor • Y: J3049 near the motor 9 Replace the T driver PCA. See 10 Replace the DC controller PCA. See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER (continued)		<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Remove and check the fuser for jammed media and damaged drive gears. 3 Perform a motor diagnostics test. 4 Check connector J3035 at the fuser motor and connector J116 on the DC controller PCA. 5 Check the fuser drive train for correct movement. Replace the fuser drive train if necessary. 6 Replace the fuser motor. See 7 Replace the DC controller PCA. See <ol style="list-style-type: none"> 1 Gently shake the print cartridge, reseal it, and turn the printer on. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Remove and check the indicated image drum, and check the engine for damaged drive linkages. 4 Reseat the image drum. 5 Replace the image drum and the drive linkages if necessary. 6 Check connector J1 on the low-voltage power supply, J210 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA. <p>Note Make sure that the print cartridges, when stored, were not exposed to high temperatures.</p> <ol style="list-style-type: none"> 7 Check FFC connectors J104 and J105 on the DC controller PCA, and connectors J601 and J616 on the P driver PCA (especially if the printer has been serviced recently). 8 Make sure that the FFC is centered and that it is completely inserted into the connector. Replace the FFC if it is damaged.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER (continued)		<p>9 Check the color-appropriate connectors:</p> <ul style="list-style-type: none"> • K: J610 and J613 on the P driver PCA, J701K for the encoder, and J3097 on the motor. • C: J607 and J614 on the P driver PCA, J701C for the encoder, and J3095 on the motor. • M: J605 and J615 on the P driver PCA, J701M for the encoder, and J3093 on the motor. • Y: J603 and J617 on the P driver PCA, J701Y for the encoder, and J3091 on the motor. <p>10 Check the process cartridge drive assembly encoders and motors for correct functionality. Replace the encoders and motors if necessary.</p> <p>11 Replace the process cartridge drive assembly. See</p> <p>12 Replace the DC controller PCA. See</p> <p>1 Turn the printer off, and then turn the printer on again to clear the error.</p> <p>2 Use the hardware diagnostic tools from the control panel to test the registration motor for correct functionality.</p> <p>3 Check the registration motor drive linkages for correct functionality. Replace the linkages if necessary.</p> <p>4 Check connector J3036 at the registration motor and connector J117 on the DC controller PCA.</p> <p>5 Replace the registration motor. See</p> <p>6 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER (continued)		<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Remove and check the indicated image drum, and check the engine for damaged drive linkages. 3 Reseat the image drum and turn the printer on. 4 Use the hardware diagnostic tools from the control panel to test each motor for correct functionality. 5 Replace the image drum and the drive linkages if necessary. 6 Check connector J1 on the low-voltage power supply, J210 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA. 7 Check FFC connectors J104 and J105 on the DC controller PCA, and connectors J601 and J616 on the P driver PCA (especially if the printer has been serviced recently). 8 Make sure that the FFC is centered and that it is completely inserted into the connector. Replace the FFC if it is damaged. 9 Check the color-appropriate connectors: <ul style="list-style-type: none"> • K: J609 on the P driver PCA, and J3096 on the motor. • C: J606 on the P driver PCA, and J3094 on the motor. • M: J604 on the P driver PCA, and J3092 on the motor. • Y: J602 on the P driver PCA, and J3090 on the motor. 10 Check the process cartridge drive assembly encoders and motors for correct functionality. 11 Replace the process cartridge drive assembly. See 12 Replace the DC controller PCA. See

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER (continued)		<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Check the registration assembly for damage or jammed media. 3 Check the gear train on the registration drive assembly for correct functionality. 4 Use the hardware diagnostic tools from the control panel to test each motor for correct functionality. 5 Check connector J3036 on the registration motor, and connector J117 on the DC controller PCA. 6 Use the hardware diagnostic tools from the control panel to test each motor for correct functionality. 7 Check connector J3036 on the registration motor, and connector J117 on the DC controller PCA. 8 Replace the registration motor. See 9 Replace the DC controller PCA. See <ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Partially remove the ITB. 3 Turn the fly wheel on the right side to check the ITB for damage and correct movement. Check the drive linkages from the ITB motor for damage. Replace any damaged hardware. 4 Reseat the ITB and raise the green lever. 5 Use the hardware diagnostic tools from the control panel to test the ITB motor for correct functionality. 6 Remove and reseat the secondary transfer roller and the cleaning blade/toner collection bottle. 7 Check connector J1 on the low-voltage power supply, J210 and J202 on the high-voltage power supply, J608 and J612 on the P driver PCA, and J806 on the T driver PCA. 8 PCA (especially if the printer was recently serviced).

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
59.XY PRINTER ERROR alternates with TO CONTINUE CYCLE POWER (continued)		<p>9 Make sure that the FFC is centered and that it is completely inserted into the connector. Replace the FFC if it is damaged.</p> <p>10 Check connector J3098 at the motor, and connector J611 on the P driver PCA.</p> <p>11 Check FFC connector J104 on the DC controller PCA, and FFC connector J601 on the P driver</p> <p>1 Turn the printer off, and then turn the printer on again to clear the error.</p> <p>2 Use the hardware diagnostic tools from the control panel to test each motor for correct functionality.</p> <p>3 Remove and reseal the secondary transfer roller and the cleaning blade/toner collection bottle.</p> <p>4 Check the secondary transfer assembly for damage or jammed media.</p> <p>5 Check connector J3030 on the secondary transfer assembly, intermediate connector J3026, and connector J121 on the DC controller PCA.</p> <p>6 Replace the secondary transfer assembly. See</p> <p>7 Replace the DC controller PCA. See</p>

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
60.X PRINTER ERROR	<p>The tray number specified by X is lifting media to the top of the tray for proper feeding but an obstruction is preventing the tray from lifting correctly.</p> <p>X description 2: tray 2 cassette lifter 3: tray 3 cassette lifter 4: tray 4 cassette tray 8: tray 2 pickup roller lifter 9: tray 3 pickup roller lifter</p>	<ol style="list-style-type: none"> 1 Check the indicated media tray for correct functionality of all of the parts. Replace the media tray if necessary. 2 Check connector J11 near the pickup motor, connector J12 near the pickup roller up/down motor, and connector J13 near the lifter motor. 3 Check intermediate connector J3001, and connector J120 on the DC controller PCA. 4 Check the connectors for the media-size detection switches J52, J54, J3076, and J3077. 5 Replace the paper pickup assembly. See 6 Replace the DC controller PCA. See
64.X PRINTER ERROR alternates with TO CONTINUE CYCLE POWER	A scan buffer (video DMA) error occurred.	<ol style="list-style-type: none"> 1 Turn the printer off, and then turn the printer on again to clear the error. 2 Perform a cold reset. See in chapter 3. 3 Turn the printer off, remove all of the extra memory and EIO devices, and turn the printer on again. 4 Replace the formatter or the firmware DIMM. See
66.12.11 OUTPUT DEVICE FAILURE	A stapler carriage motor failure (M8) occurred.	<ol style="list-style-type: none"> 1 Make sure that the stapler cartridge is seated in the stapler unit correctly. 2 Activate the staple sliding motor (M8) by performing a mechanical test. 3 Make sure that the stapler unit slides to the home position. 4 Replace the stapler unit. 5 Replace the controller PCA. 6 Replace the whole unit.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
66.12.31 OUTPUT DEVICE FAILURE	A home position timeout (M1) occurred.	<ol style="list-style-type: none"> 1 Check all of the cable connections at the controller PCA. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Activate the delivery motor (M1) by performing a mechanical test. 4 Replace the controller PCA. 5 Replace the whole unit.
66.12.32 OUTPUT DEVICE FAILURE	A home position timeout for aligning paddles occurred.	Perform the steps for a 66.12.31 error.
66.12.33 OUTPUT DEVICE FAILURE	A delivery motor (M6) failure occurred.	Perform the steps for a 66.12.31 error.
66.12.34 OUTPUT DEVICE FAILURE	A front aligning plate motor (M4) failure occurred.	<ol style="list-style-type: none"> 1 Check all of the cable connections at the controller PCA. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Activate the front and back aligning plate motors (M4 and M5) by performing a mechanical test. 4 Adjust the front jogger by performing a calibration procedure. 5 Replace the controller PCA. 6 Replace the whole unit.
66.12.35 OUTPUT DEVICE FAILURE	A back aligning plate motor (M5) failure occurred.	Perform the steps for a 66.12.34 error.
66.12.36 OUTPUT DEVICE FAILURE	A stacker bin fluctuation motor (M6) failure occurred.	<ol style="list-style-type: none"> 1 Check all of the cable connections at the controller PCA. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Activate the stacker bin fluctuation motor (M6) by performing a mechanical test. 4 Make sure that the stacker bin moves up and down at the power-on sequence. 5 Send two pages through as a test. 6 Replace the controller PCA. 7 Replace the whole unit.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
66.12.41 OUTPUT DEVICE FAILURE	A staple-fold motor (M7) failure occurred.	<ol style="list-style-type: none"> 1 Check all of the cable connections at the controller PCA. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Activate the staple-fold motor (M7) by performing a mechanical test. 4 Perform a booklet adjustment as needed. 5 Replace the folding mechanism. 6 Replace the controller PCA.
66.12.51 OUTPUT DEVICE FAILURE	A booklet bin slide motor (M10) failure occurred.	<ol style="list-style-type: none"> 1 Check all of the cable connections at the controller PCA. 2 Turn the printer off, and then turn the printer on again to clear the error. 3 Activate the booklet bin slide motor (M10) by performing a mechanical test. 4 At power on, make sure that the booklet stopper moves completely in and out. 5 Replace the booklet bin. 6 Replace the controller PCA.
68.X PERMANENT STORAGE ERROR alternates with TO CONTINUE PRESS ✓	<p>An error occurred in the printer nonvolatile memory (NVRAM), and one or more printer settings is reset to its factory default. Printing can continue, but there might be some unexpected functions because an error occurred in permanent storage.</p> <p>X description 0 = onboard NVRAM 1 = removable disk (flash or hard)</p>	<ol style="list-style-type: none"> 1 Pressing ✓ should clear the error. 2 Perform a cold reset. See 3 Turn the printer off, remove all of the extra memory and EIO devices, and then turn the printer on again. 4 For 68.1 errors, remove files from the hard disk by using the control panel or Web Jetadmin. 5 Reinitialize the hard disk drive. See 6 Perform a NVRAM initialization.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
68.X PERMANENT STORAGE FULL alternates with TO CONTINUE PRESS ✓	<p>The printer NVRAM is full. Some saved settings in the NVRAM might reset to the factory defaults. Printing can continue, but there might be some unexpected functions because an error occurred in permanent storage.</p> <p>X description 0 = onboard NVRAM 1 = removable disk (flash or hard)</p>	<ol style="list-style-type: none"> Pressing ✓ should clear the error. Perform a cold reset. See Turn the printer off, remove all of the extra memory and EIO devices, and then turn the printer on again. For 68.1 errors, remove files from the hard disk by using the control panel or Web Jetadmin. Reinitialize the hard disk drive. See Perform a NVRAM initialization.
68.X PERMANENT STORAGE WRITE FAIL	<p>The printer NVRAM is failing to write. Printing can continue, but there might be some unexpected functions because an error occurred in permanent storage.</p> <p>X = description 0 = onboard NVRAM 1 = removable (flash or hard)</p>	<ol style="list-style-type: none"> Pressing ✓ should clear the error. Perform a cold reset. See Turn the printer off, remove all of the extra memory and EIO devices, and then turn the printer on again. For 68.1 errors, remove files from the hard disk by using the control panel or Web Jetadmin. Reinitialize the hard disk drive. See Perform a NVRAM initialization.
69.X PRINTER ERROR	<p>A temporary printer error occurred.</p> <p>00 (duplex D-roller is not detected at the home position) 01 (duplex slide adjustment failure)</p>	<ol style="list-style-type: none"> Turn the printer off, reseal the duplexer, and then turn the printer on again to clear the error. Remove the duplexer and check for proper seating, residual media, or obstructions. Check the inside of the duplexer and the duplex capacity for residual media or obstructions. Check the duplexer-side registration guides for correct functionality. Replace the duplexer if necessary. See Check the feed rollers and drive gear trains for damage. Replace them if necessary.

Table 77. Numerical error messages (continued)

Message	Explanation	Recommended action
79.XXXX PRINTER ERROR	A critical hardware error occurred.	Turn the printer off, and then turn the printer on again to clear the error.
8X.YYYY	The EIO accessory card in slot X has encountered a critical error as specified by YYYY.	<ol style="list-style-type: none">1 Turn the printer off.2 Remove the EIO accessory card. Reseat the card securely into the specified slot.3 Turn the printer on again.4 Insert the card into a different slot.5 If the error persists, the EIO accessory card might need to be replaced.

Data and communication troubleshooting tools

Communication problems are normally the customer's responsibility. Time spent attempting to resolve these problems might not be covered by the HP warranty. Refer the customer to the network administrator for assistance in troubleshooting network problems.

If you think that the problem is because of a customer error, data, communication, application, or driver problem, verify that the print engine is functioning correctly. To do this, print any of the built-in pages from the control panel. The demonstration page, configuration pages, and print-quality pages are useful for this check. If the internal pages print correctly, the printer is probably not the problem. Make sure you check the communication, driver, application, or customer error.

One method to check communication and data connections is to change the method of data transfer. For example, if the printer is connected through a network, try using a parallel connection. The problem might be solved quickly through the process of elimination.

Checking program and driver problems is similar. If the customer indicates that there are failures when using a single program, try printing from a different program. Also, if the customer indicates that there are failures while using the PostScript driver, try printing from the PCL driver.

Test message

After the printer is installed, verify communications between the printer and the IBM-compatible computer. Enter the following at the MS-DOS prompt:

```
C:\>DIR>LPT1          (for printing to parallel port #1)
```

The printer should print a directory listing of the C:\ directory.

EIO troubleshooting

The Jetdirect configuration page shown in figure 287 contains valuable information about the current status of the EIO accessories. Before attempting to troubleshoot a network problem or notifying your network consultant of a problem, always print a configuration page. If an EIO accessory is installed, the Jetdirect configuration page also prints.

See the *HP Jetdirect Network Interface Configuration Guide* for detailed explanations of network issues.

Software/network troubleshooting

The following scenarios are intended to identify specific conditions that cause 49 errors, or provide adjustments that might eliminate the error message.

Error occurs when printing from a specific environment or software program

- print from a different software program
- print different documents within the same software program
- change the graphics mode in the printer properties
- change the resolution setting in the printer properties
- select a PostScript driver rather than PCL (Windows only)
- use a different font, if possible (font selections might not be accessible in some environments or software programs)
- adjust the margin settings, if possible

Error occurs when printing a specific document

- change the graphics mode in the printer properties
- change the resolution setting in the printer properties
- select a PostScript driver rather than a PCL (Windows only)
- use a different font, if possible, or utilize fewer font changes
- adjust the margin settings, if possible
- if graphics are used, try using fewer graphics on each page or rearrange the graphics on the page
- recreate the document

Jetdirect configuration

If the EIO Jetdirect print server successfully turns on and completes its internal diagnostics, the `I/O CARD READY` message appears. If communication is lost, an `I/O NOT READY` message appears followed by a two-digit error code. Consult the *HP Jetdirect Network Interface Configuration Guide* for further details and recommended action.

The “Network Statistics” column indicates the status of network activity. Bad packets, framing errors, unsendable packets, and collisions should be minimal. If a high percentage (greater than 1 percent) of these occur, contact the network administrator. All of the statistics are set to zero when the printer is turned off.

A “Novell Status” block should state the Novell printer server name to which the printer is connected. If the Node Name reads “NPIxxxxxx” (xxxxxx = last six digits of the EIO LAN address), the EIO card is not configured for a Novell server. This could indicate that the card is operating under an IPX protocol other than Novell. Consult with the network administrator if the Node Name is not present.

In the TCP/IP protocol block, the default IP address is “192.0.0.192.” It is acceptable to operate the printer with this default address. The error message `ARP DUPLICATE IP ADDRESS` might appear in this block. This is also an acceptable error code if the TCP/IP protocol is not being used. Please check with the network administrator to determine the correct IP address for the printer.

Verify network and server operation

- try to print the job to the printer parallel port
- try to print from the host system through the network to another printer (contact the network administrator for assistance)


Jetdirect page

Use the Jetdirect page to view current network settings, to help troubleshoot printer problems, or to verify network statistics or protocol information. The Jetdirect page prints with the configuration page.

Jetdirect page elements

- A. HP Jetdirect configuration
- B. Network statistics
- C. Protocol information

hp color LaserJet 9500 printers



EIO 2 - JetDirect Page1

-----HP JetDirect Configuration-----
Status: I/O Card Ready

Model Number: XXXXXX
Hardware Address: XXXXXXXXXX
Firmware Address: XXXXX
LBA: XXXXXXXXXX
Port Config.: XXXXX XXXX
Auto Negotiation: XX
Manufacturing ID: XXXXXXXXXX
Date Manufactured: XX/XXXX

-----Security Settings-----
Admin. Password:
Secure web:
Cert. Expires:
SNMP Versions:
SNMP Set Only Name:
Access List:

-----Network Statistics-----
Total Packets Received: 755281
Unicast Packets Received: 392900
Bad Packets Received: 0
Framing Errors Received: 0
Total Packets Transmitted: 97518
Unsendable Packets: 0
Transmit Collisions: 0
Transmit Late Collisions: 0

-----TCP/IP-----
Status: Ready

Host Name: XXXXXXXX
IP Address: XX.XXX.XXX.XX
Subnet Mask: XXX.XXX.XXX.X
Default Gateway: XX.XXX.XXX.X
Config By: Manual
BOOTP/DHCP Server: Not Specified
TFTP Server: Not Specified
Config File: Not Specified
Domain Name: Not Specified
DNS Server: XXX.XXX.XXX.X
WINS Server: XX.XXX.XXX.XX
Idle Timeout: 207 sec
Web JetAdmin URL: Not Specified

mDNS Service Name:
hp color LaserJet 9500 (XXXXXXXXXXXX)

-----IPX/SPX-----
Status: UNABLE TO SENSE NET NUMBER

Primary Frame Type: Auto Select

Network Frame Type Rcvd
Unknown EN-II 10
Unknown EN_802.2 21484
Unknown EN-SNAP 10
Unknown EN_802.3 10

-----Novell/Netware-----
Status: 16
NOT CONFIGURED
Node Name: XXXXXXXX

Netware Mode: Queue Server
NDS Tree Name:

NDS Context:

SAP Interval: 60 sec
Attached Server:

-----AppleTalk-----
Status: Ready

Name: hp color LaserJet 95001
Zone:
Type 1: HP LaserJet
Type 2: LaserWriter
Network Number: 65281
Node Number: 24

-----DLC/LLC-----
Status: Ready

Sample Jetdirect page

Tray 4 troubleshooting tools

Tray 4 can run standalone diagnostics to test the device motors, functionality, and sensors. You need one power cord, one #2 Phillips screwdriver, and a small, flat-blade screwdriver for the DIP switches.

Tray 4 diagnostics label

The tray 4 diagnostics label is located on the inside of the tray 4 back cover.

Table 78. DIP switch settings

DIP switch	Normal	Motor test	Standalone running test	Sensor test
1	Off	On	On	Off
2	Off	On	Off	Off
3	Off	Off	Off	On
4	Off	On	On	On

Make sure that you turn the power supply off and set all of the DIP switches to the OFF position (normal settings) when you finish the diagnostics, or the unit will *not* work correctly. Then, replace the back cover.

Tray 4 motor test

This test verifies that the three motors on tray 4 are functioning correctly.

- 1 Identify the back cover (opposite from the tray door). Remove the four screws in the back cover, and then remove the back cover.
- 2 Open tray 4.
- 3 Set the DIP switches on the controller PCA to motor test mode.
- 4 Pull out on the blue handle to turn the power supply switch to diagnostic mode.
 - if the motors are working correctly, you hear them as they rotate continuously
 - if the motors do not rotate, replace the corresponding FRU (either the paper pickup assembly or the paper-deck drive assembly)
- 5 To stop the test, set the power switch to the operational mode (push in), and reset the DIP switches on the controller PCA to the OFF position.

Tray 4 standalone running test

This test verifies that tray 4 is functioning correctly. For this test, use the LED that is located on the controller PCA on tray 4.

If tray 4 is mounted underneath the printer, jams might occur because the printer will *not* pick up the media. To prevent excessive jams during this test, feed only six to eight pages.

- 1 Make sure that media is loaded in tray 4.
- 2 Set the DIP switches on the tray 4 controller PCA for standalone running mode.
- 3 Pull the blue power supply switch outward to set the power supply switch to the diagnostic mode. The motors start and media should lift from the tray.
 - if the unit does not work correctly, the lower service LED on the controller PCA flashes in a pattern that indicates the problem (see table 79 for an interpretation of the LED patterns)

- 4 To stop the test, set the power supply switch to the operational mode, and set the DIP switches on the controller PCA to the OFF position (see table 78). Open tray 4 and remove any media from the paper path.

Tray 4 sensor test

This test manually activates the sensors on tray 4 to test if they are working correctly.

- 1 Set the DIP switches on the controller PCA for sensor test mode.
- 2 For each paper sensor:
 - open tray 4
 - remove the metal spring that holds the sensor unit in place (secured by 1 screw)
 - pull out the sensor unit
- 3 To set the power supply switch to the diagnostic mode, pull the blue power supply switch outward.
- 4 To manually activate each sensor, press it in with your finger.
 - When you activate the sensor, the bottom service LED on the controller PCA illuminates. When you release the sensor, the LED goes dark.
 - If the LED does not illuminate, a problem exists with the sensor. Replace the corresponding FRU.
- 5 To stop the test, set the power supply switch to the operational mode, and set the DIP switches on the controller PCA to the OFF position (see table 78).

Tray 4 light pattern interpretation

If tray 4 is working correctly, it picks up media from the tray and feeds it to the printer, and the bottom service light flashes regularly every 0.5 second.

Table 79. Tray 4 light pattern interpretation

Long (1 second)	Short (0.03 second)	Error number/meaning	Recommended action
3	1	66.11.01 Lifter malfunction	Lift the tray by hand to make sure that it lifts freely. Make sure that the paper size plates are installed correctly (in the same corresponding slots) and are not bent. If neither of these is the problem, replace tray 4.
2	1	13.11.11 Registration sensor delay jam	The media does not reach the sensor. Open the door, and remove the media. Replace the paper pickup assembly.
2	2	13.11.3B Registration sensor station jam/initial jam	Open the door, and remove the media. Check the sensors, and replace the corresponding FRU.
2	3	13.11.31 Jam sensor delay jam	The media did not reach the sensor. Open the door, and remove the media. Replace the paper pickup assembly.
2	4	13.11.21 13.11.2B Jam sensor stationary jam/initial jam	Open the door and remove the media.
1	1	Paper path door is open	Close the door.
1	2	Media tray is open Wrong-size media is loaded	Close the tray. Load the correct size of media, or check the sensors.
1	3	No media in the tray	Load media, or check the sensors.

If the LED does not come on, replace the paper-deck PCA or the universal power-supply assembly.

Tray 4 does not print media

make sure that power is supplied to tray 4

print a configuration page and make sure that tray 4 is listed in the paper-handling options section

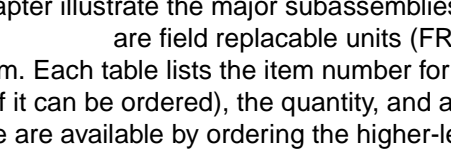
run a paper-path test from tray 4 (if the test is successful, the paper-size detection switches might have failed or an incorrect size might be specified in the software program)

make sure that the custom-size switch setting is correct

Parts and diagrams

Introduction	443
Ordering parts	443
Customer support information	443
Terminology	444
Kits, supplies, accessories, exchange parts, and documentation	445
Hardware identification	447
Illustrations and parts lists	448
External covers and panels	448
Left cover assembly	452
Right door assembly	453
Internal components (1 of 9)	454
Internal components (2 of 9)	456
Internal components (3 of 9)	458
Internal components (4 of 9)	460
Internal components (5 of 9)	462
Internal components (6 of 9)	464
Internal components (7 of 9)	466
Internal components (8 of 9)	468
Internal components (9 of 9)	470
Registration drive assembly	472
Process cartridge drive assembly (image drum drive)	473
Toner cartridge drive assembly (print cartridge drive)	474
Fuser drive assembly	476
Cassette assembly	478
Paper pickup assembly (1 of 3)	480
Paper pickup assembly (2 of 3)	482
Paper pickup assembly (3 of 3)	484
Manual feed pickup assembly (tray 1) (1 of 2)	486
Manual feed pickup assembly (tray 1) (2 of 2)	488
Registration assembly	490
Secondary transfer assembly (T2) (1 of 2)	492
Secondary transfer assembly (T2) (2 of 2)	494
Delivery feed assembly	495
Face down delivery assembly	496
Delivery cover assembly	497
Fuser assembly	498
PCB assemblies	499

Tray 4	500
Tray 4 main body	500
Tray 4 drive assembly.	504
Tray 4 PCA location	505
Master parts lists	506
Alphabetical parts list.	506
Numerical parts list	512

The figures in this chapter illustrate the major subassemblies in the printer and their component parts. Parts shown in  are field replaceable units (FRUs). A table accompanies each exploded-view diagram. Each table lists the item number for represented parts, the associated part number for the item (if it can be ordered), the quantity, and a description of the part. Parts that are listed as not orderable are available by ordering the higher-level assembly or FRU.

When looking for an electrical part, pay careful attention to the voltage listed in the description column to ensure that the part number selected is for the correct printer model.

Ordering parts

All standard part numbers listed are stocked and can be ordered from HP's Customer Services and Support Organization. The following website allows you to search for HP product parts using the HP product name or model number, part number, or by choosing an HP product from a list.

To order parts, go to

Consumables and accessories like those listed in table 81 can be ordered from Hewlett-Packard.

Supplies, accessories, and consumables can be ordered from the following websites

North America:

Canada:

Europe:

Asia Pacific:

Customer support information

Before visiting the printer support website (URL: <http://www.hp.com/go/support>) or the Customer Services and Support Organization (URLs listed above), obtain the following information and print the specified diagnostic pages.

Printer model-found on the upper-right corner of the front doors of the printer.

Serial number-found inside the front doors, in the lower-right corner.

Configuration page, EIO Jetdirect card page, event log.

Terminology

Table 80. Term decoder

HP term	Parts listing	Definition
Image drum	P-crg	Process cartridge (carrier, OPC, charge roller, developer sleeve)
Print cartridge	T-crg	Toner cartridge
Toner collection bottle	Waste toner bottle assembly	Receptacle for waste toner from EP process
Image transfer roller	Transfer roller assembly	Secondary transfer roller (T2)
Image transfer belt	Intermediate transfer belt (ITB) assembly	Image transfer belt (ITB)
Post charger	Not orderable (part of the ITB)	Corona wire to facilitate secondary transfer
Transfer cleaner	ITB cleaner assembly	ITB cleaning blade

Kits, supplies, accessories, exchange parts, and documentation

If item does not have a product number, use the service part number to order that item.

Table 81. Kits and supplies

Item	Product Number	Service part number	Description
	C8550A	C8550-67901	Replacement print cartridge
	C8551A	C8551-67901	Replacement print cartridge
	C8552A	C8552-67901	Replacement print cartridge
	C8553A	C8553-67901	Replacement print cartridge
	C8560A	C8560-67901	Replacement image drum
	C8561A	C8561-67901	Replacement image drum
	C8562A	C8562-67901	Replacement image drum
	C8563A	C8563-67901	Replacement image drum
	C8555A	C8555-67901	One image transfer belt, one image transfer roller, nine paper rollers, and one ozone filter
	C8554A	C8554-67901	One air filter, one transfer cleaner, and one toner collection bottle
	C8556A	RG5-6098-000CN new C8546-69007 exchange	One fuser assembly

Table 82. Accessories, exchange parts, and documentation

Item	Product number	Service part number	Description
	C8091A	C8085-67901	Replacement cartridge
	C8092A	C8088-60541	Replacement cartridge
	No product number.	RG5-6400-030CN new C8546-69002 exchange	Entire assembly
	No product number.	RG5-6188-030CN new C8546-69006 exchange	Entire assembly
	No product number.	C8546-69003 exchange	PCA assembly
	No product number.	C8546-69004 exchange	PCA assembly
	No product number.	C8546-67911	Does not include memory, firmware, or EIO card
	No product number.	C8546-67906 new C8546-69005 exchange	PCA
	See "External covers and panels (2 of 2)" on page 451. (Figure 289; reference 22)		
	C9712CA	C9712-67907	Flash firmware DIMM for formatter
	C7848A	Q1887-67901	Memory DIMM
	C7850A	C7850-67901	Memory DIMM
	C9653A	C9653-67901	Memory DIMM
	C4293A	5184-5248	Font DIMM

Table 82. Accessories, exchange parts, and documentation

Item	Product number	Service part number	Description
	C4292A	5184-5247	Font DIMM
	C4103A	C4103-67901	Wireless printing device
	No product number.	J6054-69021	20 GB
	No product number.	J6057-69001	Ethernet EIO card
	J4135A	J4135-61001	USB EIO card
	C8531A	C8531-67902 new C8531-69004 exchange	Includes the cassette
	No product number.	RG5-6212-230CN new C8531-69011 exchange	Cassette only
	C8084A	Not orderable	Finishing device
	C8085A	Not orderable	Finishing device
	C8088A	C8088-60500 new C8088-69500 exchange	Finishing device
	C9674A	C9674-67901 new C9674-69001 exchange	Required for two-sided printing
	No product number.	RB2-7615-000CN	Used to clean the transfer cleaner corona wire
	No product number.	8120-6812	United States
	No product number.	5181-3530	Mexico, Brazil, Canada (FR/EN)
	No product number.	8120-6811	Germany, Spain, France, Netherlands, Norway, Sweden, Finland, Italy, Russia, Czech Republic, Hungary, Poland, Saudi Arabia, Korea, Greece, Turkey, Portugal
	No product number.	8120-6800	Israel
	No product number.	8121-0780	India
	No product number.	C8546-99001	Printer and finishing devices
	No product number.	C8546-60109	CD- based service training materials
	Electronic versions ready to print at:		Mini-manual that goes inside of the right door of the HP color LaserJet 9500 series printer
	Electronic versions ready to print at:		Electronic versions of the user guide and the user reference guide.

Hardware identification

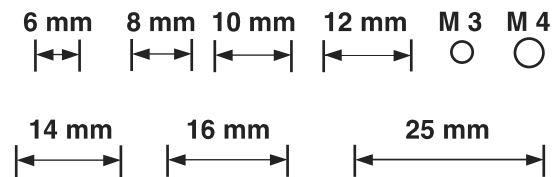


Table 83. Common hardware

Example	Type and uses
	<p>Long aluminum finish (M3 by 8)</p> <ul style="list-style-type: none"> • Plastic to sheet metal • Long-reach sheet metal (P-cartridge motor assembly) <p>Short brass finish (M3 by 6)</p> <ul style="list-style-type: none"> • Sheet metal to sheet metal <p>Short black finish (M3 by 8)</p> <ul style="list-style-type: none"> • Laser/scanner assemblies <p>Self-threading brass finish (M4)</p> <ul style="list-style-type: none"> • Sheet metal to plastic

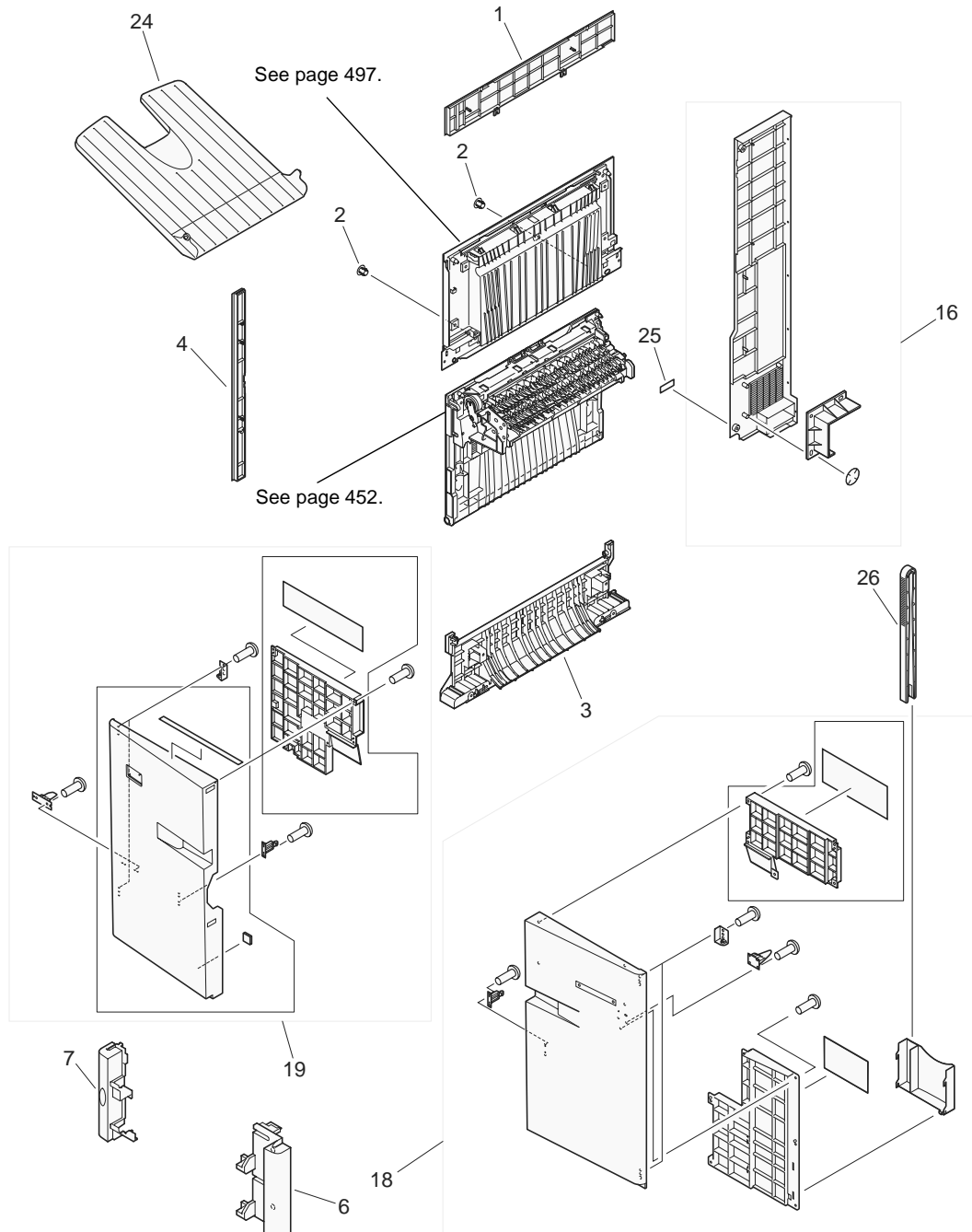
Table 84. Common torque values

Material	HP recommended torque value
	5.5 lb-inch
	10 lb-inch
	5.5 lb-inch
	5.5 lb-inch

The following illustration and parts tables show the field replaceable units (FRUs). Two tables at the end of this chapter list all of the parts shown in this chapter. Both tables also contain the figure numbers in this chapter that show the parts.

Parts shown in magenta are FRUs. Other parts are not service-replaceable. Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear.

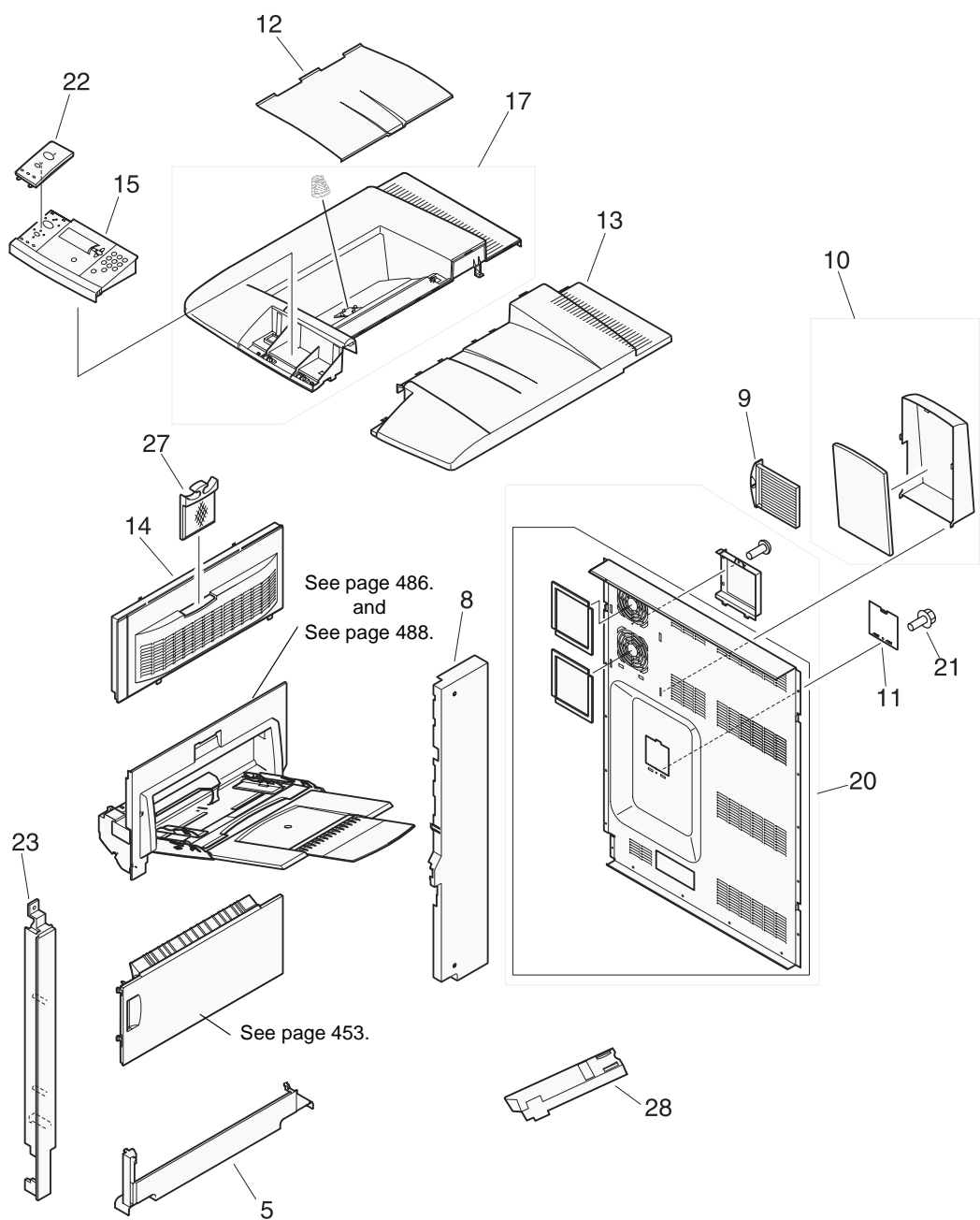
External covers and panels



External covers and panels (1 of 2)

Table 85. External covers and panels (1 of 2)

Ref	Description	Part number	Qty
Figure 288; 1	Cover, left upper	RB2-7336-000CN	1
Figure 288; 2	Cap, cover	Not orderable	2
Figure 288; 3	Cover, left lower	RB2-5687-000CN	1
Figure 288; 4	Cover, left front	RB2-7335-000CN	1
Figure 288; 6	Cover, front right	RB2-5682-000CN	1
Figure 288; 7	Cover, front left	RB2-5683-000CN	1
Figure 288; 16	Cover, left back assembly	RG5-6111-000CN	1
Figure 288; 18	Door, front right assembly	RG5-6113-000CN	1
Figure 288; 19	Door, front left assembly	RG5-6114-000CN	1
Figure 288; 24	Tray, face-up delivery	RB2-5690-000CN	1
Figure 288; 25	Label, outlet 110 V	Not orderable	1
	Label, outlet 220 V	Not orderable	1
Figure 288; 26	Tongs, jam removal	RF5-3535-000CN	1

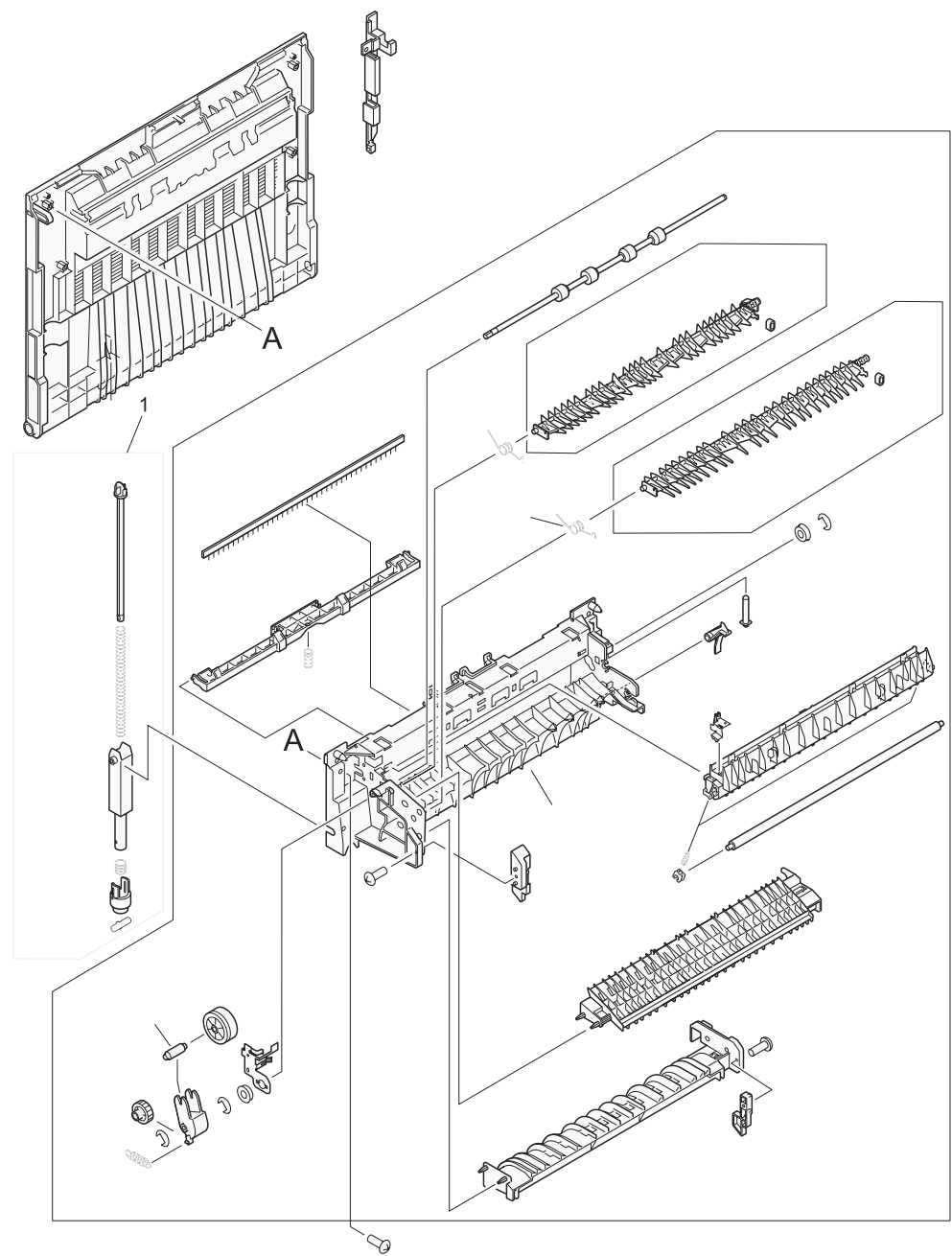


External covers and panels (2 of 2)

Table 86. External covers and panels (2 of 2)

Ref	Description	Part number	Qty
Figure 289; 5	Cover, right lower	RB2-5689-000CN	1
Figure 289; 8	Cover, right back	RB2-7352-000CN	1
Figure 289; 9	Filter, air	RB2-7170-000CN	1
Figure 289; 10	Hood, fan	RF5-3555-000CN	1
Figure 289; 11	Cover, blanking	Not orderable	1
Figure 289; 12	Tray, delivery movable	RB2-7341-000CN	1
Figure 289; 13	Cover, top right	RB2-7321-000CN	1
Figure 289; 14	Cover, right upper	RB2-7332-000CN	1
Figure 289; 15	Display, panel assembly (control panel)	RG5-6115-000CN	1
Figure 289; 17	Cover, top left assembly	RG5-6112-000CN	1
Figure 289; 20	Cover, rear assembly	RG5-6042-000CN	1
Figure 289; 21	Screw, RS M3X8	Not orderable	1
Figure 289; 22	Control panel overlay—English	C8546-40002	1
Figure 289; 22	Control panel overlay—French (European)	C8546-40003	1
Figure 289; 22	Control panel overlay—Italian	C8546-40004	1
Figure 289; 22	Control panel overlay—German	C8546-40005	1
Figure 289; 22	Control panel overlay—Spanish (Castilian)	C8546-40006	1
Figure 289; 22	Control panel overlay—Dutch	C8546-40007	1
Figure 289; 22	Control panel overlay—Portuguese (Brazilian)	C8546-40008	1
Figure 289; 22	Control panel overlay—Norwegian	C8546-40009	1
Figure 289; 22	Control panel overlay—Swedish	C8546-40010	1
Figure 289; 22	Control panel overlay—Finnish	C8546-40011	1
Figure 289; 22	Control panel overlay—Danish	C8546-40012	1
Figure 289; 22	Control panel overlay—Polish	C8546-40013	1
Figure 289; 22	Control panel overlay—Russian	C8546-40014	1
Figure 289; 22	Control panel overlay—Czech	C8546-40015	1
Figure 289; 22	Control panel overlay—Hungarian	C8546-40016	1
Figure 289; 22	Control panel overlay—Chinese, traditional	C8546-40017	1
Figure 289; 22	Control panel overlay—Chinese, simplified	C8546-40018	1
Figure 289; 22	Control panel overlay—Korean	C8546-40019	1
Figure 289; 22	Control panel overlay—Japanese	C8546-40020	1
Figure 289; 22	Control panel overlay—Turkish	C8546-40021	1
Figure 289; 22	Control panel overlay—Hebrew	C8546-40022	1
Figure 289; 22	Control panel overlay—Greek	C8546-40023	1
Figure 289; 22	Control panel overlay—Arabic	C8546-40024	1
Figure 289; 23	Cover, right front	RB2-7331-000CN	1
Figure 289; 27	Filter, ozone	RB2-7206-000CN	1

Left cover assembly

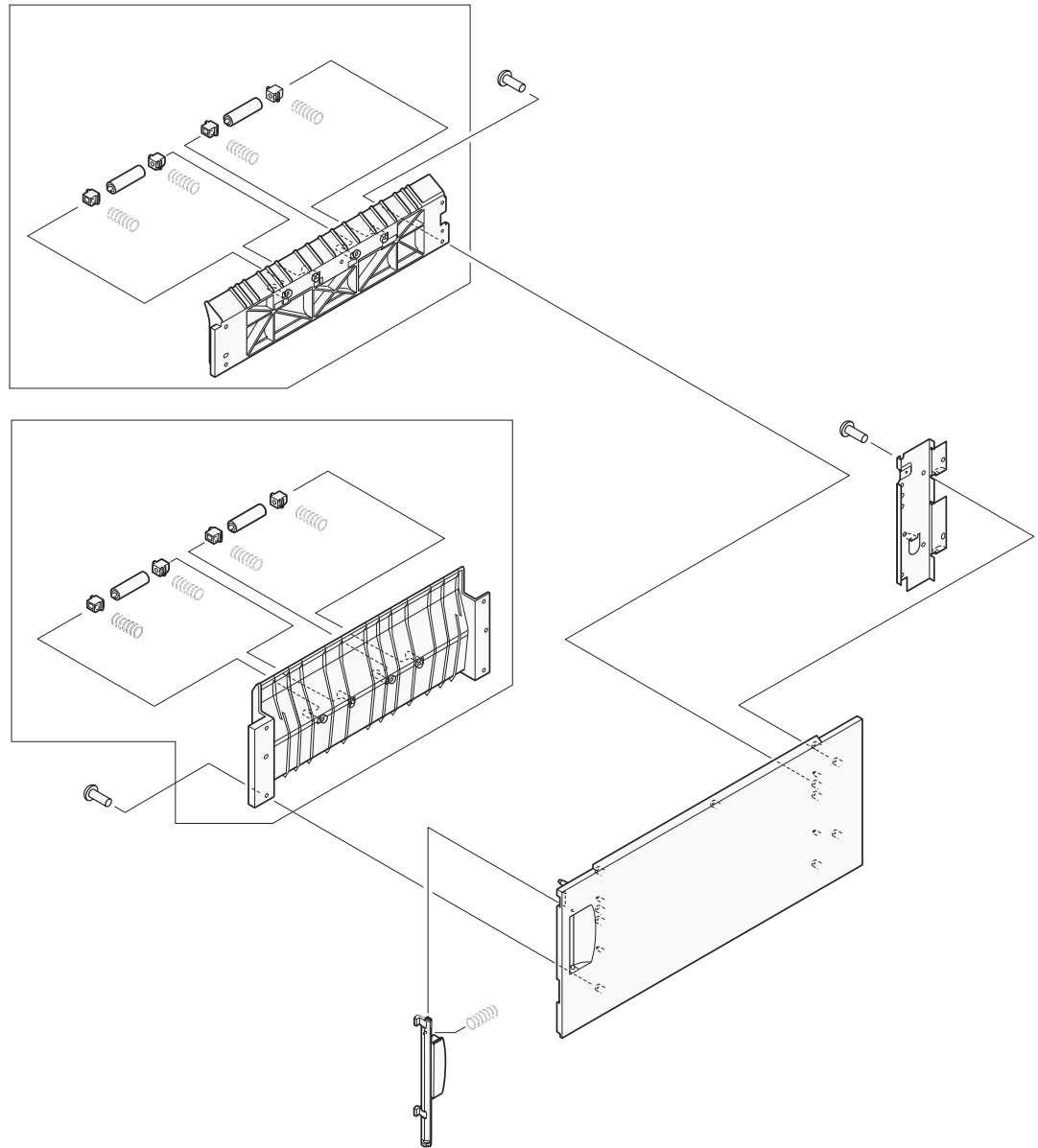


Left cover assembly

Table 87. Left cover assembly

Ref	Description	Part number	Qty
Figure 290; all	Cover, left assembly	RG5-6149-000CN	1
Figure 290; 1	Dampener, left cover assembly	RG5-6185-000CN	1

Right door assembly

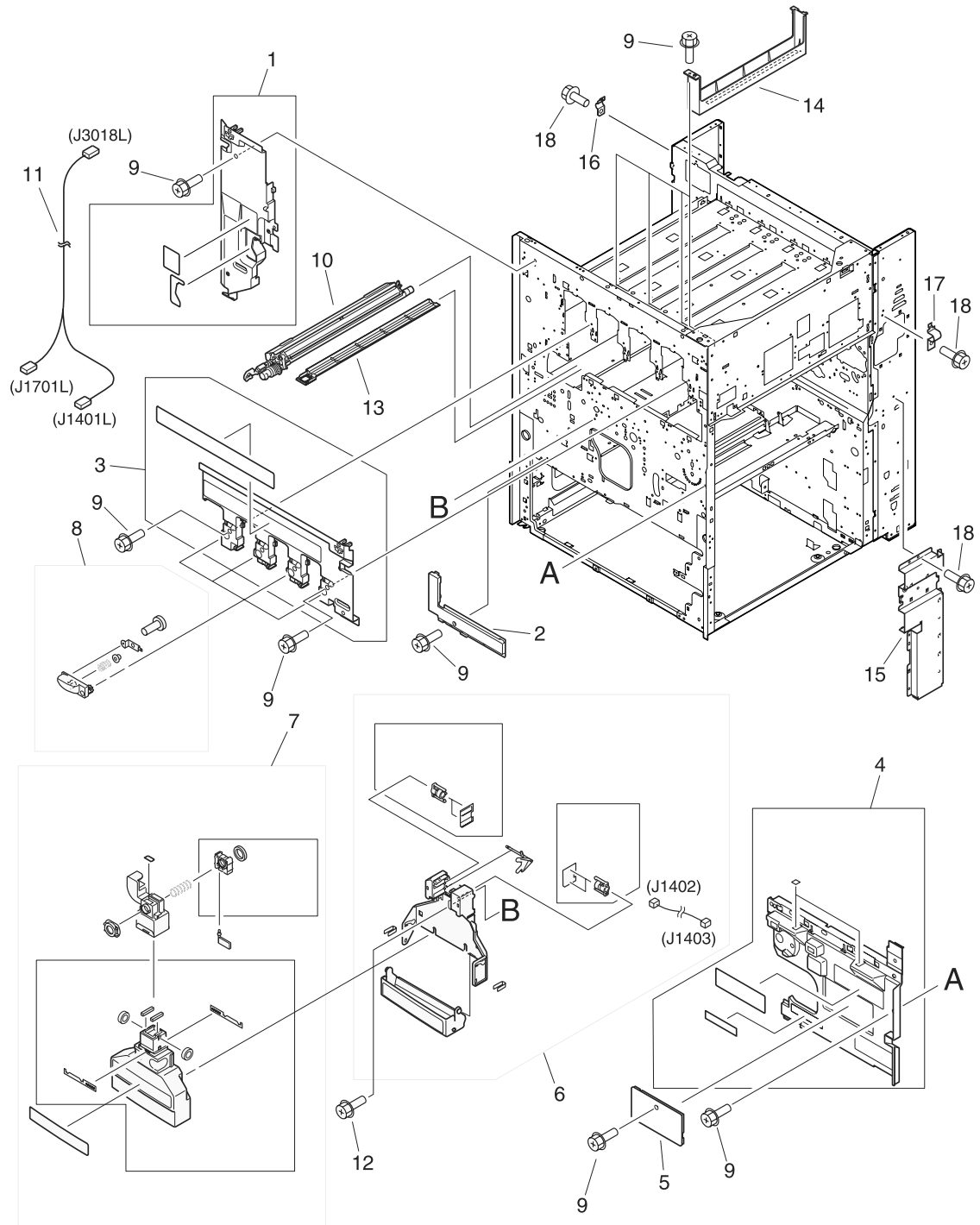


Right door assembly

Table 88. Right door assembly

Ref	Description	Part number	Qty
Figure 291; all	Door, right assembly	RG5-6108-000CN	1

Internal components (1 of 9)

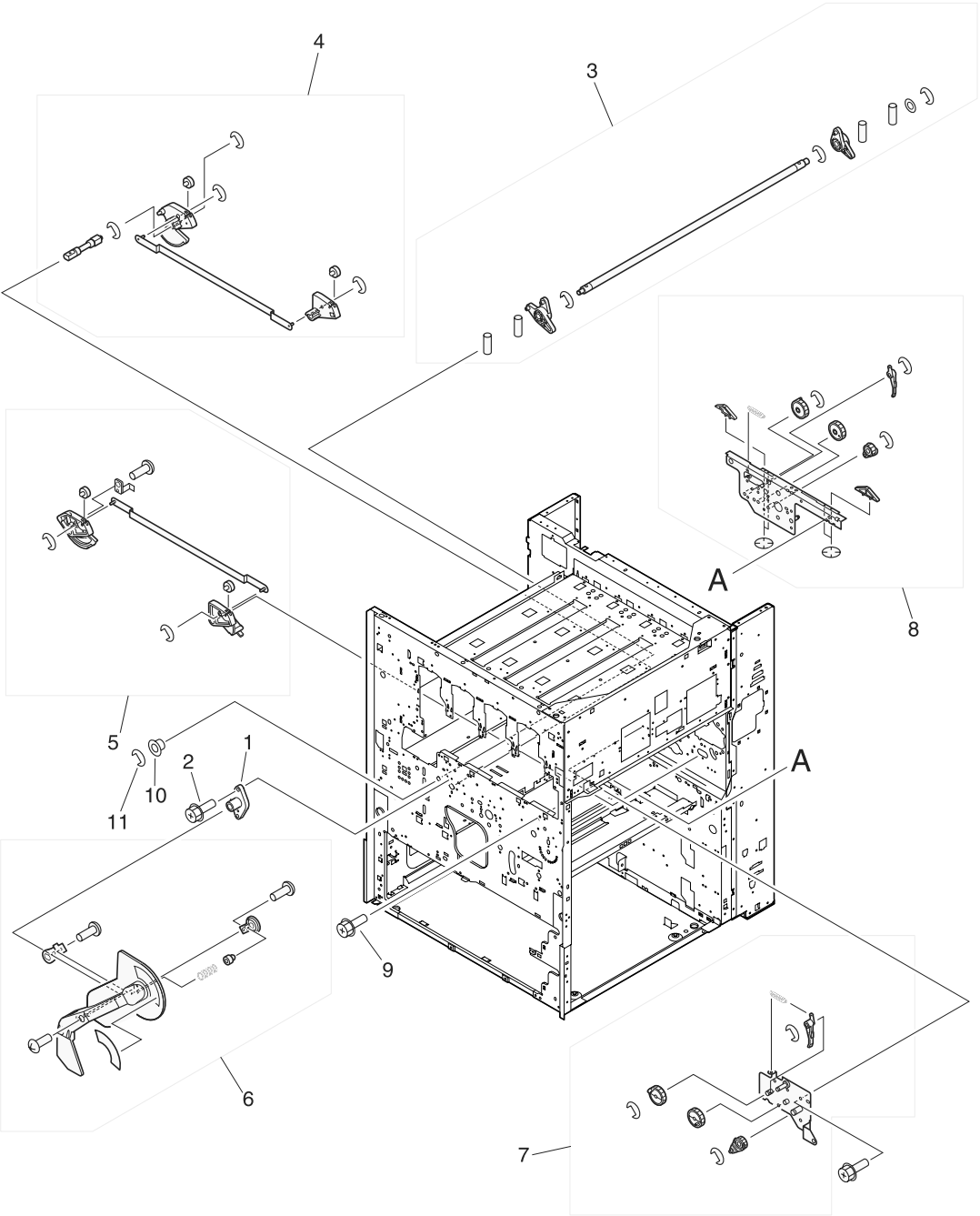


Internal components (1 of 9)

Table 89. Internal components (1 of 9)

Ref	Description	Part number	Qty
Figure 292; 1	Cover, inner left upper	Not orderable	1
Figure 292; 2	Cover, inner left lower	Not orderable	1
Figure 292; 3	Cover, inner right upper	Not orderable	1
Figure 292; 4	Cover, inner right lower assembly	Not orderable	1
Figure 292; 5	Cover, inner	Not orderable	1
Figure 292; 6	Waste toner sensor assembly (J1402, J1403)	RG5-6038-000CN	1
Figure 292; 7	Waste toner bottle assembly	RG5-6040-000CN	1
Figure 292; 8	Toner cartridge lever assembly	RG5-6121-000CN	4
Figure 292; 9	Screw, RS M3X8	Not orderable	11
Figure 292; 10	ITB cleaner assembly	RG5-6041-000CN	1
Figure 292; 11	Waste toner connecting cable (J1701L, J3018L)	Not orderable	1
Figure 292; 12	Screw, M4X6	Not orderable	1
Figure 292; 13	Tray, catch	RB2-7207-000CN	1
Figure 292; 14	Cover, scanner	Not orderable	1
Figure 292; 15	Cover, pickup cable	Not orderable	1
Figure 292; 16	Cable, support left	Not orderable	1
Figure 292; 17	Cable support right	Not orderable	1
Figure 292; 18	Screw, RS M3X6	Not orderable	5

Internal components (2 of 9)

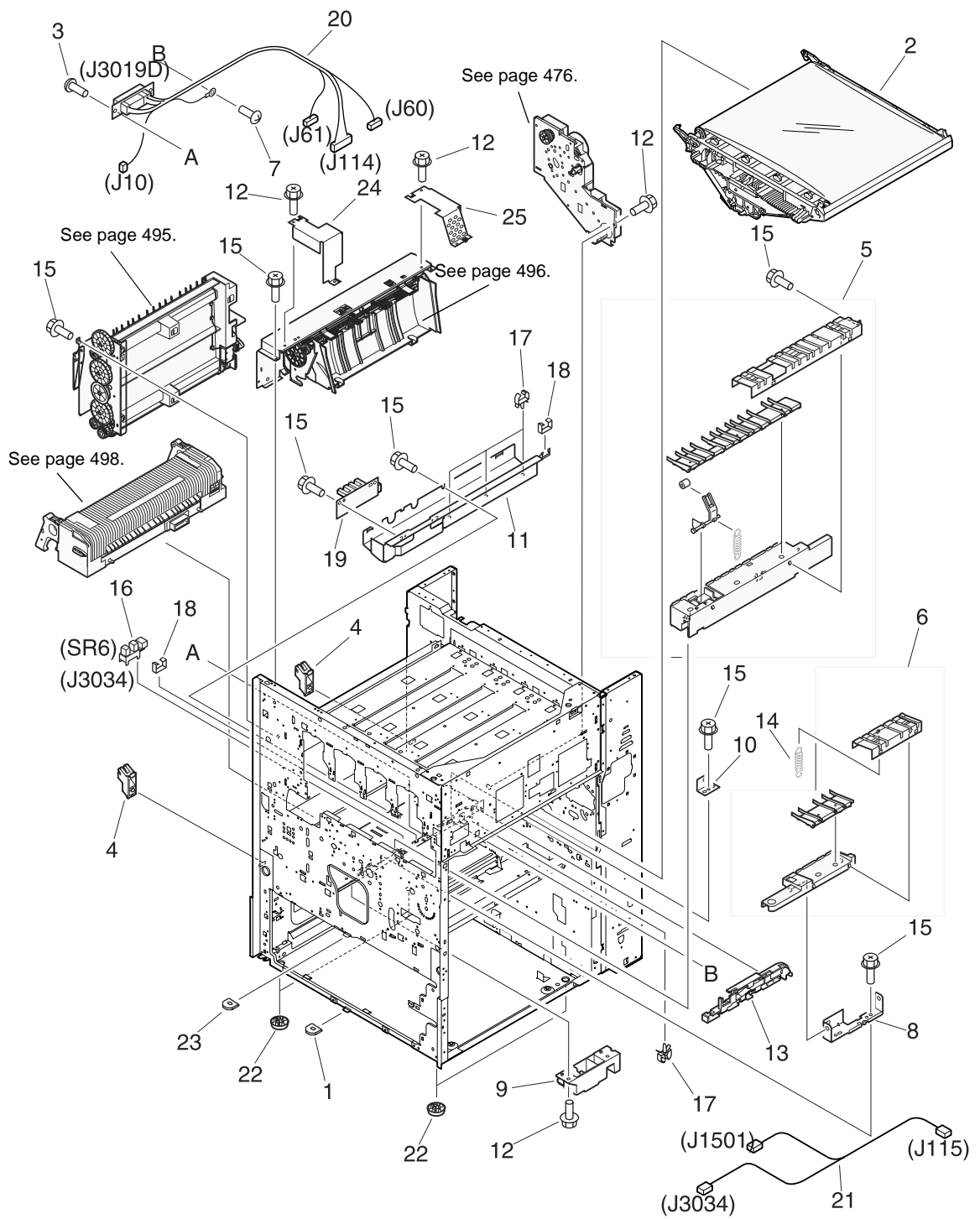


Internal components (2 of 9)

Table 90. Internal components (2 of 9)

Ref	Description	Part number	Qty
Figure 293; 1	Plate, mount	Not orderable	1
Figure 293; 2	Screw, RS M3X12	Not orderable	2
Figure 293; 3	Soft link shaft assembly	RG5-6122-000CN	1
Figure 293; 4	Lift link front assembly	RG5-6131-000CN	1
Figure 293; 5	Lift link rear assembly	RG5-6132-000CN	1
Figure 293; 6	Lever assembly	RG5-6134-000CN	1
Figure 293; 7	Link rear unit	RG5-6147-000CN	1
Figure 293; 8	Transfer link front assembly	RG5-6146-000CN	1
Figure 293; 9	Screw, RS M3X6	Not orderable	11
Figure 293; 10	Bushing	Not orderable	1
Figure 293; 11	Ring, E	Not orderable	1

Internal components (3 of 9)

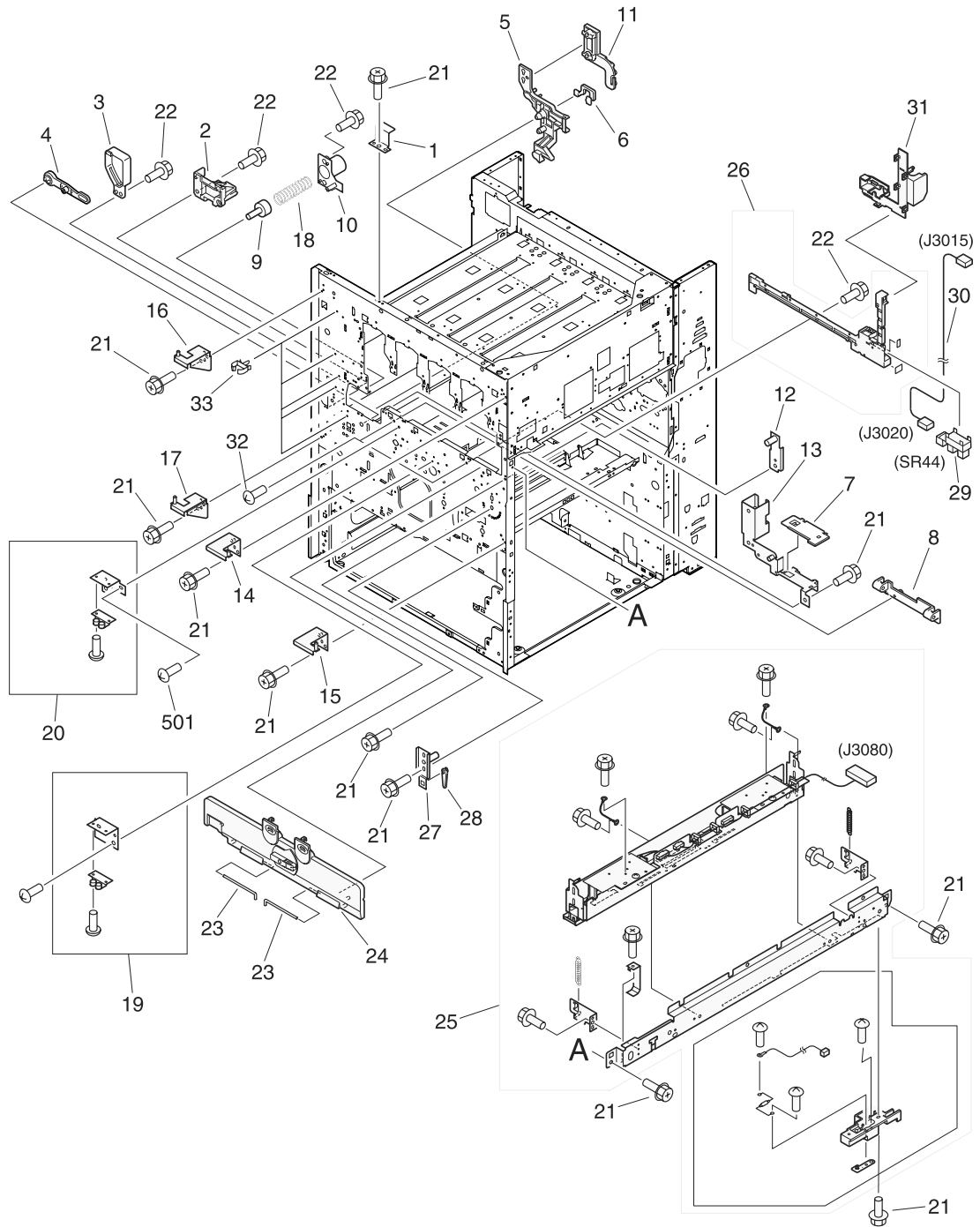


Internal components (3 of 9)

Table 91. Internal components (3 of 9)

Ref	Description	Part number	Qty
Figure 294; 1	Mount, positioning	Not orderable	1
Figure 294; 2	Intermediate transfer belt (ITB) assembly	RG5-6400-030CN new C8546-69002 exchange	1
Figure 294; 3	Screw, TP M4X8	Not orderable	2
Figure 294; 4	Mount, dampener	RB2-5570-020CN	2
Figure 294; 5	Main fuser front guide assembly	RG9-1595-000CN	1
Figure 294; 6	Sub fuser front guide assembly	RG9-1596-000CN	1
Figure 294; 7	Screw, with washer M4X6	Not orderable	1
Figure 294; 8	Plate, feeder support	Not orderable	1
Figure 294; 9	Plate, duplexing support	Not orderable	1
Figure 294; 10	Plate, fuser positioning	Not orderable	1
Figure 294; 11	Mount, lower fuser sensor	Not orderable	1
Figure 294; 12	Screw, RS M3X6	Not orderable	6
Figure 294; 13	Guide, drawer cable	Not orderable	1
Figure 294; 14	Spring, tension	RS6-2442-000CN	1
Figure 294; 15	Screw, RS M3X6	Not orderable	11
Figure 294; 16	Photo interrupter (TLP1241, SR6, J3034)	WG8-5362-000CN	1
Figure 294; 17	Clamp, cable	Not orderable	4
Figure 294; 18	Clip, cable	Not orderable	2
Figure 294; 19	Fuser sensor PCB assembly	RG5-5914-000CN	1
Figure 294; 20	Fuser connecting cable assembly (J10, J60, J61, J114, J3019D)	RG5-5925-000CN	1
Figure 294; 21	Fuser sensor cable assembly (J115, J1501, J3034)	RG5-5932-000CN	1
Figure 294; 22	Foot	Not orderable	4
Figure 294; 23	Mount, positioning	Not orderable	1
Figure 294; 24	Cover, shield back delivery assembly	Not orderable	1
Figure 294; 25	Cover, shield front delivery assembly	Not orderable	1

Internal components (4 of 9)

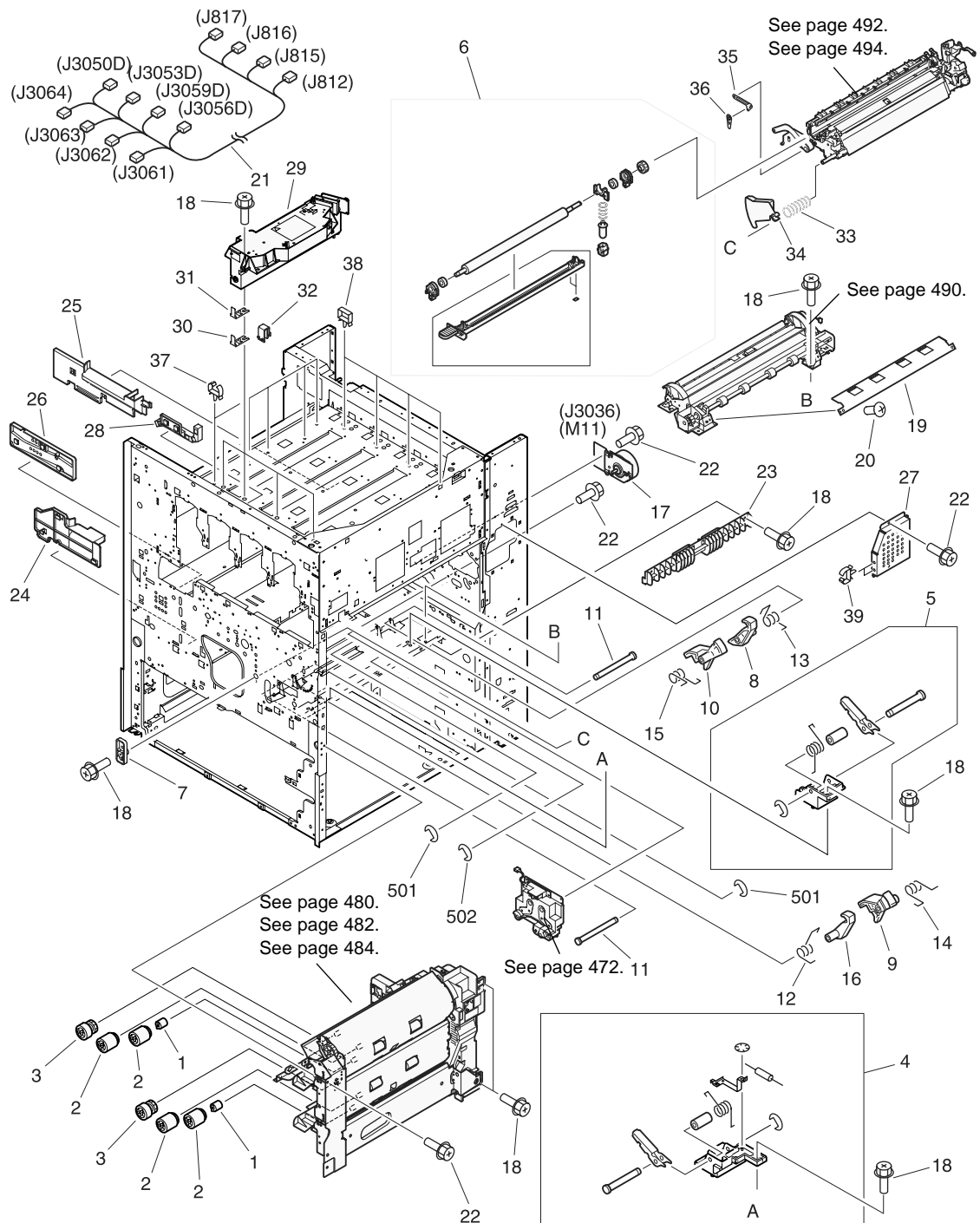


Internal components (4 of 9)

Table 92. Internal components (4 of 9)

Ref	Description	Part number	Qty
Figure 295; 1	Plate, control panel support	Not orderable	1
Figure 295; 2	Guide, cleaner	RB2-7181-000CN	2
Figure 295; 3	Cover, interlock	Not orderable	1
Figure 295; 4	Link, holder lift	RB2-7258-000CN	1
Figure 295; 5	Support, cleaning front	RB2-7570-000CN	1
Figure 295; 6	Plate, positioning	RB2-7537-000CN	1
Figure 295; 7	cover, support plate	Not orderable	1
Figure 295; 8	Support, side plate hinge	RB2-7302-000CN	2
Figure 295; 9	Pin, open/close cover support	Not orderable	1
Figure 295; 10	Guide, support pin	Not orderable	1
Figure 295; 11	Support, cleaning front	RB2-7515-000CN	1
Figure 295; 12	Plate, positioning	Not orderable	1
Figure 295; 13	Plate, mount	RF5-3505-000CN	1
Figure 295; 14	Support door hinge	RF5-3506-000CN	1
Figure 295; 15	Support door hinge	RF5-3507-000CN	1
Figure 295; 16	Support door hinge	RF5-3508-000CN	1
Figure 295; 17	Support door hinge	RF5-3509-000CN	1
Figure 295; 18	Spring, compression	Not orderable	1
Figure 295; 19	Right roller catch assembly	Not orderable	1
Figure 295; 20	Left roller catch assembly	Not orderable	1
Figure 295; 21	Screw, RS M3X6	Not orderable	11
Figure 295; 22	Screw, RS M3X8	Not orderable	4
Figure 295; 23	Pin, hinge	Not orderable	2
Figure 295; 24	P-crg open/close cover assembly	RG5-6182-000CN	1
Figure 295; 25	Registration sensor assembly (J3080)	RG5-6123-020CN	1
Figure 295; 26	Rail, guide front	RF5-3545-000CN	1
Figure 295; 27	Plate, shaft front	Not orderable	1
Figure 295; 28	Lever, adjusting	Not orderable	1
Figure 295; 29	Photo interrupter (TLP1241, SR44, J3020)	WG8-5362-000CN	1
Figure 295; 30	Intermediate transfer belt (ITB) sensor cable assembly (J3015, J3020)	RG5-5960-000CN	1
Figure 295; 31	Cover, rail	RB2-7531-000CN	1
Figure 295; 32	Screw, M3X8	Not orderable	4
Figure 295; 33	Clamp, cable	Not orderable	5

Internal components (5 of 9)

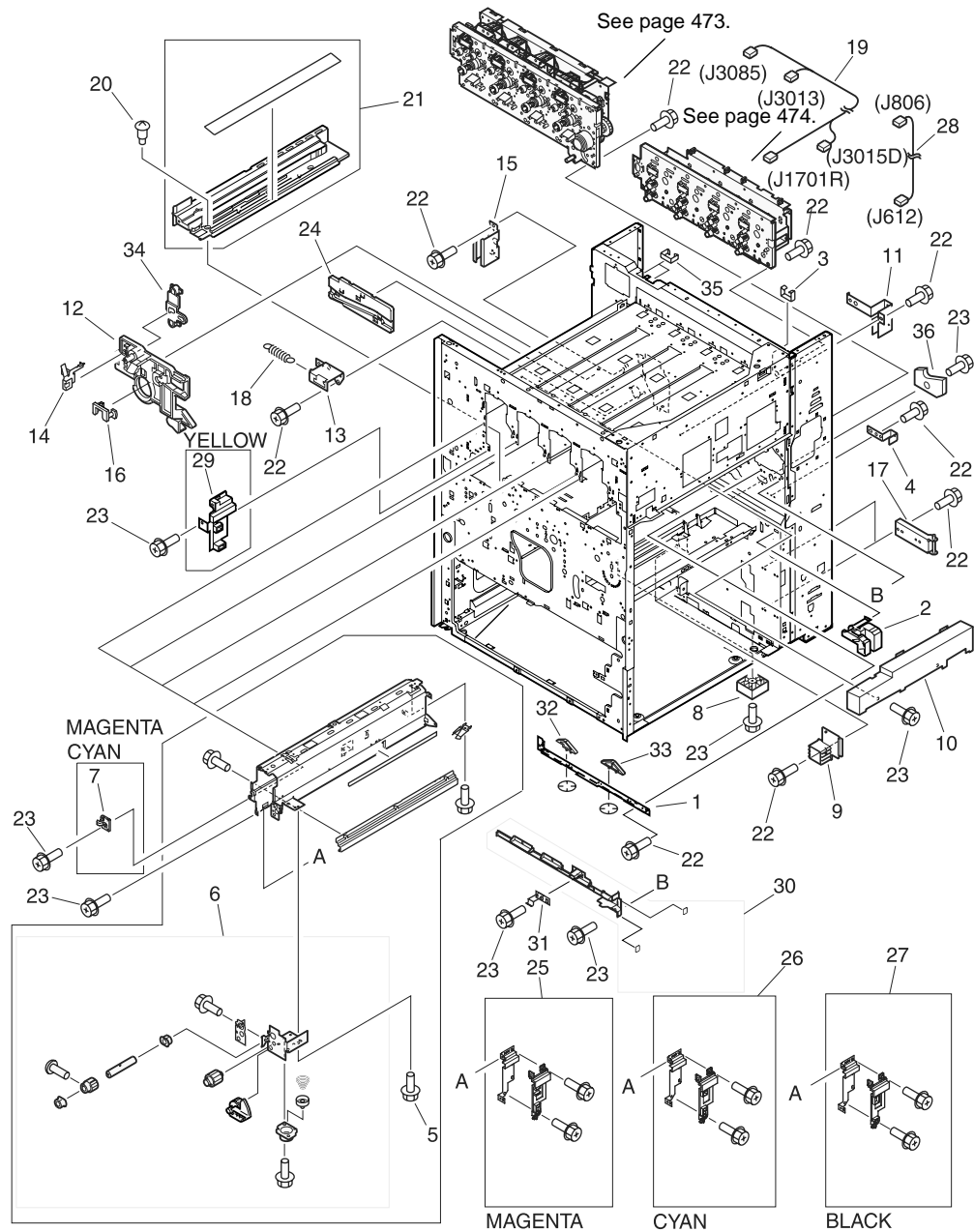


Internal components (5 of 9)

Table 93. Internal components (5 of 9)

Ref	Description	Part number	Qty
Figure 296; 1	Torque limiter	RB2-5759-000CN	1
Figure 296; 2	Roller	RF5-3338-000CN	4
Figure 296; 3	Roller, pickup	RF5-3340-000CN	2
Figure 296; 4	Damper front assembly	Not orderable	1
Figure 296; 5	Damper rear assembly	Not orderable	1
Figure 296; 6	Transfer roller assembly	RG5-6178-000CN	1
Figure 296; 7	Plate, eliminator contact	Not orderable	1
Figure 296; 8	Hook, registration front	Not orderable	1
Figure 296; 9	Block, registration front	Not orderable	1
Figure 296; 10	Block, registration rear	Not orderable	1
Figure 296; 11	Shaft, registration hook	Not orderable	2
Figure 296; 12	Spring, torsion	Not orderable	1
Figure 296; 13	Spring, torsion	Not orderable	1
Figure 296; 14	Spring, torsion	Not orderable	1
Figure 296; 15	Spring, torsion	Not orderable	1
Figure 296; 16	Hook, registration rear	Not orderable	1
Figure 296; 17	Motor, DC24 V (M11, J3036)	RH7-1518-000CN	1
Figure 296; 18	Screw, RS M3X6	Not orderable	11
Figure 296; 19	Guide, registration paper front lower	Not orderable	1
Figure 296; 20	Screw, M4X10	Not orderable	2
Figure 296; 21	Cable, BD auto registration (J812, J815, J816, J817, J3050D, J3053D, J3056D, J3059D, J3061, J3062, J3063, J3064)	Not orderable	1
Figure 296; 22	Screw, RS M3X6	Not orderable	4
Figure 296; 23	Guide, pickup	Not orderable	1
Figure 296; 24	Guide, duplexing front	Not orderable	1
Figure 296; 25	Guide, duplexing rear	Not orderable	1
Figure 296; 26	Guide, fuser support front	Not orderable	1
Figure 296; 27	Cover, motor	Not orderable	1
Figure 296; 28	Guide, panel cable	Not orderable	1
Figure 296; 29	Scanner assembly	C8546-69002	4
Figure 296; 30	Plate, scanner adjustment shim 1	Not orderable	Varies
Figure 296; 31	Plate, scanner adjustment shim 2	Not orderable	Varies
Figure 296; 32	Holder, scanner adjustment shim	Not orderable	8
Figure 296; 33	Spring, compression	RS6-2840-000CN	1
Figure 296; 34	Cover, transfer front	RB2-7445-000CN	1
Figure 296; 35*	Link, front	RF5-3502-000CN	1
Figure 296; 36*	Holder, stop	RB2-7501-000CN	1
Figure 296; 37	Clamp, cable	Not orderable	5
Figure 296; 38	Clamp, cable	Not orderable	4
Figure 296; 39	Clamp, cable	Not orderable	2

Internal components (6 of 9)

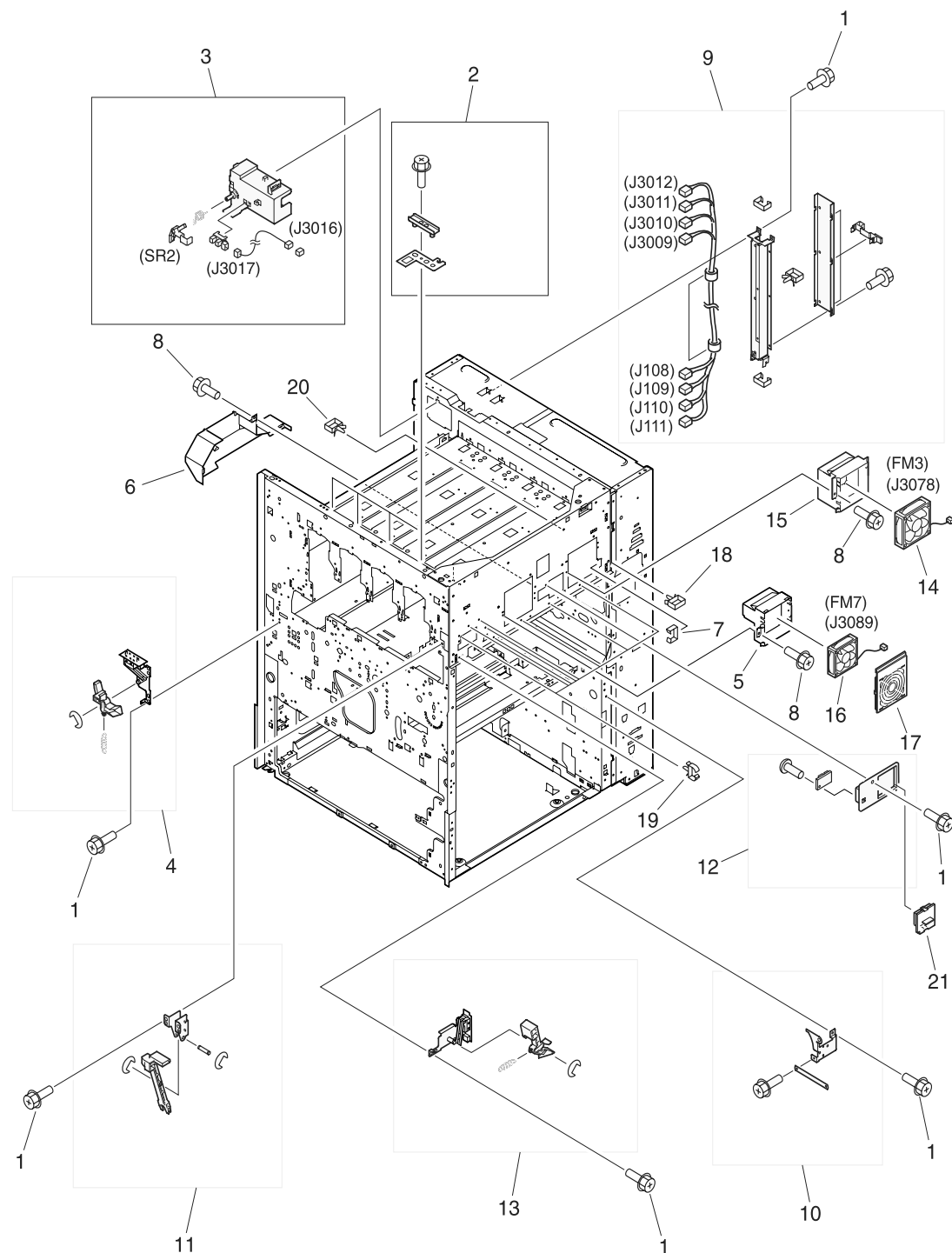


Internal components (6 of 9)

Table 94. Internal components (6 of 9)

Ref	Description	Part number	Qty
Figure 297; 1	Plate, rail support	Not orderable	1
Figure 297; 2	Block, damper	RB2-7217-000CN	1
Figure 297; 3	Clip, cable	Not orderable	1
Figure 297; 4	Fuser plate, high-voltage	Not orderable	1
Figure 297; 5	Screw, RS M3X6	Not orderable	2
Figure 297; 6	Cartridge, click support assembly	RG5-6141-000CN	1
Figure 297; 7	Support, claw (magenta, cyan)	Not orderable	2
Figure 297; 8	Block, right	Not orderable	1
Figure 297; 9	Cover, latch	Not orderable	2
Figure 297; 10	Duct, fan	Not orderable	1
Figure 297; 11	Rail, guide rear	Not orderable	1
Figure 297; 12	Support, cleaner rear	Not orderable	1
Figure 297; 13	Plate, mount	Not orderable	1
Figure 297; 14	Plate, contact	Not orderable	1
Figure 297; 15	Support, cleaner rear support	Not orderable	1
Figure 297; 16	Holder, positioning	Not orderable	1
Figure 297; 17	Hinge, right cover	Not orderable	2
Figure 297; 18	Spring, tension	Not orderable	1
Figure 297; 19	Right upper crossmember cable (J1701R, J3015D, J3013, J3085)	RG5-5943-000CN	1
Figure 297; 20	Screw, stepped M3	Not orderable	3
Figure 297; 21	Intermediate transfer belt (ITB) duct unit	Not orderable	1
Figure 297; 22	Screw, RS M3X6	Not orderable	10
Figure 297; 23	Screw, RS M3X8	Not orderable	10
Figure 297; 24	Guide, fuser support	Not orderable	1
Figure 297; 25	Magenta cartridge rail assembly	Not orderable	1
Figure 297; 26	Cyan cartridge rail assembly	Not orderable	1
Figure 297; 27	Black cartridge rail assembly	Not orderable	1
Figure 297; 28	Toner cartridge cable (J612, J806)	RG5-5939-000CN	1
Figure 297; 29	Rail, cartridge (yellow)	Not orderable	1
Figure 297; 30	Rail, guide rear	RF5-3546-000CN	1
Figure 297; 31	Plate, grounding	RB2-7281-000CN	1
Figure 297; 32	Cam, right	Not orderable	1
Figure 297; 33	Cam, left	Not orderable	1
Figure 297; 34	Retainer, cleaner rear	Not orderable	1
Figure 297; 35	Holder, edge	Not orderable	2
Figure 297; 36	Block, support	Not orderable	1

Internal components (7 of 9)

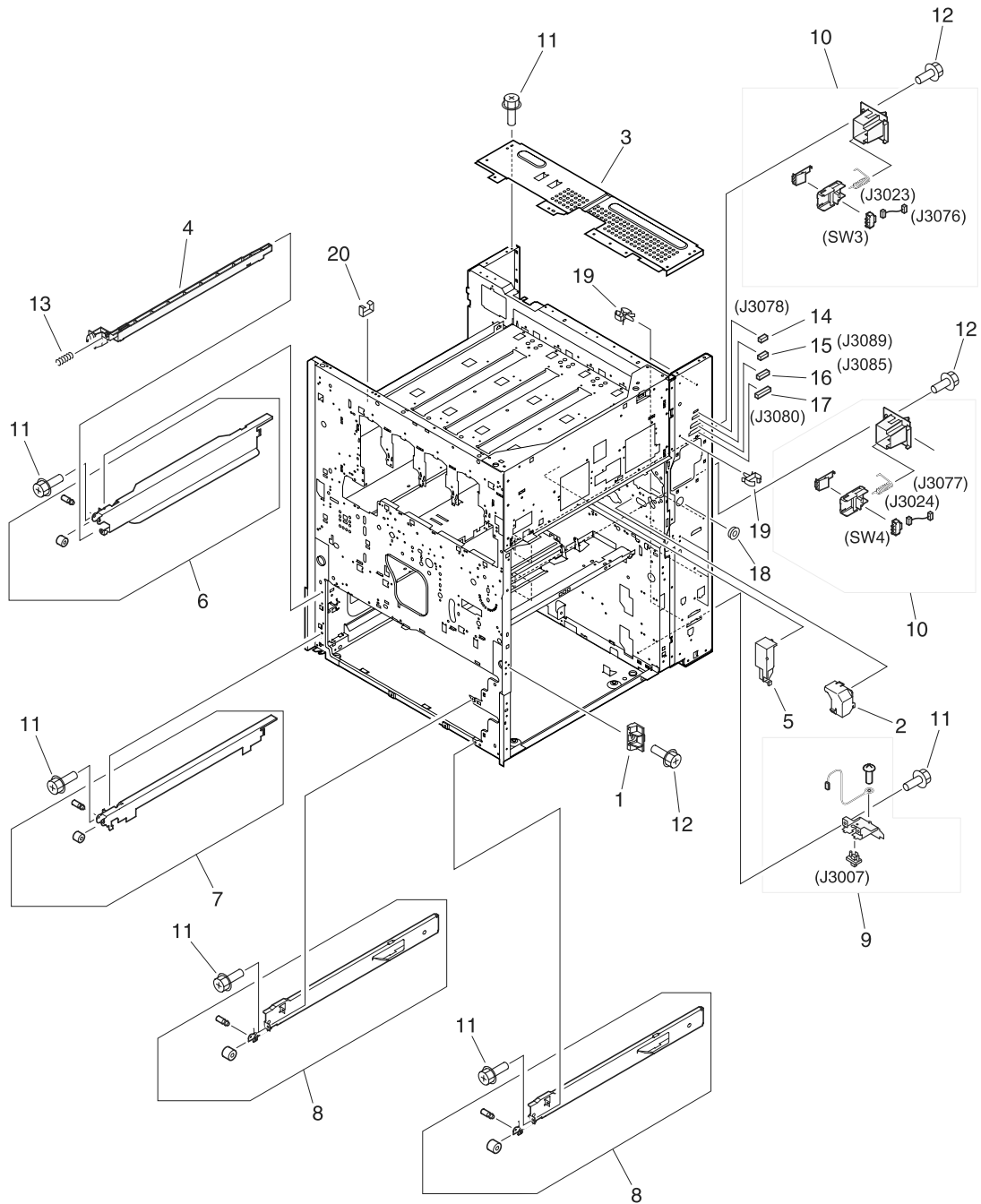


Internal components (7 of 9)

Table 95. Internal components (7 of 9)

Ref	Description	Part number	Qty
Figure 298; 1	Screw, RS M3X6	Not orderable	10
Figure 298; 2	Angle adjustment plate assembly	Not orderable	4
Figure 298; 3	Paper delivery sensor assembly (SR 2, J3016, J3017)	RG5-6152-000CN	1
Figure 298; 4	Left interlock assembly	RG5-6037-000CN	1
Figure 298; 5	Holder, ozone	Not orderable	1
Figure 298; 6	Duct, ozone	Not orderable	1
Figure 298; 7	Clip, cable	Not orderable	1
Figure 298; 8	Screw, RS M3X6	Not orderable	3
Figure 298; 9	Cable, laser assembly (J108, J109, J110, J111, J3009, J3010, J3011, J3012)	RG5-6148-000CN	1
Figure 298; 10	M-purpose support assembly rear	RG5-6107-000CN	1
Figure 298; 11	Slide arm assembly	RG5-6130-000CN	1
Figure 298; 12	Humidity sensor assembly	RG5-6153-000CN	1
Figure 298; 13	Right interlock assembly	RG5-6036-000CN	1
Figure 298; 14	Fan (FM3, J3078)	RH7-1554-000CN	1
Figure 298; 15	Holder, fan	Not orderable	1
Figure 298; 16	Fan (FM7, J3089)	RH7-1564-000CN	1
Figure 298; 17	Cover, fan	Not orderable	1
Figure 298; 18	Clamp, cord	Not orderable	1
Figure 298; 19	Clamp, cable	Not orderable	8
Figure 298; 20	Clip, cable	Not orderable	1
Figure 298; 21	Cover, sensor	Not orderable	1

Internal components (8 of 9)



Internal components (8 of 9)

Table 96. Internal components (8 of 9)

Ref	Description	Part number	Qty
Figure 299; 1	Support, right door stop	Not orderable	1
Figure 299; 2	Cover, registration	Not orderable	1
Figure 299; 3	Crossmember, rear	Not orderable	1
Figure 299; 4	Rod, switch	RB2-7354-000CN	1
Figure 299; 5	Cover, transfer cable	RB2-7444-000CN	1
Figure 299; 6	Left rail upper assembly	Not orderable	1
Figure 299; 7	Left rail lower assembly	Not orderable	1
Figure 299; 8	Right rail assembly	Not orderable	2
Figure 299; 9	Connector assembly (J3007)	RG5-5779-000CN	1
Figure 299; 10	End paper sensor assembly (J3023, J3076, J3024, J3077, SW3, J3023, SW4, J3024)	RG5-5699-000CN	2
Figure 299; 11	Screw, RS M3X6	Not orderable	6
Figure 299; 12	Screw, RS M3X8	Not orderable	4
Figure 299; 13	Spring, compression	Not orderable	1
Figure 299; 14	Connector, 3P (J3078)	VS1-5057-003CN	1
Figure 299; 15	Connector, 5P (J3089)	VS1-5057-005CN	1
Figure 299; 16	Connector, 10P (J3085)	VS1-5057-010CN	1
Figure 299; 17	Connector, 20P (J3080)	VS1-5057-020CN	1
Figure 299; 18	Bushing	Not orderable	1
Figure 299; 19	Clip, cable	Not orderable	8
Figure 299; 20	Clip, cable	Not orderable	1

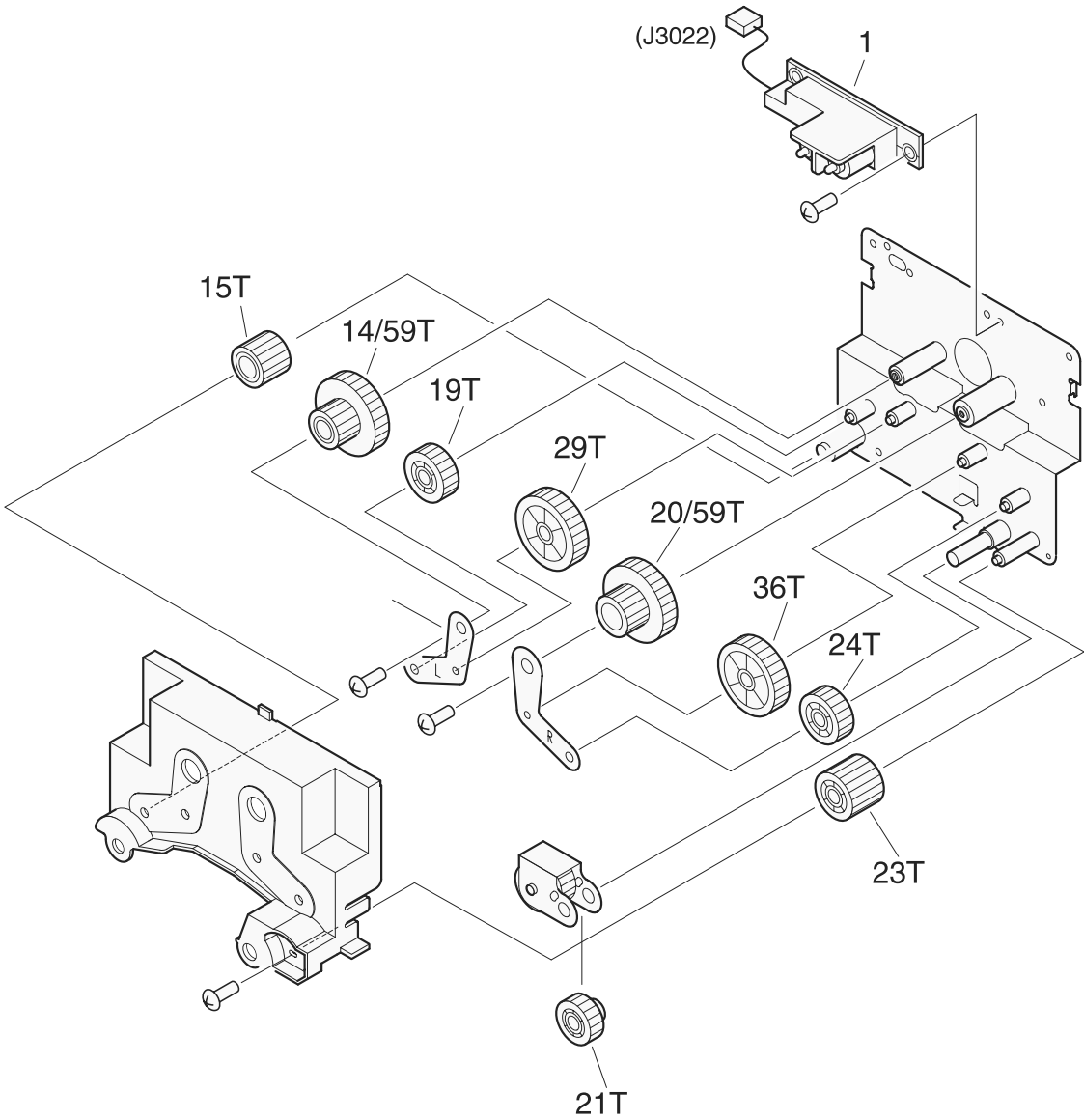
Internal components (9 of 9)



Table 97. Internal components (9 of 9)

Ref	Description	Part number	Qty
Figure 300; 1	High-voltage PCB assembly	RG5-6031-000CN	1
Figure 300; 2	High-voltage connector PCB assembly (J206)	RG5-6032-000CN	1
Figure 300; 3	Shield case assembly	Not orderable	1
Figure 300; 4	Holder, upper fan	Not orderable	1
Figure 300; 5	Holder, lower fan	Not orderable	1
Figure 300; 6	Guide, main cable	Not orderable	1
Figure 300; 7	Power supply assembly 110-127 V (FM5, 100-127 V)	RH3-2236-000CN new C8546-69003 exchange	1
	Power supply assembly 220-240 V (FM5, 220-240 V)	RH3-2237-000CN new C8546-69004 exchange	1
Figure 300; 8	Power supply mount assembly	Not orderable	1
Figure 300; 9	Screw, RS M3X6	Not orderable	6
Figure 300; 10	Screw, RS M3X8	Not orderable	10
Figure 300; 11	DC controller PCB assembly	RG5-5901-000CN new C8546-69005 exchange	1
Figure 300; 12	High-voltage holder assembly	RG5-6129-000CN	1
Figure 300; 13	Cable, rear lower (J3, J4, J5, J9, J70, J102, J113, J117, J118, J119, J120, J124, J125, J129, J130, J810, J824, J3000D, J3000DH, J3001D, J3001DH, J3002D, J3002DH, J3007DAJ3007DB, J3036, J3037DB, J9501, J9502, J9503, J9504))	RG5-5919-000CN	1
Figure 300; 14	Cable, process cartridge (J202, J608)	RG5-5938-000CN	1
Figure 300; 15	Cable, high-voltage control (J101, J203)	RG5-5940-000CN	1
Figure 300; 16	Cable, fuser motor (J116, J3035)	RG5-5952-000CN	1
Figure 300; 17	Cable, formatter (J2, J9002)	RG5-5933-000CN	1
Figure 300; 18	Cable, high-voltage (J1, J201)	RG5-5937-000CN	1
Figure 300; 19	Cable, rear upper (J112, J123, J803, J811, J821, J901, J3008, J3016D, J3018D, J3069D, J3086D)	RH5-5920-000CN	1
Figure 300; 20	Fan (FM2, J818)	RH7-1521-000CN	1
Figure 300; 21	Fan (FM4, J819)	RH7-1522-000CN	1
Figure 300; 22	Cable, rear holder assembly (J122, J3076, J3077D)	RG5-6159-000CN	1
Figure 300; 23	Cable, flat (J103, J9002)	RH2-5509-000CN	1
Figure 300; 24	Cable, flat (J104, J106< J601, J616, J801)	RH2-5507-000CN	1
Figure 300; 25	High-voltage power supply PCB unit	RH3-0353-000CN	1
Figure 300; 26	Plate, test switch	Not orderable	1
Figure 300; 27	Cable, post controller (J210, J501)	RG5-5966-000CN	1
Figure 300; 28	Regulator PCB assembly	RG5-5971-000CN	1
Figure 300; 29	Cable, rear lower (J121, J3025D, J3027D), J3022D, J3026D)	RG5-5975-000CN	1

Registration drive assembly



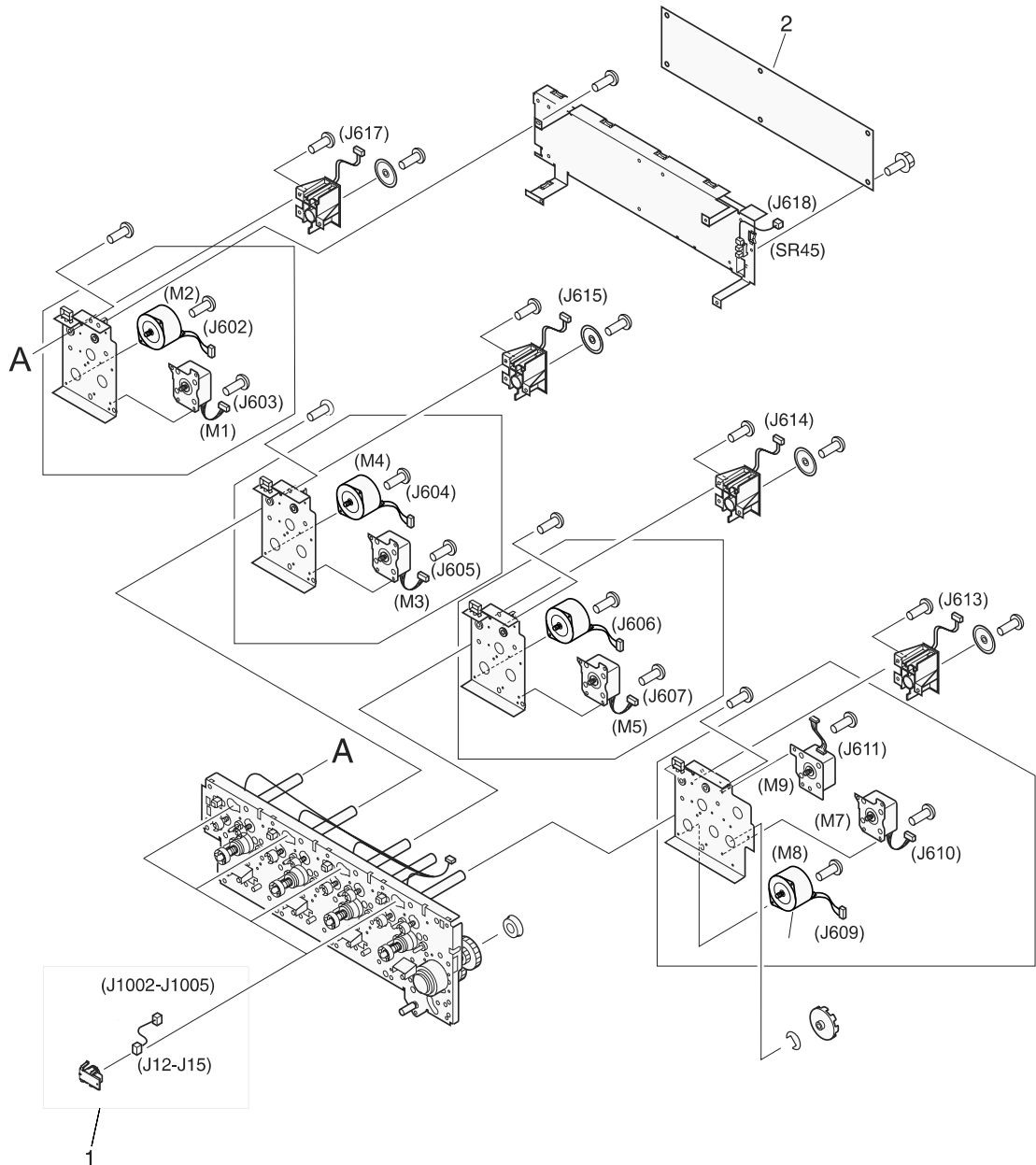
Registration drive assembly

Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 98. Registration drive assembly

Ref	Description	Part number	Qty
Figure 301; all	Registration drive assembly	RG5-6015-000CN	1
Figure 301; 1	Pin holder unit (registration drive assembly; J3022)	RG5-6192-000CN	1

Process cartridge drive assembly (image drum drive)

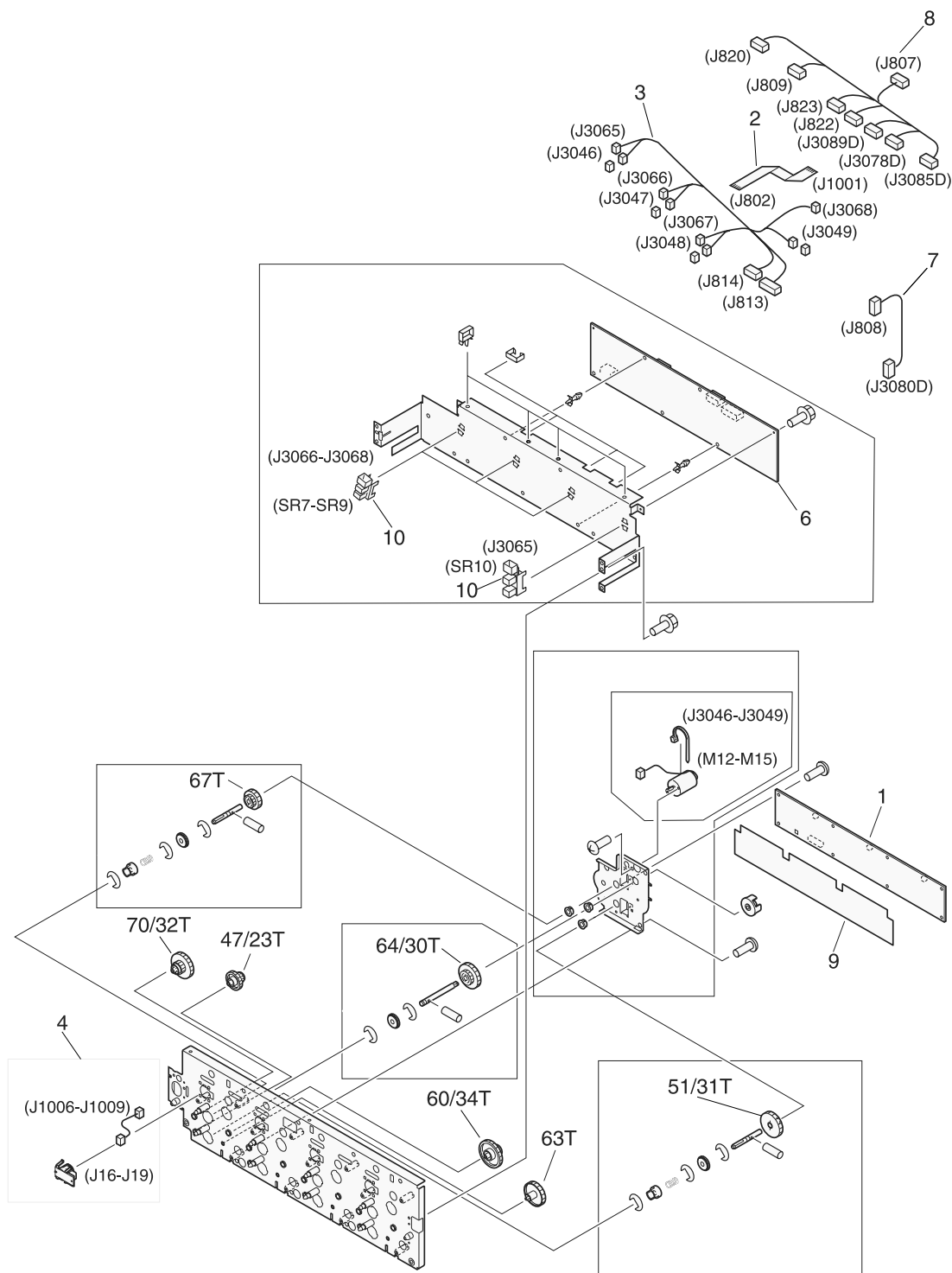


Process cartridge drive assembly (image drum drive)

Table 99. Process cartridge drive assembly (image drum drive)

Ref	Description	Part number	Qty
Figure 302; all	Process cartridge drive assembly (J613, J614, J615, M8, J609, J12, J13, J14, J15, J1002, J1003, J1004, J1005, M7, J610, M9, J611, M2, J604, J606, M1, M3, M5, J603, J605, J607)	RG5-6188-030CN new C8546-69006 exchange	1
Figure 302; 1	Antenna holder assembly	RG5-6026-000CN	4
Figure 302; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1

Toner cartridge drive assembly (print cartridge drive)



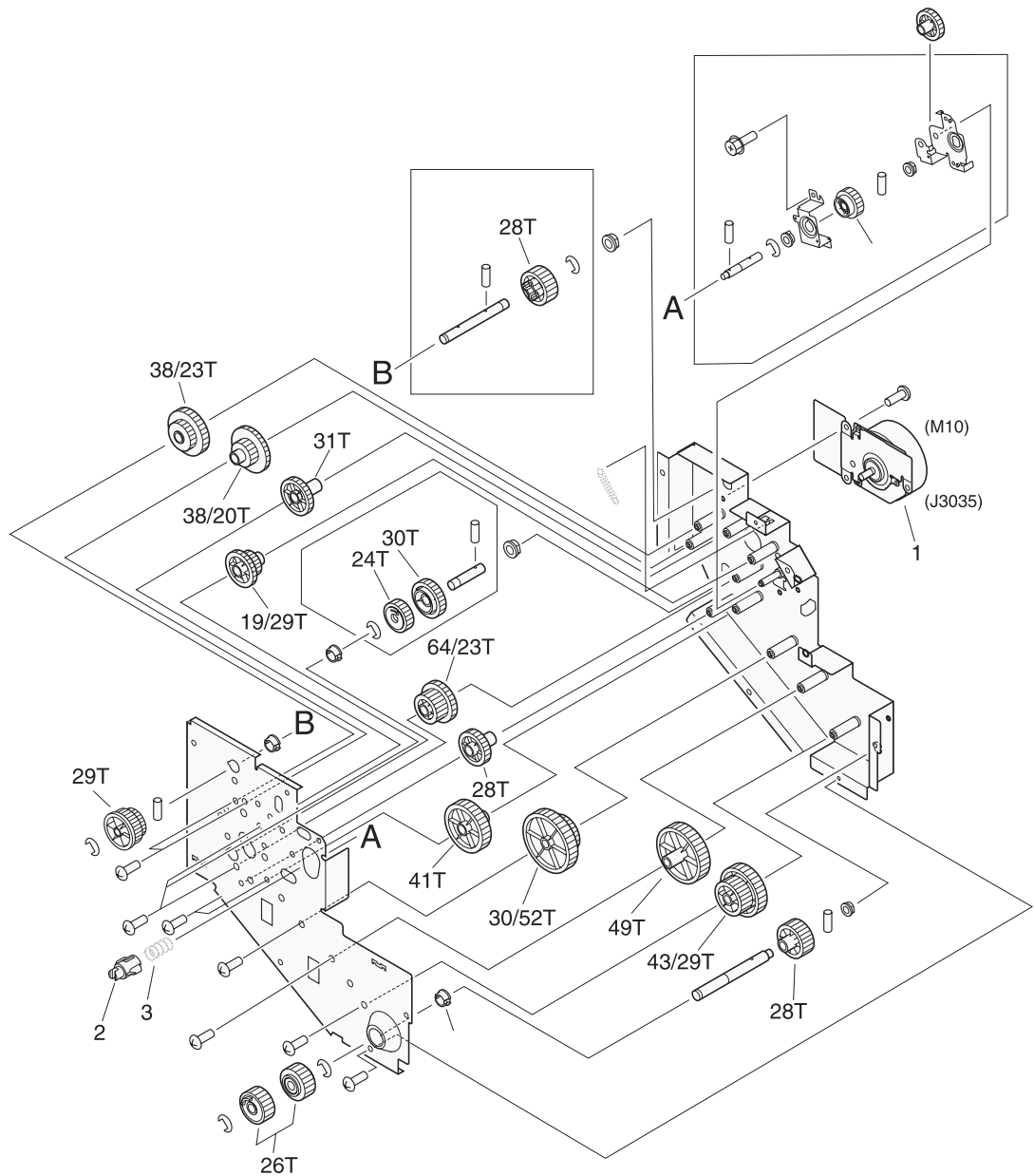
Toner cartridge drive assembly (print cartridge drive)

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 100. Toner cartridge drive assembly (print cartridge drive)

Ref	Description	Part number	Qty
Figure 303; all	Toner cartridge drive assembly (print cartridge drive)	RG5-6022-000CN	1
Figure 303; 1	Memory switch PCB assembly	RG5-5909-000CN	1
Figure 303; 2	Cable, flat (J802, J1001)	RH2-5508-000CN	1
Figure 303; 3	Toner drive cable (J813, J814, J3046, J3047, J3048, J3049, J3065, J3066, J3067, J3068)	RG5-5930-000CN	1
Figure 303; 4	Antenna holder assembly (J16-J19, J1006-J1009)	RG5-6026-000CN	4
Figure 303; 5	Toner cartridge motor assembly (M12, M13, M14, M15, J3046, J3047, J3048, J3049)	Not orderable	1
Figure 303; 6	crg driver PCB assembly (print cartridge drive)	RG5-5907-020CN	1
Figure 303; 7	Cable, right rear 1 (J808, J3080D)	RG5-5962-000CN	1
Figure 303; 8	Cable, right rear 2 (J807, J808, J820, J822, J823, J3078D, J3085D, J3089D)	RG5-5963-000CN	1
Figure 303; 9	Sheet, insulating	Not orderable	1
Figure 303; 10	Photo-interrupter TLP1241 (J16, J17, J18, J19, J1006, J1007, J1008, J1009)	WG8-5362-000CN	4

Fuser drive assembly



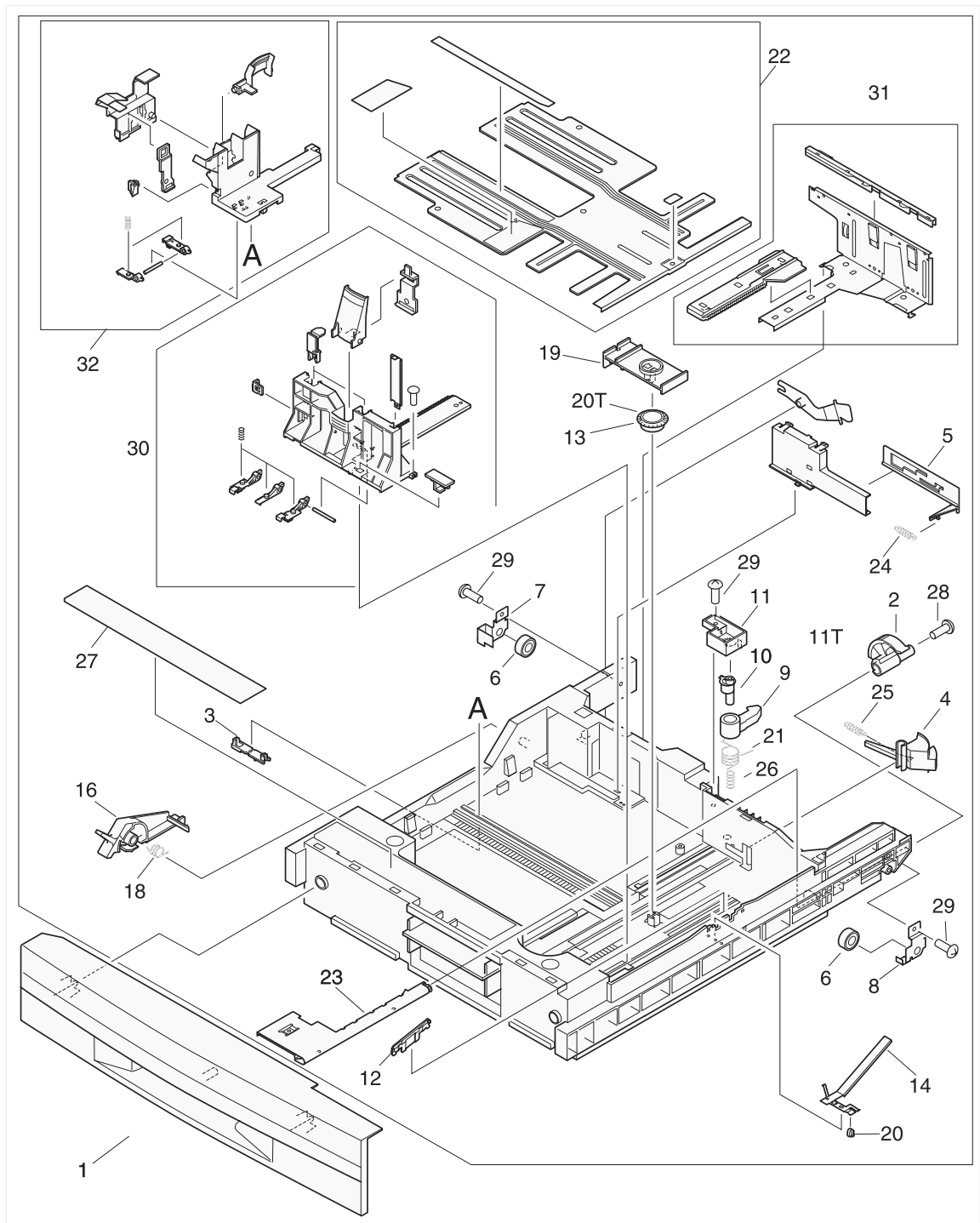
Fuser drive assembly

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 101. Fuser drive assembly

Ref	Description	Part number	Qty
Figure 304; all	Fuser drive assembly	RG5-6018-000CN	1
Figure 304; 1	Motor, DC24 V (M10, J3035)	RH7-1519-000CN	1
Figure 304; 2	Coupler	Not orderable	1
Figure 304; 3	Spring, compression	Not orderable	1

Cassette assembly



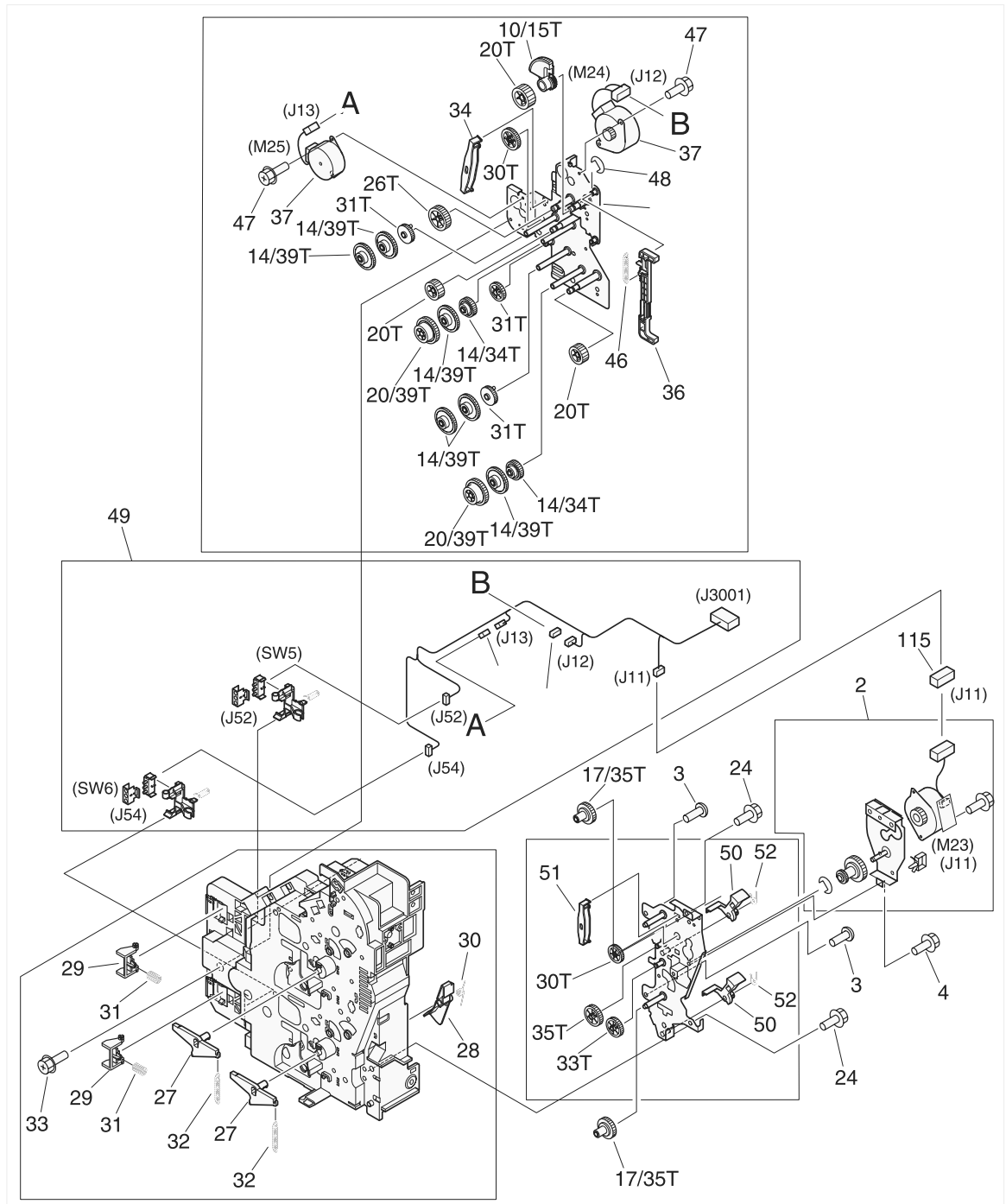
Cassette assembly

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 102. Cassette assembly

Ref	Description	Part number	Qty
Figure 305; all	Cassette (use this part number to order the entire assembly)	RG5-5635-080CN	2
Figure 305; 1	Cover, front	Not orderable	1
Figure 305; 2	Gear, 11 teeth	Not orderable	1
Figure 305; 3	Holder, rear	Not orderable	1
Figure 305; 4	Cam, width sensing	Not orderable	1
Figure 305; 5	Plate, coupler	Not orderable	1
Figure 305; 6	Roller, cassette	Not orderable	2
Figure 305; 7	Plate, left stop	Not orderable	1
Figure 305; 8	Plate, right stop	Not orderable	1
Figure 305; 9	Claw, lock	Not orderable	1
Figure 305; 10	Shaft, lock	Not orderable	1
Figure 305; 11	Holder, lock	Not orderable	1
Figure 305; 12	Guide	Not orderable	1
Figure 305; 13	Gear, 20 teeth	Not orderable	1
Figure 305; 14	Plate, grounding	Not orderable	1
Figure 305; 15	Arm, cassette	Not orderable	1
Figure 305; 16	Knob, cassette	Not orderable	1
Figure 305; 17	Holder, cover	Not orderable	1
Figure 305; 18	Spring, torsion	Not orderable	1
Figure 305; 19	Holder, mount	Not orderable	1
Figure 305; 20	Pin, grounding	Not orderable	1
Figure 305; 21	Spring, torsion	Not orderable	1
Figure 305; 22	Plate, lifting	Not orderable	1
Figure 305; 23	Plater, lifter	Not orderable	1
Figure 305; 24	Spring, tension	Not orderable	1
Figure 305; 25	Spring, tension	Not orderable	1
Figure 305; 26	Spring, compression	Not orderable	1
Figure 305; 27	Label, control	Not orderable	1
Figure 305; 28	Screw, with washer M3X29.5	Not orderable	1
Figure 305; 29	Screw, M4X10	Not orderable	1
Figure 305; 30	Side, standard plate assembly	Not orderable	1
Figure 305; 31	Side, plate guide assembly	Not orderable	1
Figure 305; 32	End plate guide assembly	Not orderable	1

Paper pickup assembly (1 of 3)



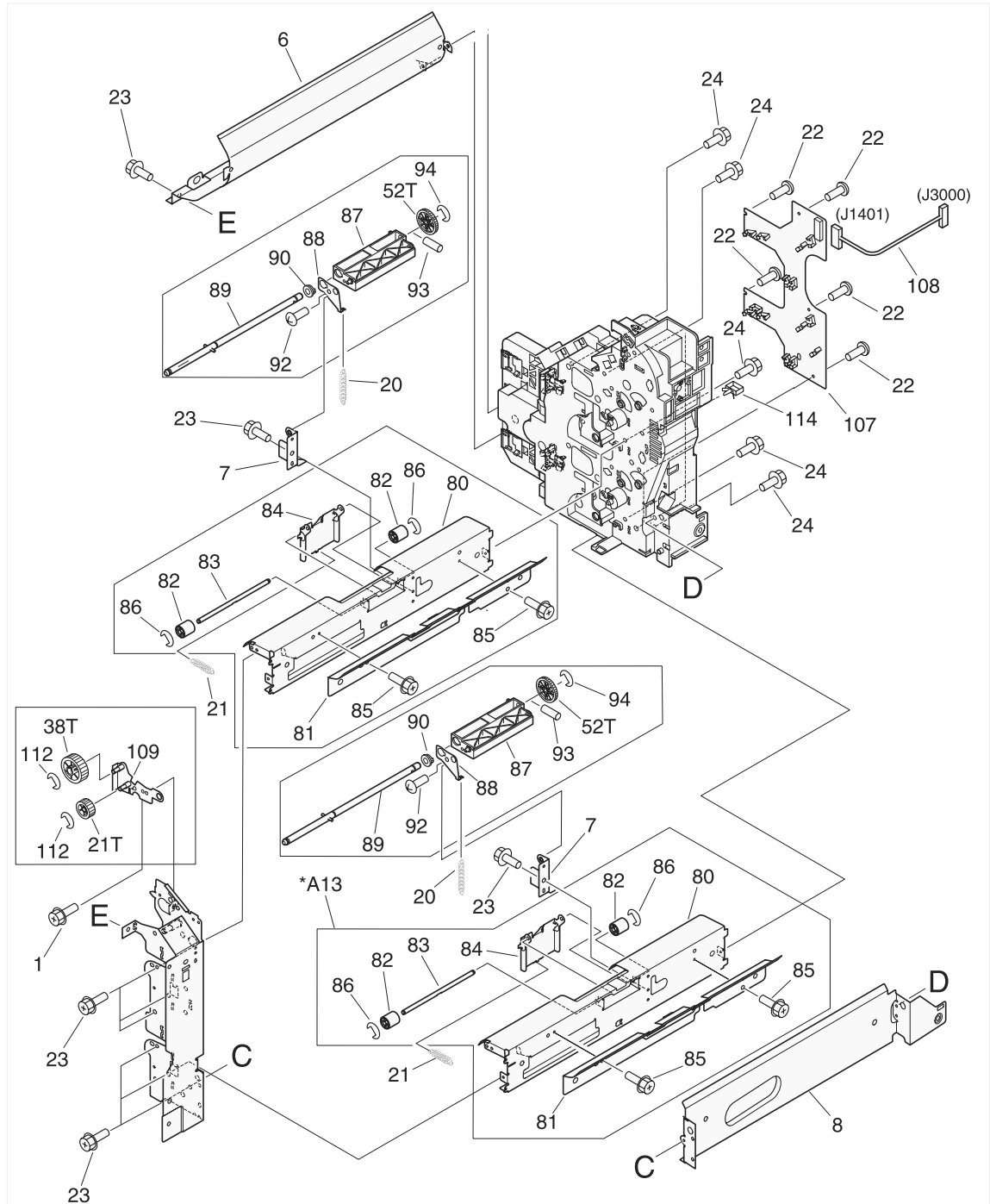
Paper pickup assembly (1 of 3)

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 103. Paper pickup assembly (1 of 3)

Ref	Description	Part number	Qty
Figure 306; all Figure 307; all Figure 308; all	Paper pickup assembly (use this part number to order the entire assembly)	RG5-6196-000CN	1
Figure 306; 2	Motor, pickup assembly (M23, J11)	Not orderable	1
Figure 306; 3	Screw, M4X10	Not orderable	5
Figure 306; 4	Screw, RS M3X6	Not orderable	5
Figure 306; 24	Screw, RS M3X8	Not orderable	12
Figure 306; 27	Lever, release	Not orderable	2
Figure 306; 28	Flag, right cover assembly	Not orderable	2
Figure 306; 29	Arm, lock	Not orderable	2
Figure 306; 30	Spring, torsion	Not orderable	1
Figure 306; 31	Spring, compression	Not orderable	2
Figure 306; 32	Spring, tension	Not orderable	2
Figure 306; 32	Screw, RS M3X8	Not orderable	5
Figure 306; 34	Holder, gear	Not orderable	1
Figure 306; 36	Rod, pickup	Not orderable	1
Figure 306; 37	Motor, DC24 V (M24, J12) (M25, J13)	Not orderable	2
Figure 306; 46	Spring, tension	Not orderable	1
Figure 306; 47	Screw, with washer RS M3X6	Not orderable	4
Figure 306; 48	Ring, E	Not orderable	1
Figure 306; 49	Paper width sensor unit (SW5, J52, SW6, J54)	Not orderable	1
Figure 306; 50	Flag, sensor	Not orderable	2
Figure 306; 51	Holder, gear	Not orderable	1
Figure 306; 52	Spring, torsion	Not orderable	2
Figure 306; 115	Connector, 4P (J11)	Not orderable	1

Paper pickup assembly (2 of 3)



Paper pickup assembly (2 of 3)

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 104. Paper pickup assembly (2 of 3)

Ref	Description	Part number	Qty
Figure 307; 1	Screw, RS M3X6	Not orderable	5
Figure 307; 6	Guide, pickup out	Not orderable	1
Figure 307; 7	Plate, right support	Not orderable	2
Figure 307; 8	Crossmember, pickup	Not orderable	1
Figure 307; 20	Spring, tension	Not orderable	2
Figure 307; 21	Spring, tension	Not orderable	2
Figure 307; 22	Screw, M4X10	Not orderable	5
Figure 307; 23	Screw, RS M3X6	Not orderable	13
Figure 307; 24	Screw, RS M3X8	Not orderable	12
Figure 307; 80	Guide, right	Not orderable	2
Figure 307; 81	Guide, feed out	Not orderable	2
Figure 307; 82	Roller, feed	Not orderable	4
Figure 307; 83	Shaft, feed roller	Not orderable	2
Figure 307; 84	Holder, feed roller	Not orderable	2
Figure 307; 85	Screw, RS M3X6	Not orderable	4
Figure 307; 86	Ring, E	Not orderable	4
Figure 307; 87	Holder, retard	Not orderable	2
Figure 307; 88	Plate, holder support	Not orderable	2
Figure 307; 89	Shaft, retard	Not orderable	2
Figure 307; 90	Bushing	Not orderable	2
Figure 307; 92	Screw, M4X10	Not orderable	2
Figure 307; 93	Pin, dowel	Not orderable	2
Figure 307; 94	Ring, E	Not orderable	2
Figure 307; 107	Feed PCB assembly	Not orderable	1
Figure 307; 108	Cable, pickup	Not orderable	1
Figure 307; 109	Plate, front m-purpose support	Not orderable	1
Figure 307; 112	Ring, E	Not orderable	2

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Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 105. Paper pickup assembly (3 of 3)

Ref	Description	Part number	Qty
Figure 308; 5	Roller, vertical path	Not orderable	2
Figure 308; 9	Guide, front inlet	Not orderable	2
Figure 308; 10	Timing belt	Not orderable	1
Figure 308; 11	Vertical path drive gear unit	Not orderable	1
Figure 308; 12	Vertical Path pulley unit	Not orderable	1
Figure 308; 13	Bushing	Not orderable	2
Figure 308; 14	Bushing	Not orderable	2
Figure 308; 15	Bushing	Not orderable	2
Figure 308; 19	Spring, tension	Not orderable	3
Figure 308; 23	Screw, RS M3X6	Not orderable	13
Figure 308; 24	Screw, RS M3X8	Not orderable	12
Figure 308; 25	Ring, E	Not orderable	5
Figure 308; 26	Ring, E	Not orderable	4
Figure 308; 56	Roller, feed	Not orderable	1
Figure 308; 57	Guide, pickup feed	Not orderable	1
Figure 308; 58	Holder, feed sensor	Not orderable	1
Figure 308; 59	Flag, feed sensor	Not orderable	2
Figure 308; 60	Spring, torsion	Not orderable	2
Figure 308; 61	Bushing	Not orderable	1
Figure 308; 62	Bushing	Not orderable	1
Figure 308; 65	Screw, M4X10	Not orderable	2
Figure 308; 66	Pin, dowel	Not orderable	1
Figure 308; 67	Ring, E	Not orderable	2
Figure 308; 68	Roller, feed	Not orderable	1
Figure 308; 69	Guide, feed roller	Not orderable	1
Figure 308; 70	Holder, feed sensor	Not orderable	1
Figure 308; 71	Flag, feed sensor	Not orderable	2
Figure 308; 72	Spring, torsion	Not orderable	2
Figure 308; 73	Bushing	Not orderable	1
Figure 308; 74	Bushing	Not orderable	1
Figure 308; 77	Screw, M4X10	Not orderable	2
Figure 308; 78	Pin, dowel	Not orderable	1
Figure 308; 79	Ring, E	Not orderable	2
Figure 308; 95	Flag, paper sensor	Not orderable	2
Figure 308; 96	Guide, inlet	Not orderable	2
Figure 308; 97	Holder, pickup	Not orderable	2
Figure 308; 98	Holder, pickup roller	Not orderable	2
Figure 308; 99	Flag, paper height	Not orderable	2
Figure 308; 100	Shaft, pickup	Not orderable	2
Figure 308; 101	Shaft, feed	Not orderable	2
Figure 308; 102	Bushing	Not orderable	4
Figure 308; 105	Ring, E	Not orderable	2
Figure 308; 106	Ring, E	Not orderable	2

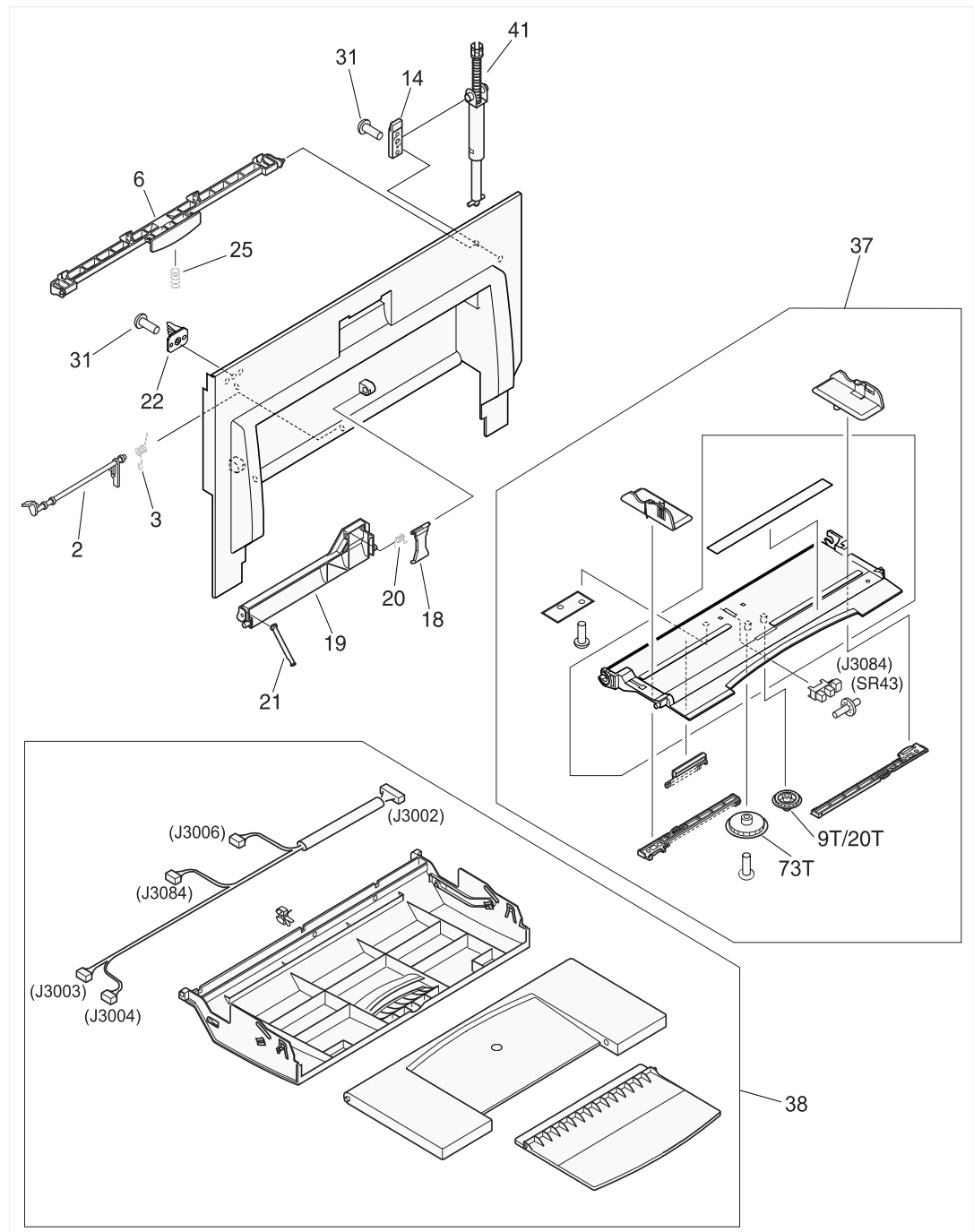
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Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 106. Manual feed pickup assembly (tray 1) (1 of 2)

Ref	Description	Part number	Qty
Figure 309; all Figure 310; all	Manual feed pickup assembly (tray 1)	RG5-6090-070CN	1
Figure 309; 4	Bushing	Not orderable	1
Figure 309; 5	Bushing, right	Not orderable	1
Figure 309; 7	Plate, grounding	Not orderable	1
Figure 309; 8	Plate, grounding	Not orderable	1
Figure 309; 9	Plate, grounding	Not orderable	1
Figure 309; 10	Pad	RF5-3489-000CN	2
Figure 309; 11	Pad, separation	RF5-3490-000CN	1
Figure 309; 12	Plate, paper pickup guide	Not orderable	1
Figure 309; 13	Plate, paper pickup cover	Not orderable	1
Figure 309; 15	Cover, multipurpose sensor	Not orderable	1
Figure 309; 16	Holder, pad	Not orderable	1
Figure 309; 17	Guide, paper	Not orderable	1
Figure 309; 23	Bushing, left	Not orderable	1
Figure 309; 24	Spring, compression	Not orderable	1
Figure 309; 27	Spring, compression	Not orderable	1
Figure 309; 28	Spring, compression	Not orderable	1
Figure 309; 29	Connector, 2P (J3003)	Not orderable	1
Figure 309; 30	Connector, 3P (J3004)	Not orderable	1
Figure 309; 31	Screw, M4X10	Not orderable	6
Figure 309; 32	Screw, M4X8	Not orderable	1
Figure 309; 33	Screw, RS M3X6	Not orderable	6
Figure 309; 34	Roller, pickup	RB2-1820-000CN	1
Figure 309; 35	Paper guide plate assembly	Not orderable	1
Figure 309; 36	Multipurpose sensor cable (J3004, J3005)	Not orderable	1
Figure 309; 39	Multipurpose drive assembly (SL1, J3003, SR1, J3005)	Not orderable	1
Figure 309; 40	Front registration crossmember assembly	Not orderable	1

Manual feed pickup assembly (tray 1) (2 of 2)



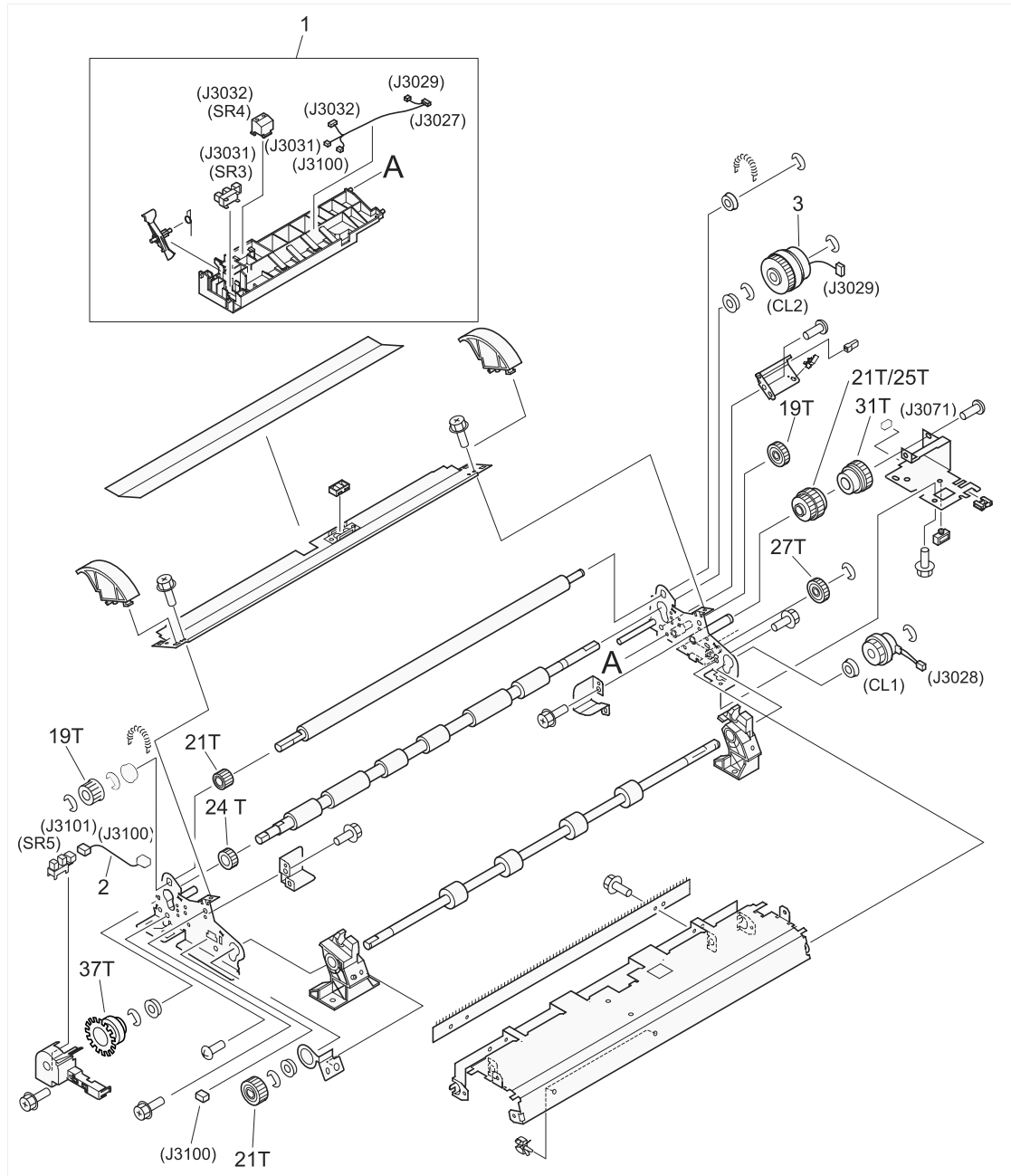
Manual feed pickup assembly (tray 1) (2 of 2)

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 107. Manual feed pickup assembly (tray 1) (2 of 2)

Ref	Description	Part number	Qty
Figure 310; 2	Arm, sensor	Not orderable	1
Figure 310; 3	Spring, torsion	Not orderable	1
Figure 310; 6	Knob	Not orderable	1
Figure 310; 18	Lever, sensor	Not orderable	1
Figure 310; 19	Frame, paper sensor	Not orderable	1
Figure 310; 20	Spring, torsion	Not orderable	1
Figure 310; 21	Flag, sensor	Not orderable	1
Figure 310; 22	Mount, shaft	Not orderable	1
Figure 310; 37	Multipurpose tray assembly (SR43, J3084)	Not orderable	1
Figure 310; 38	Multipurpose, cover assembly (J3002, J3003, J3004, J3006, J3084)	Not orderable	

Registration assembly



Registration assembly

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 108. Registration assembly

Ref	Description	Part number	Qty
Figure 311; all	Registration assembly (use this part number to order the entire assembly; SR5)	RG5-6016-000CN	1
Figure 311; 1	Registration sensor holder assembly (SR4, J3032, SR3, J3031, J3027, J3029, J3031, J3032, J3100)	Not orderable	1
Figure 311; 2	Cable, sensor (J3100, J3101)	Not orderable	1
Figure 311; 3	Clutch, electrical mechanical (CL, J3029)	Not orderable	1
Figure 311; 4	Clutch, electrical mechanical (CL1, J3028)	Not orderable	1

This exploded view diagram illustrates the assembly of a mechanical device. The components are labeled as follows:

- 4**: The main upper housing or frame.
- 4A**: A central longitudinal component, possibly a guide or support rail.
- 4B**: A long, thin rod or shaft passing through the assembly.
- 4C**: A bracket or support piece on the left side.
- 4D**: A bracket or support piece on the right side.
- 4E**: A small component, possibly a pin or clip, located near the top right.
- A**: A long, thin rod or shaft at the bottom right, with a note indicating it is a CL3 (J3030) type.
- B**: A bracket or support piece at the bottom right.
- C**: A long, thin rod or shaft at the bottom left.
- D**: A central longitudinal component, possibly a guide or support rail, located above 4A.
- 2**: A small component, possibly a pin or clip, located near the bottom right.
- 20T**: A small component, possibly a pin or clip, located near the bottom right.
- 23T**: A small component, possibly a pin or clip, located near the bottom right.
- 27T**: A small component, possibly a pin or clip, located near the bottom right.

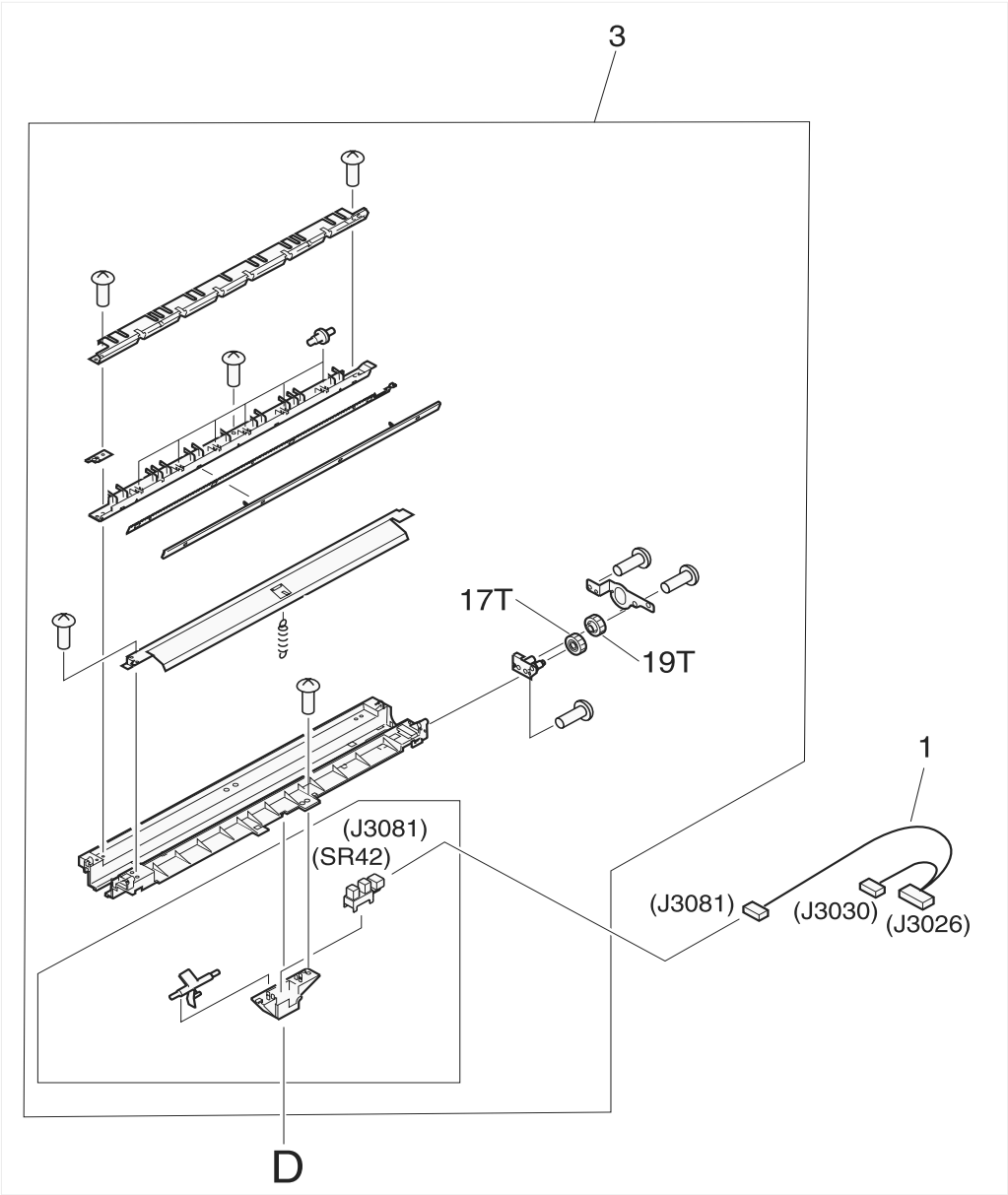
The diagram shows the relative positions and assembly sequence of these parts, with lines indicating the path of assembly.

Callout numbers that are followed by a "T" indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 109. Secondary transfer assembly (T2) (1 of 2)

Ref	Description	Part number	Qty
Figure 312; all Figure 313; all	Secondary transfer assembly (T2) (use this part number to order the entire assembly; J3026, J3030, J3081, CL3, J3030, SR42)	RG5-6179-000CN	1
Figure 312; 2	Gear holder assembly	Not orderable	1
Figure 312; 4	Crossmember assembly	Not orderable	1

Secondary transfer assembly (T2) (2 of 2)



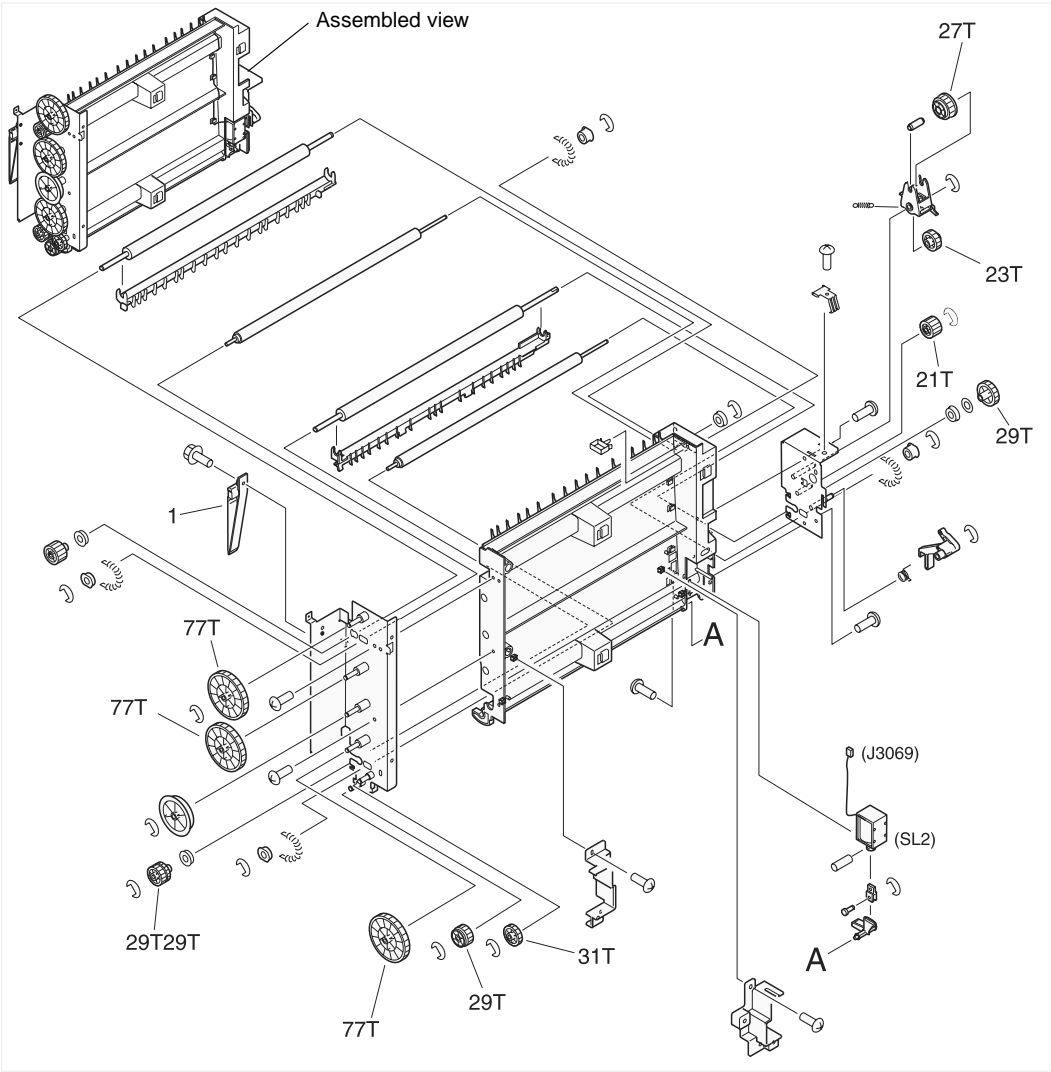
Secondary transfer assembly (T2) (2 of 2)

Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 110. Secondary transfer assembly (T2) (2 of 2)

Ref	Description	Part number	Qty
Figure 313; 1	Secondary transfer (T2) cable assembly (use this part number to order the entire assembly)	RG5-6179-000CN	1
Figure 313; 3	Guide, holder assembly	Not orderable	1

Delivery feed assembly



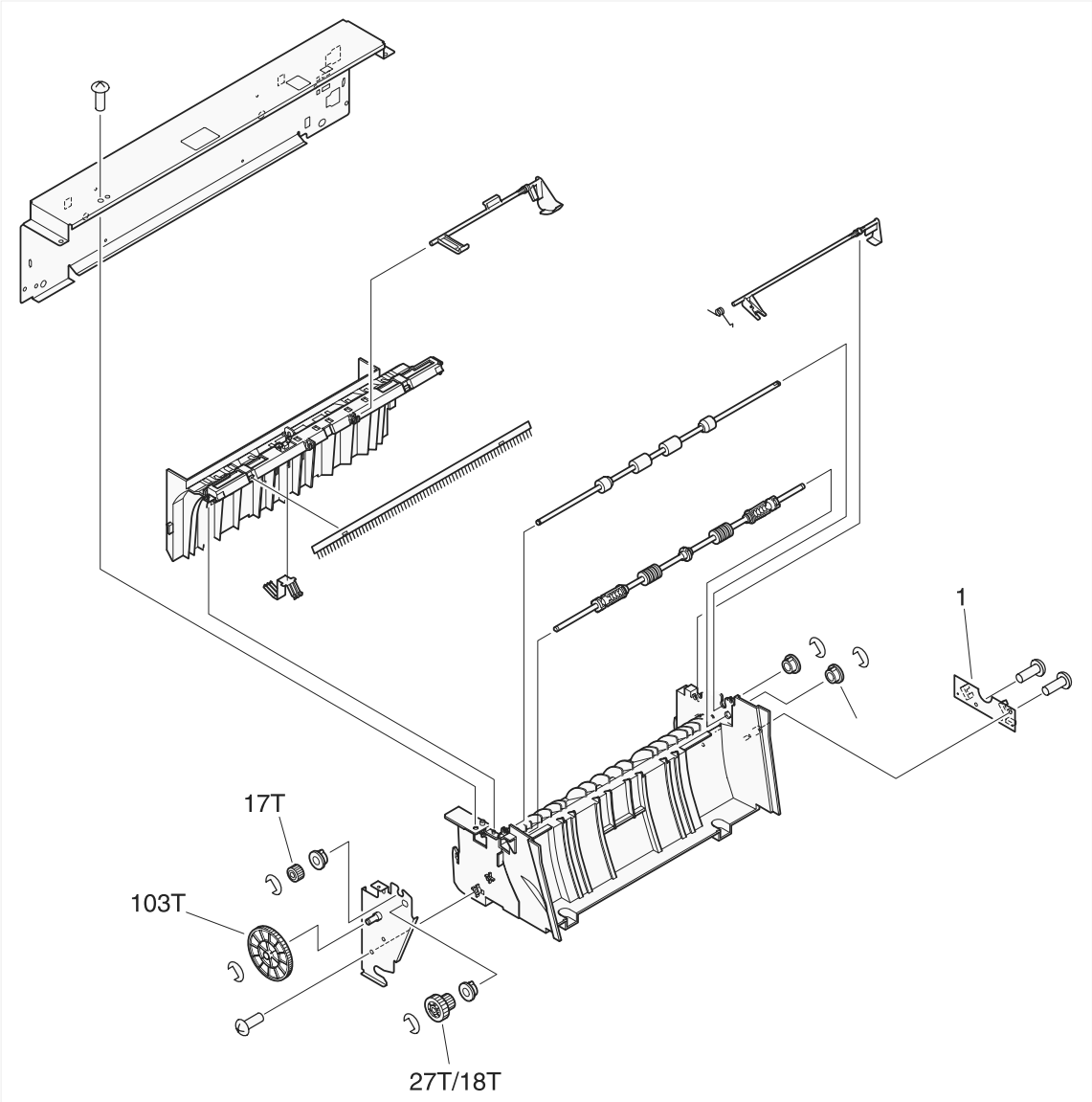
Delivery feed assembly

Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 111. Delivery feed assembly

Ref	Description	Part number	Qty
Figure 314; all	Delivery feed assembly (use this part number to order the entire assembly; SL2, J3069))	RG5-6150-000CN	1
Figure 314; 1	Door tape	RB2-7447-000CN	1
Figure 314; 2	Screw, RS M3X6	Not orderable	2

Face down delivery assembly



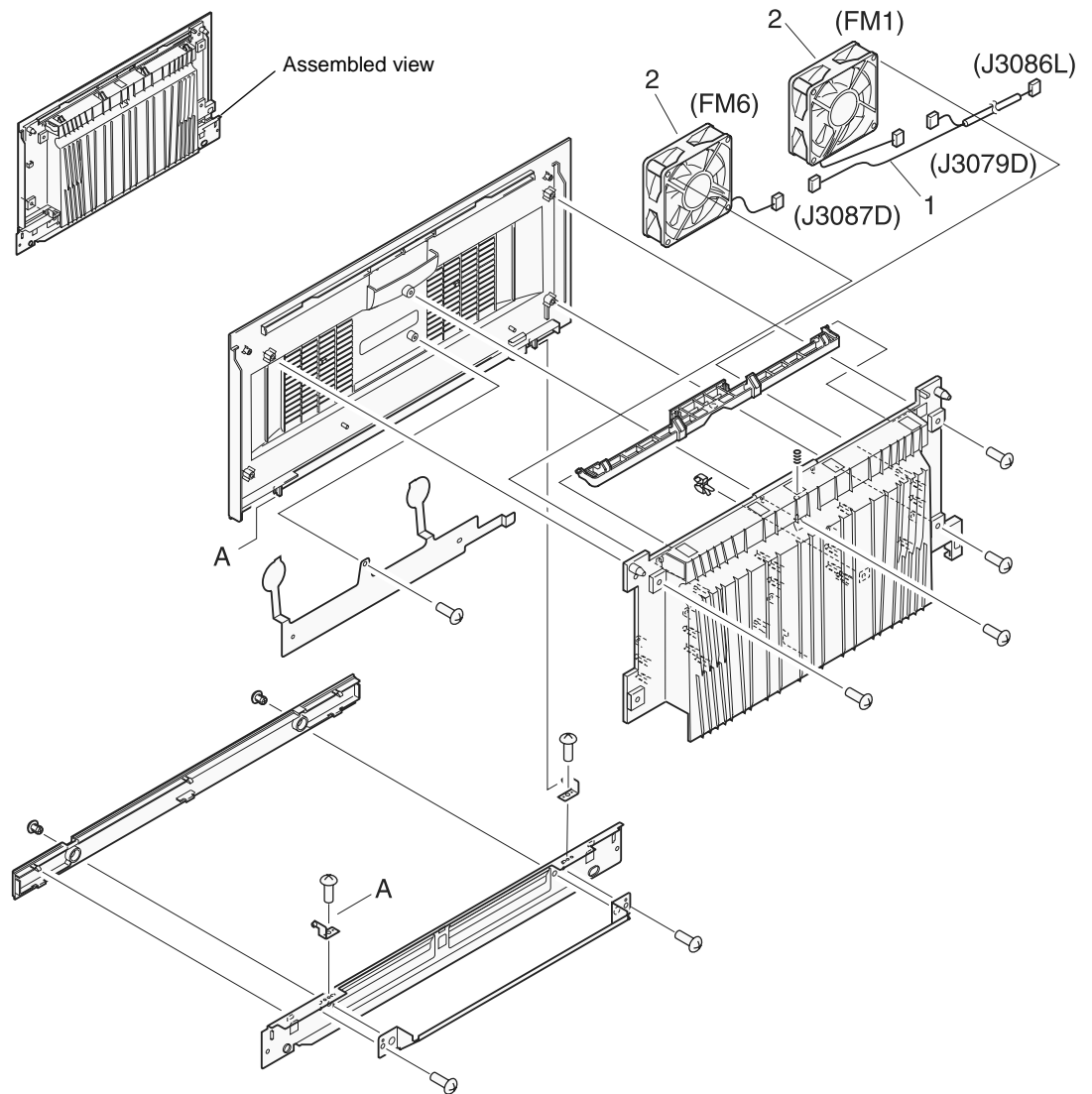
Face down delivery assembly

Callout numbers that are followed by a “T” indicate the number of teeth on the specified gear. For example, 21T is a gear with 21 teeth.

Table 112. Face down delivery feed assembly

Ref	Description	Part number	Qty
Figure 315; all	Face-down delivery assembly (use this part number to order the entire assembly)	RG5-6017-000CN	1
Figure 315; 1	Face-down delivery sensor PCB assembly	Not orderable	1

Delivery cover assembly

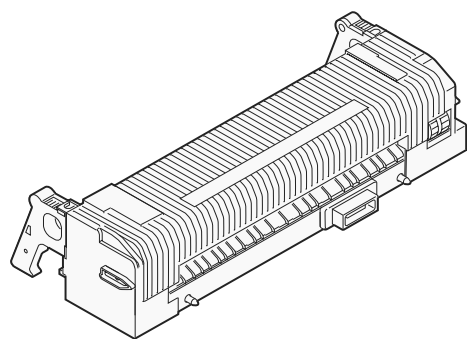


Delivery cover assembly

Table 113. Delivery cover assembly

Ref	Description	Part number	Qty
Figure 316; all	Delivery cover assembly (use this part number to order the entire assembly)	RG5-6151-000CN	1
Figure 316; 1	Delivery fan cable	Not orderable	1
Figure 316; 2	Fan	RH7-1546-000CN	2

Fuser assembly

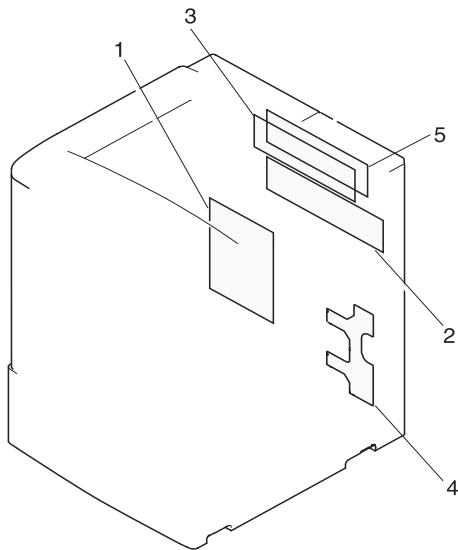


Fuser assembly

Table 114. Fuser assembly

Ref	Description	Part number	Qty
Figure 317; all	Fuser assembly	RG5-6098-000CN new C8546-69007 exchange	1

PCB assemblies

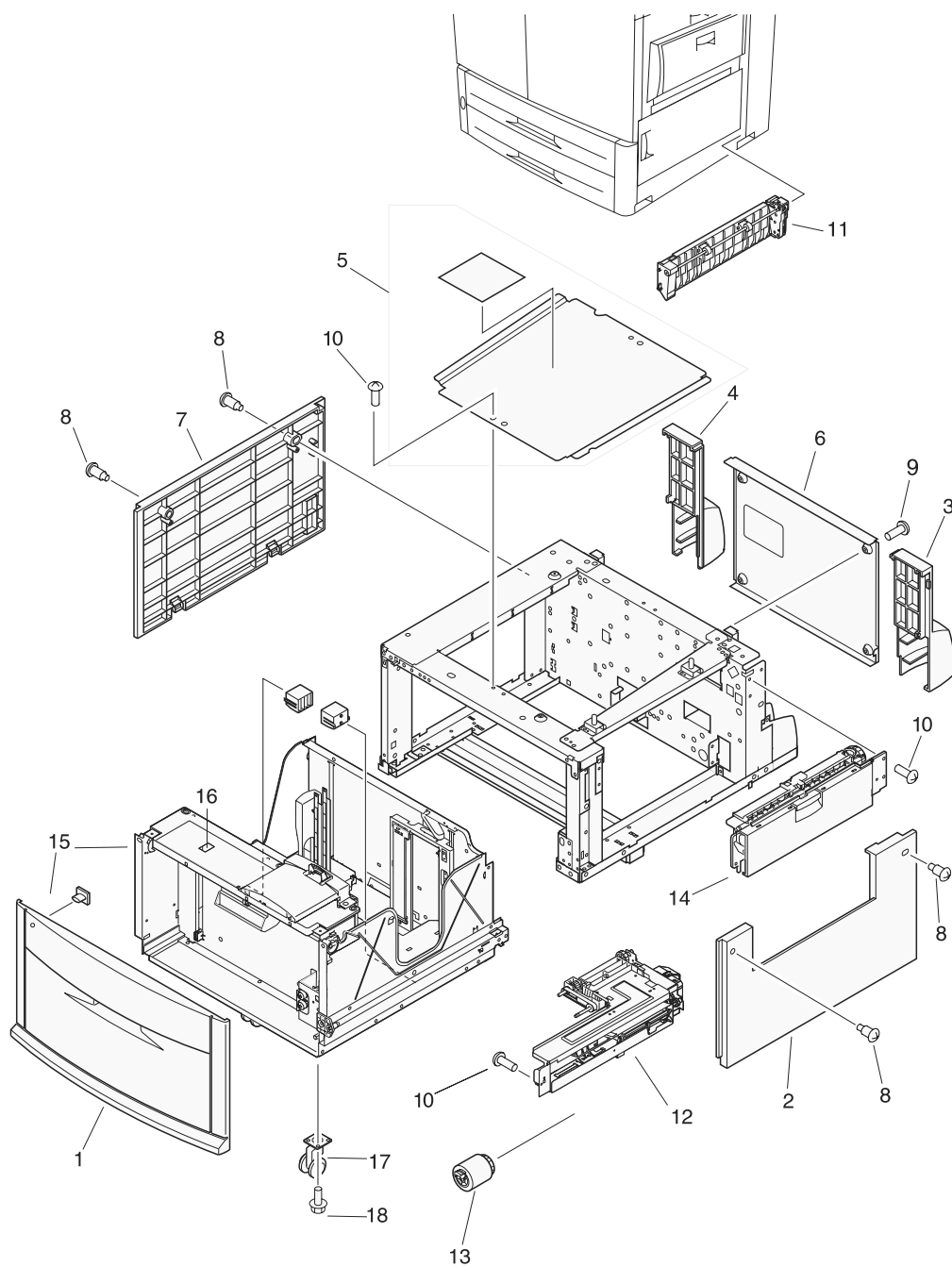


PCB assemblies

Table 115. PCB assemblies

Ref	Description	Part number	Qty
Figure 318; 1	DC controller PCB assembly	RG5-5901-000CN	1
Figure 318; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1
Figure 318; 3	Memory switch PCB assembly	Not orderable	1
Figure 318; 4	Feed PCB assembly	Not orderable	1
Figure 318; 5	crg (print cartridge) driver assembly	RG5-5907-020CN	1

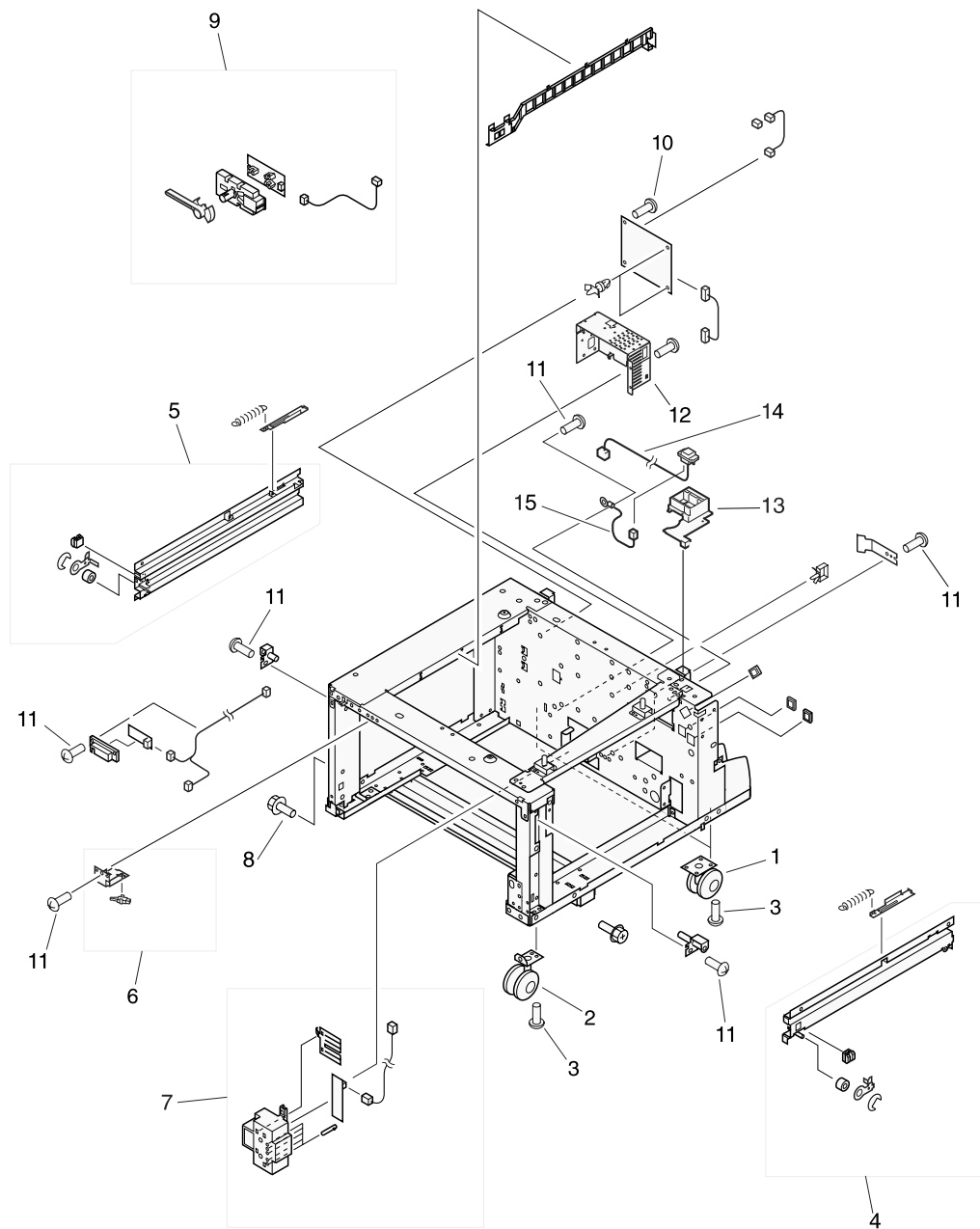
Tray 4 main body



Tray 4 main body (1 of 2)

Table 116. Tray 4 main body (1 of 2)

Ref	Description	Part number	Qty
Figure 319; 1	Cover, front	RB2-7648-000CN	1
Figure 319; 2	Cover, right	RB2-7649-000CN	1
Figure 319; 3	Cover, right back	RB2-7650-000CN	1
Figure 319; 4	Cover, left back	RB2-7651-000CN	1
Figure 319; 5	Cover, center	RB2-7652-000CN	1
Figure 319; 6	Cover, back	RF5-3644-000CN	1
Figure 319; 7	Cover, left	RF5-3645-000CN	1
Figure 319; 8	Screw, stepped	RS5-9099-000CN	
Figure 319; 9	Screw, W/W, M4 by 6	XA-0994-000CN	
Figure 319; 10	Screw, M4 by 6	XB6-7400-000CN	
Figure 319; 11	Paper path connection unit (PPCU)	RG5-6227-000CN	1
Figure 319; 12	Paper input unit (PIU)	RG5-6208-120CN	1
Figure 319; 13	Feed/separation rollers	RF5-3338-000CN	3
Figure 319; 14	Tray 4 vertical registration assembly (VTU/VRA)	RG5-6225-050CN	1
Figure 319; 15	Tray 4	RG5-6212-230CN	1
Figure 319; 16	Lever, standard/custom	RB2-7762-000CN	1
Figure 319; 17	Caster	RB2-7709-000CN	1
Figure 319; 18	Screw, M4 by 8	XA9-0732-000CN	
Not shown	Tray 4-to-engine stabilizing screws	0515-4318	2

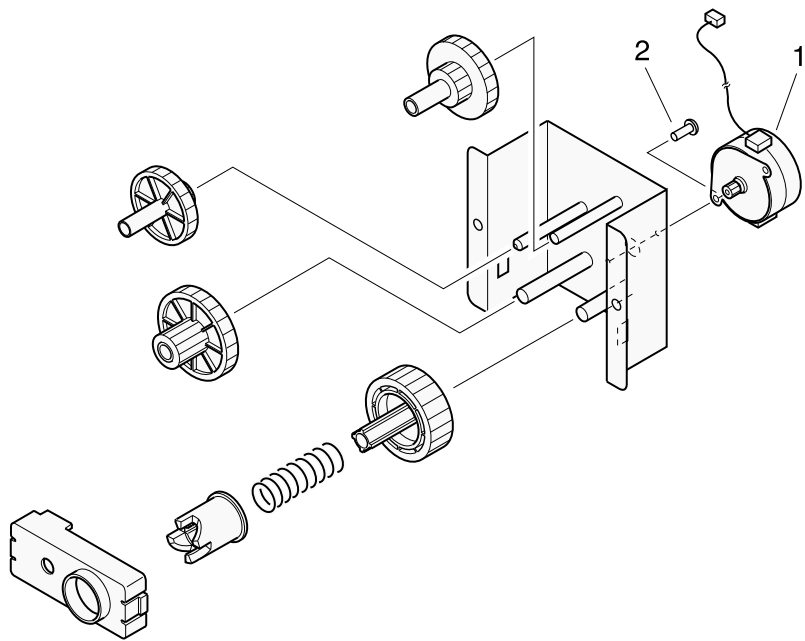


Tray 4 main body (2 of 2)

Table 117. Tray 4 main body (2 of 2)

Ref	Description	Part number	Qty
Figure 320; 1	Caster, back	RB2-7678-000CN	2
Figure 320; 2	Caster, front swivel	RB3-0304-040CN	2
Figure 320; 3	Screw, M5 by 12	XA9-0912-000CN	
Figure 320; 6	Switch assembly (SW21)	RG5-6206-000CN	1
Figure 320; 7	Paper size sensing assembly	RG5-6207-040CN	1
Figure 320; 8	Screws, M4 by 8	XA9-0732-000CN	
Figure 320; 9	Paper volume sensing assembly	RG5-6229-000CN	1
Figure 320; 10	Screw, M4 by 6	XB6-7300-607CN	
Figure 320; 11	Screw, M4 by 6	XA9-0994-000CN	
Figure 320; 12	Power supply	RG5-6250-000CN	1
Figure 320; 13	Jet-Link holder	RB2-7662-000CN	1
Figure 320; 14	Jet-Link cable assembly	RG5-6240-000CN	1
Figure 320; 15	Jet-Link grounding cable	RG5-6249-000CN	1

Tray 4 drive assembly

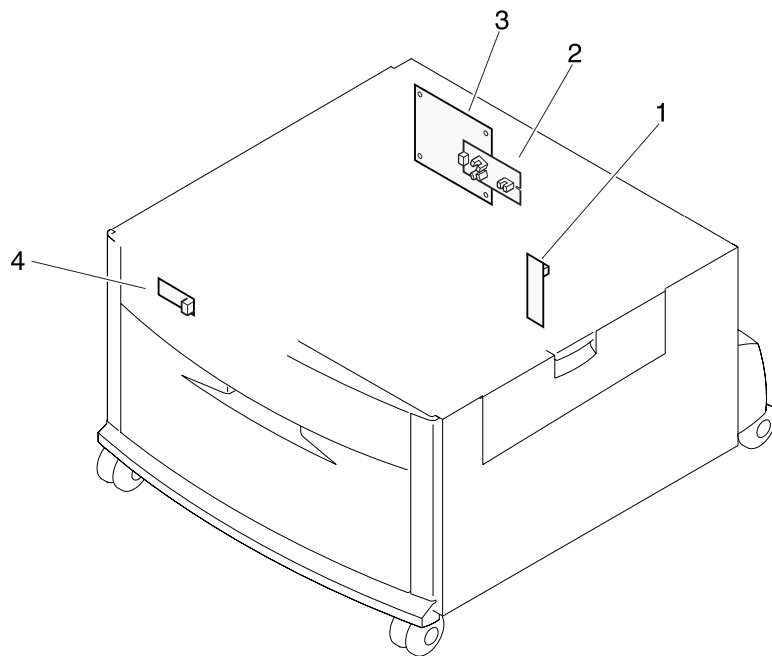


Tray 4 drive assembly

Table 118. Tray 4 drive assembly

Ref	Description	Part number	Qty
Figure 321; all	Tray 4 deck drive assembly	RG5-6228-040CN	1
Figure 321; 1	Motor (M303)	RH7-1481-000CN	1
Figure 321; 2	Screw, M3 by 6	XB2-6300-607CN	

Tray 4 PCA location



Tray 4 PCA location

Table 119. Tray 4 PCA location

Ref	Description	Part number	Qty
Figure 322; 1	Paper size PCA	RG5-6238-000CN	1
Figure 322; 2	Paper volume PCA	RG5-6237-000CN	1
Figure 322; 3	Deck controller PCA	RG5-6235-100CN	1
Figure 322; 4	LED PCA	RG5-6239-000CN	1

Alphabetical parts list

The master parts tables (alphabetical and numerical) list FRUs available from HP. For a complete list of parts found in the HP LaserJet 9500 series printer, refer to the exploded view illustrations in this chapter. Parts not listed in this table might be part of a larger subassembly.

Table 120. Alphabetical parts list

Ref	Description	Part number	Qty
Figure 302; 1	Antenna holder assembly	RG5-6026-000CN	4
Figure 303; 4	Antenna holder assembly	RG5-6026-000CN	4
Figure 297; 2	Block, damper	RB2-7217-000CN	1
Figure 300; 23	Cable, flat	RH2-5509-000CN	1
Figure 300; 24	Cable, flat	RH2-5507-000CN	1
Figure 303; 2	Cable, flat	RH2-5508-000CN	1
Figure 300; 17	Cable, formatter	RG5-5933-000CN	1
Figure 300; 16	Cable, fuser motor	RG5-5952-000CN	1
Figure 300; 18	Cable, high-voltage	RG5-5937-000CN	1
Figure 300; 15	Cable, high-voltage control	RG5-5940-000CN	1
Figure 298; 9	Cable, laser assembly	RG5-6148-000CN	1
Figure 300; 27	Cable, post controller	RG5-5966-000CN	1
Figure 300; 14	Cable, process cartridge	RG5-5938-000CN	1
Figure 300; 22	Cable, rear holder assembly	RG5-6159-000CN	1
Figure 300; 13	Cable, rear lower	RG5-5919-000CN	1
Figure 300; 29	Cable, rear lower	RG5-5975-000CN	1
Figure 300; 19	Cable, rear upper	RH5-5920-000CN	1
Figure 303; 7	Cable, right rear 1	RG5-5962-000CN	1
Figure 303; 8	Cable, right rear 2	RG5-5963-000CN	1
Figure 297; 6	Cartridge, click support assembly	RG5-6141-000CN	1
Figure 305; all	Cassette (use this part number to order the entire assembly)	RG5-5635-080CN	2
Figure 319; 17	Caster	RB2-7709-000CN	1
Figure 320; 1	Caster, back	RB2-7678-000CN	2
Figure 320; 2	Caster, front swivel	RB3-0304-040CN	2
Figure 299; 9	Connector assembly	RG5-5779-000CN	1
Figure 299; 16	Connector, 10P	VS1-5057-010CN	1
Figure 299; 17	Connector, 20P	VS1-5057-020CN	1
Figure 299; 14	Connector, 3P	VS1-5057-003CN	1
Figure 299; 15	Connector, 5P	VS1-5057-005CN	1
Figure 289; 22	Control panel overlay —Chinese, simplified	C8546-40018	1
Figure 289; 22	Control panel overlay-Arabic	C8546-40024	1
Figure 289; 22	Control panel overlay—Chinese, traditional	C8546-40017	1
Figure 289; 22	Control panel overlay—Czech	C8546-40015	1
Figure 289; 22	Control panel overlay—Danish	C8546-40012	1

Table 120. Alphabetical parts list (continued)

Ref	Description	Part number	Qty
Figure 289; 22	Control panel overlay—Dutch	C8546-40007	1
Figure 289; 22	Control panel overlay—English	C8546-40002	1
Figure 289; 22	Control panel overlay—Finnish	C8546-40011	1
Figure 289; 22	Control panel overlay—French (European)	C8546-40003	1
Figure 289; 22	Control panel overlay—German	C8546-40005	1
Figure 289; 22	Control panel overlay—Greek	C8546-40023	1
Figure 289; 22	Control panel overlay—Hebrew	C8546-40022	1
Figure 289; 22	Control panel overlay—Hungarian	C8546-40016	1
Figure 289; 22	Control panel overlay—Italian	C8546-40004	1
Figure 289; 22	Control panel overlay—Japanese	C8546-40020	1
Figure 289; 22	Control panel overlay—Korean	C8546-40019	1
Figure 289; 22	Control panel overlay—Norwegian	C8546-40009	1
Figure 289; 22	Control panel overlay—Polish	C8546-40013	1
Figure 289; 22	Control panel overlay—Portuguese (Brazilian)	C8546-40008	1
Figure 289; 22	Control panel overlay—Russian	C8546-40014	1
Figure 289; 22	Control panel overlay—Spanish (Castilian)	C8546-40006	1
Figure 289; 22	Control panel overlay—Swedish	C8546-40010	1
Figure 289; 22	Control panel overlay—Turkish	C8546-40021	1
Figure 319; 6	Cover, back	RF5-3644-000CN	1
Figure 319; 5	Cover, center	RB2-7652-000CN	1
Figure 319; 1	Cover, front	RB2-7648-000CN	1
Figure 288; 7	Cover, front left	RB2-5683-000CN	1
Figure 288; 6	Cover, front right	RB2-5682-000CN	1
Figure 319; 7	Cover, left	RF5-3645-000CN	1
Figure 290; all	Cover, left assembly	RG56149-000CN	1
Figure 319; 4	Cover, left back	RB2-7651-000CN	1
Figure 288; 16	Cover, left back assembly	RG5-6111-000CN	1
Figure 288; 4	Cover, left front	RB2-7335-000CN	1
Figure 288; 3	Cover, left lower	RB2-5687-000CN	1
Figure 288; 1	Cover, left upper	RB2-7336-000CN	1
Figure 295; 31	Cover, rail	RB2-7531-000CN	1
Figure 289; 20	Cover, rear assembly	RG5-6042-000CN	1
Figure 319; 2	Cover, right	RB2-7649-000CN	1
Figure 319; 3	Cover, right back	RB2-7650-000CN	1
Figure 289; 8	Cover, right back	RB2-7352-000CN	1
Figure 289; 23	Cover, right front	RB2-7331-000CN	1
Figure 289; 5	Cover, right lower	RB2-5689-000CN	1
Figure 289; 14	Cover, right upper	RB2-7332-000CN	1
Figure 289; 17	Cover, top left assembly	RG5-6112-000CN	1
Figure 289; 13	Cover, top right	RB2-7321-000CN	1
Figure 299; 5	Cover, transfer cable	RB2-7444-000CN	1
Figure 296; 34	Cover, transfer front	RB2-7445-000CN	1

Table 120. Alphabetical parts list (continued)

Ref	Description	Part number	Qty
Figure 318; 5	crg (print cartridge) driver assembly	RG5-5907-020CN	1
Figure 303; 6	crg driver PCB assembly (print cartridge drive)	RG5-5907-020CN	1
Figure 290; 1	Dampener, left cover assembly	RG5-6185-000CN	1
Figure 318; 1	DC controller PCB assembly	RG5-5901-000CN new C8546-69005 exchange	1
Figure 322; 3	Deck controller PCA	RG5-6235-100CN	1
Figure 316; all	Delivery cover assembly (use this part number to order the entire assembly)	RG5-6151-000CN	1
Figure 314; all	Delivery feed assembly (use this part number to order the entire assembly)	RG5-6150-000CN	1
Figure 289; 15	Display, panel assembly (control panel)	RG5-6115-000CN	1
Figure 288; 19	Door, front left assembly	RG5-6114-000CN	1
Figure 288; 18	Door, front right assembly	RG5-6113-000CN	1
Figure 291; all	Door, right assembly	RG56149-000CN	1
Figure 299; 10	End paper sensor assembly	RG5-5699-000CN	2
Figure 315; al	Face-down delivery assembly (use this part number to order the entire assembly)	RG5-6017-000CN	1
Figure 298; 14	Fan	RH7-1554-000CN	1
Figure 298; 16	Fan	RH7-1564-000CN	1
Figure 300; 20	Fan	RH7-1521-000CN	1
Figure 300; 21	Fan	RH7-1522-000CN	1
Figure 316; 2	Fan	RH7-1546-000CN	2
Figure 319; 13	Feed/separation rollers	RF5-3338-000CN	3
Figure 289; 9	Filter, air	RB2-7170-000CN	1
Figure 289; 27	Filter, ozone	RB2-7206-000CN	1
Figure 317; all	Fuser assembly	RG5-6098-000CN new C8546-69007 exchange	1
Figure 294; 20	Fuser connecting cable assembly	RG5-5925-000CN	1
Figure 304; all	Fuser drive assembly	RG5-6018-000CN	1
Figure 294; 21	Fuser sensor cable assembly	RG5-5932-000CN	1
Figure 294; 19	Fuser sensor PCB assembly	RG5-5914-000CN	1
Figure 295; 2	Guide, cleaner	RB2-7181-000CN	2
Figure 300; 2	High-voltage connector PCB assembly	RG5-6032-000CN	1
Figure 300; 12	High-voltage holder assembly	RG5-6129-000CN	1
Figure 300; 1	High-voltage PCB assembly	RG5-6031-000CN	1
Figure 300; 25	High-voltage power supply PCB unit	RH3-0353-000CN	1
Figure 296; 36	Holder, stop (Also order RF5-3502-000CN at the same time)	RB2-7501-000CN	1
Figure 289; 10	Hood, fan	RF-5-3555-000CN	1
Figure 298; 12	Humidity sensor assembly	RG5-6153-000CN	1
Figure 294; 2	Intermediate transfer belt (ITB) assembly	RG5-6180-030CN	1
Figure 292; 10	Intermediate transfer belt (ITB) cleaner assembly	RG5-6041-000CN	1
Figure 295; 30	Intermediate transfer belt (ITB) sensor cable assembly	RG5-5960-000CN	1
Figure 320; 14	Jet-Link cable assembly	RG5-6240-000CN	1
Figure 320; 15	Jet-Link grounding cable	RG5-6249-000CN	1

Table 120. Alphabetical parts list (continued)

Ref	Description	Part number	Qty
Figure 320; 13	Jet-Link holder	RB2-7662-000CN	1
Figure 322; 4	LED PCA	RG5-6239-000CN	1
Figure 298; 4	Left interlock assembly	RG5-6037-000CN	1
Figure 293; 6	Lever assembly	RG5-6134-000CN	1
Figure 319; 16	Lever, standard/custom	RB2-7762-000CN	1
Figure 293; 5	Lift link shaft assembly	RG5-6132-000CN	1
Figure 293; 4	Lift rod front assembly	RG5-6131-000CN	1
Figure 293; 7	Link rear unit	RG5-6147-000CN	1
Figure 296; 35	Link, front (Also order RB2-7501-000CN at the same time)	RF5-3502-000CN	1
Figure 295; 4	Link, holder lift	RB2-7258-000CN	1
Figure 294; 5	Main fuser front guide assembly	RG9-1595-000CN	1
Figure 309; all Figure 310; all	Manual feed pickup assembly (tray 1)	RG5-6090-070CN	1
Figure 303; 1	Memory switch PCB assembly	RG5-5909-000CN	1
Figure 321; 1	Motor (M303)	RH7-1481-000CN	1
Figure 296; 17	Motor, DC24V	RH7-1518-000CN	1
Figure 304; 1	Motor, DC24V	RH7-1519-000CN	1
Figure 294; 4	Mount, dampener	RB2-5570-020CN	2
Figure 298; 10	M-purpose support assembly rear	RG5-6107-000CN	1
Figure 298; 3	Paper delivery sensor assembly	RG5-6152-000CN	1
Figure 319; 12	Paper input unit (PIU)	RG5-6208-120CN	1
Figure 319; 11	Paper path connection unit (PPCU)	RG5-6227-000CN	1
Figure 306; all Figure 307; all Figure 308; all	Paper pickup assembly (use this part number to order the entire assembly)	RG5-6196-000CN	1
Figure 322; 1	Paper size PCA	RG5-6238-000CN	1
Figure 320; 7	Paper size sensing assembly	RG5-6207-040CN	1
Figure 322; 2	Paper volume PCA	RG5-6237-000CN	1
Figure 320; 9	Paper volume sensing assembly	RG5-6229-000CN	1
Figure 295; 24	P-CRG open/close cover assembly	RG5-6182-000CN	1
Figure 294; 16	Photo interrupter (TLP1241)	WG8-5362-000CN	1
Figure 295; 29	Photo interrupter (TLP1241)	WG8-5362-000CN	1
Figure 303; 10	Photo-interrupter TLP1241	WG8-5362-000CN	4
Figure 301; 1	Pin holder unit (registration drive assembly)	RG5-6192-000CN	1
Figure 297; 31	Plate, grounding	RB2-7281-000CN	1
Figure 295; 13	Plate, mount	RF5-3505-000CN	1
Figure 295; 6	Plate, positioning	RB2-7537-000CN	1
Figure 320; 12	Power supply	RG5-6250-000CN	1
Figure 300; 7	Power supply assembly 110-127V	RH3-2236-000CN new C8546-69003 exchange	1
	Power supply assembly 220-240V	RH3-2237-000CN new C8546-69004 exchange	1
Figure 302; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1
Figure 318; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1

Table 120. Alphabetical parts list (continued)

Ref	Description	Part number	Qty
Figure 302; all	Process cartridge drive assembly	RG5-6188-030CN new C8546-69006 exchange	1
Figure 295; 26	Rail, guide front	RF5-3545-000CN	1
Figure 297; 30	Rail, guide rear	RF5-3546-000CN	1
Figure 311; all	Registration assembly (use this part number to order the entire assembly)	RG5-6016-000CN	1
Figure 301; all	Registration drive assembly	RG5-6015-000CN	1
Figure 295; 25	Registration sensor assembly	RG5-6123-020CN	1
Figure 300; 28	Regulator PCB assembly	RG5-5971-000CN	1
Figure 298; 13	Right interlock assembly	RG5-6036-000CN	1
Figure 297; 19	Right upper crossmember cable	RG5-5943-000CN	1
Figure 299; 4	Rod, switch	RB2-7354-000CN	1
Figure 296; 2	Roller	RF5-3338-000CN	4
Figure 296; 3	Roller, pickup	RF5-3340-000CN	2
Figure 296; 29	Scanner assembly	RG5-6181-000CN	4
Figure 321; 2	Screw, M3 by 6	XB2-6300-607CN	
Figure 320; 10	Screw, M4 by 6	XB6-7300-607CN	
Figure 320; 11	Screw, M4 by 6	XA9-0994-000CN	
Figure 319; 10	Screw, M4 by 6	XB6-7400-000CN	
Figure 319; 18	Screw, M4 by 8	XA9-0732-000CN	
Figure 320; 3	Screw, M5 by 12	XA9-0912-000CN	
Figure 319; 8	Screw, stepped	RS5-9099-000CN	
Figure 319; 9	Screw, W/W, M4 by 6	XA-0994-000CN	
Figure 320; 8	Screws, M4 by 8	XA9-0732-000CN	
Figure 312; all Figure 313; all	Secondary transfer assembly (T2) (use this part number to order the entire assembly)	RG5-6179-000CN	1
Figure 298; 11	Slide arm assembly	RG5-6130-000CN	1
Figure 293; 3	Soft link shaft assembly	RG5-6122-000CN	1
Figure 296; 33	Spring, compression	RS6-2840-000CN	1
Figure 294; 14	Spring, tension	RS6-2442-000CN	1
Figure 294; 6	Sub fuser front guide assembly	RG9-1596-000CN	1
Figure 295; 5	Support, cleaning front	RB2-7570-000CN	1
Figure 295; 11	Support, cleaning front	RB2-7515-000CN	1
Figure 295; 8	Support, side plate hinge	RB2-7302-000CN	2
Figure 320; 6	Switch assembly (SW21)	RG5-6206-000CN	1
Figure 297; 28	Toner cartridge cable	RG5-5939-000CN	1
Figure 303; all	Toner cartridge drive assembly (print cartridge drive)	RG5-6022-000CN	1
Figure 292; 8	Toner cartridge lever assembly	RG5-6121-000CN	4
Figure 303; 3	Toner drive cable	RG5-5930-000CN	1
Figure 288; 26	Tongs, jam removal	RF5-3535-000CN	1
Figure 296; 1	Torque limiter	RB2-5759-000CN	1
Figure 293; 8	Transfer link front assembly	RG5-6146-000CN	1
Figure 296; 6	Transfer roller assembly	RG5-6178-000CN	1

Table 120. Alphabetical parts list (continued)

Ref	Description	Part number	Qty
Figure 319; 15	Tray 4	RG5-6212-230CN	1
Figure 321; all	Tray 4 deck drive assembly	RG5-6228-040CN	1
Figure 319; 14	Tray 4 vertical registration assembly (VTU/VRA)	RG5-6225-050CN	1
Not shown	Tray 4-to-engine stabilizing screws	0515-4318	2
Figure 288; 24	Tray face up delivery	RB2-5690-000CN	1
Figure 292; 13	Tray, catch	RB2-7207-000CN	1
Figure 289; 12	Tray, delivery movable	RB2-7341-000CN	1
Figure 292; 7	Waste toner bottle assembly	RG5-6040-000CN	1
Figure 292; 6	Waste toner sensor assembly	RG5-6038-000CN	1

Numerical parts list

The master parts tables (alphabetical and numerical) list FRUs available from HP. For a complete list of parts found in the HP LaserJet 9500 series printer, refer to the exploded view illustrations in this chapter. Parts not listed in this table might be part of a larger subassembly.

Table 121. Numerical parts list

Ref	Description	Part number	Qty
Not shown	Tray 4-to-engine stabilizing screws	0515-4318	2
Figure 289; 22	Control panel overlay—English	C8546-40002	1
Figure 289; 22	Control panel overlay—French (European)	C8546-40003	1
Figure 289; 22	Control panel overlay—Italian	C8546-40004	1
Figure 289; 22	Control panel overlay—German	C8546-40005	1
Figure 289; 22	Control panel overlay—Spanish (Castilian)	C8546-40006	1
Figure 289; 22	Control panel overlay—Dutch	C8546-40007	1
Figure 289; 22	Control panel overlay—Portuguese (Brazilian)	C8546-40008	1
Figure 289; 22	Control panel overlay—Norwegian	C8546-40009	1
Figure 289; 22	Control panel overlay—Swedish	C8546-40010	1
Figure 289; 22	Control panel overlay—Finnish	C8546-40011	1
Figure 289; 22	Control panel overlay—Danish	C8546-40012	1
Figure 289; 22	Control panel overlay—Polish	C8546-40013	1
Figure 289; 22	Control panel overlay—Russian	C8546-40014	1
Figure 289; 22	Control panel overlay—Czech	C8546-40015	1
Figure 289; 22	Control panel overlay—Hungarian	C8546-40016	1
Figure 289; 22	Control panel overlay—Chinese, traditional	C8546-40017	1
Figure 289; 22	Control panel overlay —Chinese, simplified	C8546-40018	1
Figure 289; 22	Control panel overlay—Korean	C8546-40019	1
Figure 289; 22	Control panel overlay—Japanese	C8546-40020	1
Figure 289; 22	Control panel overlay—Turkish	C8546-40021	1
Figure 289; 22	Control panel overlay—Hebrew	C8546-40022	1
Figure 289; 22	Control panel overlay—Greek	C8546-40023	1
Figure 289; 22	Control panel overlay—Arabic	C8546-40024	1
Figure 294; 4	Mount, dampener	RB2-5570-020CN	2
Figure 288; 6	Cover, front right	RB2-5682-000CN	1
Figure 288; 7	Cover, front left	RB2-5683-000CN	1
Figure 288; 3	Cover, left lower	RB2-5687-000CN	1
Figure 289; 5	Cover, right lower	RB2-5689-000CN	1
Figure 288; 24	Tray face up delivery	RB2-5690-000CN	1
Figure 296; 1	Torque limiter	RB2-5759-000CN	1
Figure 289; 9	Filter, air	RB2-7170-000CN	1
Figure 295; 2	Guide, cleaner	RB2-7181-000CN	2
Figure 289; 27	Filter, ozone	RB2-7206-000CN	1
Figure 292; 13	Tray, catch	RB2-7207-000CN	1
Figure 297; 2	Block, damper	RB2-7217-000CN	1

Table 121. Numerical parts list (continued)

Ref	Description	Part number	Qty
Figure 295; 4	Link, holder lift	RB2-7258-000CN	1
Figure 297; 31	Plate, grounding	RB2-7281-000CN	1
Figure 295; 8	Support, side plate hinge	RB2-7302-000CN	2
Figure 289; 13	Cover, top right	RB2-7321-000CN	1
Figure 289; 23	Cover, right front	RB2-7331-000CN	1
Figure 289; 14	Cover, right upper	RB2-7332-000CN	1
Figure 288; 4	Cover, left front	RB2-7335-000CN	1
Figure 288; 1	Cover, left upper	RB2-7336-000CN	1
Figure 289; 12	Tray, delivery movable	RB2-7341-000CN	1
Figure 289; 8	Cover, right back	RB2-7352-000CN	1
Figure 299; 4	Rod, switch	RB2-7354-000CN	1
Figure 299; 5	Cover, transfer cable	RB2-7444-000CN	1
Figure 296; 34	Cover, transfer front	RB2-7445-000CN	1
Figure 296; 36	Holder, stop (Also order RF5-3502-000CN at the same time)	RB2-7501-000CN	1
Figure 295; 11	Support, cleaning front	RB2-7515-000CN	1
Figure 295; 31	Cover, rail	RB2-7531-000CN	1
Figure 295; 6	Plate, positioning	RB2-7537-000CN	1
Figure 295; 5	Support, cleaning front	RB2-7570-000CN	1
Figure 319; 1	Cover, front	RB2-7648-000CN	1
Figure 319; 2	Cover, right	RB2-7649-000CN	1
Figure 319; 3	Cover, right back	RB2-7650-000CN	1
Figure 319; 4	Cover, left back	RB2-7651-000CN	1
Figure 319; 5	Cover, center	RB2-7652-000CN	1
Figure 320; 13	Jet-Link holder	RB2-7662-000CN	1
Figure 320; 1	Caster, back	RB2-7678-000CN	2
Figure 319; 17	Caster	RB2-7709-000CN	1
Figure 319; 16	Lever, standard/custom	RB2-7762-000CN	1
Figure 320; 2	Caster, front swivel	RB3-0304-040CN	2
Figure 319; 13	Feed/separation rollers	RF5-3338-000CN	3
Figure 296; 2	Roller	RF5-3338-000CN	4
Figure 296; 3	Roller, pickup	RF5-3340-000CN	2
Figure 296; 35	Link, front (Also order RB2-7501-000CN at the same time)	RF5-3502-000CN	1
Figure 295; 13	Plate, mount	RF5-3505-000CN	1
Figure 288; 26	Tongs, jam removal	RF5-3535-000CN	1
Figure 295; 26	Rail, guide front	RF5-3545-000CN	1
Figure 297; 30	Rail, guide rear	RF5-3546-000CN	1
Figure 289; 10	Hood, fan	RF-5-3555-000CN	1
Figure 319; 6	Cover, back	RF5-3644-000CN	1
Figure 319; 7	Cover, left	RF5-3645-000CN	1
Figure 305; all	Cassette (use this part number to order the entire assembly)	RG5-5635-080CN	2
Figure 299; 10	End paper sensor assembly	RG5-5699-000CN	2
Figure 299; 9	Connector assembly	RG5-5779-000CN	1

Table 121. Numerical parts list (continued)

Ref	Description	Part number	Qty
Figure 318; 1	DC controller PCB assembly	RG5-5901-000CN new C8546-69005 exchange	1
Figure 302; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1
Figure 318; 2	Process cartridge (image drum) PCB assembly	RG5-5905-000CN	1
Figure 318; 5	crg (print cartridge) driver assembly	RG5-5907-020CN	1
Figure 303; 6	crg driver PCB assembly (print cartridge drive)	RG5-5907-020CN	1
Figure 303; 1	Memory switch PCB assembly	RG5-5909-000CN	1
Figure 294; 19	Fuser sensor PCB assembly	RG5-5914-000CN	1
Figure 300; 13	Cable, rear lower	RG5-5919-000CN	1
Figure 294; 20	Fuser connecting cable assembly	RG5-5925-000CN	1
Figure 303; 3	Toner drive cable	RG5-5930-000CN	1
Figure 294; 21	Fuser sensor cable assembly	RG5-5932-000CN	1
Figure 300; 17	Cable, formatter	RG5-5933-000CN	1
Figure 300; 18	Cable, high-voltage	RG5-5937-000CN	1
Figure 300; 14	Cable, process cartridge	RG5-5938-000CN	1
Figure 297; 28	Toner cartridge cable	RG5-5939-000CN	1
Figure 300; 15	Cable, high-voltage control	RG5-5940-000CN	1
Figure 297; 19	Right upper crossmember cable	RG5-5943-000CN	1
Figure 300; 16	Cable, fuser motor	RG5-5952-000CN	1
Figure 295; 30	Intermediate transfer belt (ITB) sensor cable assembly	RG5-5960-000CN	1
Figure 303; 7	Cable, right rear 1	RG5-5962-000CN	1
Figure 303; 8	Cable, right rear 2	RG5-5963-000CN	1
Figure 300; 27	Cable, post controller	RG5-5966-000CN	1
Figure 300; 28	Regulator PCB assembly	RG5-5971-000CN	1
Figure 300; 29	Cable, rear lower	RG5-5975-000CN	1
Figure 301; all	Registration drive assembly	RG5-6015-000CN	1
Figure 311; all	Registration assembly (use this part number to order the entire assembly)	RG5-6016-000CN	1
Figure 315; al	Face-down delivery assembly (use this part number to order the entire assembly)	RG5-6017-000CN	1
Figure 304; all	Fuser drive assembly	RG5-6018-000CN	1
Figure 303; all	Toner cartridge drive assembly (print cartridge drive)	RG5-6022-000CN	1
Figure 302; 1	Antenna holder assembly	RG5-6026-000CN	4
Figure 303; 4	Antenna holder assembly	RG5-6026-000CN	4
Figure 300; 1	High-voltage PCB assembly	RG5-6031-000CN	1
Figure 300; 2	High-voltage connector PCB assembly	RG5-6032-000CN	1
Figure 298; 13	Right interlock assembly	RG5-6036-000CN	1
Figure 298; 4	Left interlock assembly	RG5-6037-000CN	1
Figure 292; 6	Waste toner sensor assembly	RG5-6038-000CN	1
Figure 292; 7	Waste toner bottle assembly	RG5-6040-000CN	1
Figure 292; 10	Intermediate transfer belt (ITB) cleaner assembly	RG5-6041-000CN	1
Figure 289; 20	Cover, rear assembly	RG5-6042-000CN	1
Figure 309; all Figure 310; all	Manual feed pickup assembly (tray 1)	RG5-6090-070CN	1

Table 121. Numerical parts list (continued)

Ref	Description	Part number	Qty
Figure 317; all	Fuser assembly	RG5-6098-000CN new C8546-69007 exchange	1
Figure 298; 10	M-purpose support assembly rear	RG5-6107-000CN	1
Figure 288; 16	Cover, left back assembly	RG5-6111-000CN	1
Figure 289; 17	Cover, top left assembly	RG5-6112-000CN	1
Figure 288; 18	Door, front right assembly	RG5-6113-000CN	1
Figure 288; 19	Door, front left assembly	RG5-6114-000CN	1
Figure 289; 15	Display, panel assembly (control panel)	RG5-6115-000CN	1
Figure 292; 8	Toner cartridge lever assembly	RG5-6121-000CN	4
Figure 293; 3	Soft link shaft assembly	RG5-6122-000CN	1
Figure 295; 25	Registration sensor assembly	RG5-6123-020CN	1
Figure 300; 12	High-voltage holder assembly	RG5-6129-000CN	1
Figure 298; 11	Slide arm assembly	RG5-6130-000CN	1
Figure 293; 4	Lift rod front assembly	RG5-6131-000CN	1
Figure 293; 5	Lift link shaft assembly	RG5-6132-000CN	1
Figure 293; 6	Lever assembly	RG5-6134-000CN	1
Figure 297; 6	Cartridge, click support assembly	RG5-6141-000CN	1
Figure 293; 8	Transfer link front assembly	RG5-6146-000CN	1
Figure 293; 7	Link rear unit	RG5-6147-000CN	1
Figure 298; 9	Cable, laser assembly	RG5-6148-000CN	1
Figure 290; all	Cover, left assembly	RG56149-000CN	1
Figure 291; all	Door, right assembly	RG56149-000CN	1
Figure 314; all	Delivery feed assembly (use this part number to order the entire assembly)	RG5-6150-000CN	1
Figure 316; all	Delivery cover assembly (use this part number to order the entire assembly)	RG5-6151-000CN	1
Figure 298; 3	Paper delivery sensor assembly	RG5-6152-000CN	1
Figure 298; 12	Humidity sensor assembly	RG5-6153-000CN	1
Figure 300; 22	Cable, rear holder assembly	RG5-6159-000CN	1
Figure 296; 6	Transfer roller assembly	RG5-6178-000CN	1
Figure 312; all Figure 313; all	Secondary transfer assembly (T2) (use this part number to order the entire assembly)	RG5-6179-000CN	1
Figure 294; 2	Intermediate transfer belt (ITB) assembly	RG5-6180-030CN	1
Figure 296; 29	Scanner assembly	RG5-6181-000CN	4
Figure 295; 24	P-CRG open/close cover assembly	RG5-6182-000CN	1
Figure 290; 1	Dampener, left cover assembly	RG5-6185-000CN	1
Figure 302; all	Process cartridge drive assembly	RG5-6188-030CN new C8546-69006 exchange	1
Figure 301; 1	Pin holder unit (registration drive assembly)	RG5-6192-000CN	1
Figure 306; all Figure 307; all Figure 308; all	Paper pickup assembly (use this part number to order the entire assembly)	RG5-6196-000CN	1
Figure 320; 6	Switch assembly (SW21)	RG5-6206-000CN	1
Figure 320; 7	Paper size sensing assembly	RG5-6207-040CN	1
Figure 319; 12	Paper input unit (PIU)	RG5-6208-120CN	1

Table 121. Numerical parts list (continued)

Ref	Description	Part number	Qty
Figure 319; 15	Tray 4	RG5-6212-230CN	1
Figure 319; 14	Tray 4 vertical registration assembly (VTU/VRA)	RG5-6225-050CN	1
Figure 319; 11	Paper path connection unit (PPCU)	RG5-6227-000CN	1
Figure 321; all	Tray 4 deck drive assembly	RG5-6228-040CN	1
Figure 320; 9	Paper volume sensing assembly	RG5-6229-000CN	1
Figure 322; 3	Deck controller PCA	RG5-6235-100CN	1
Figure 322; 2	Paper volume PCA	RG5-6237-000CN	1
Figure 322; 1	Paper size PCA	RG5-6238-000CN	1
Figure 322; 4	LED PCA	RG5-6239-000CN	1
Figure 320; 14	Jet-Link cable assembly	RG5-6240-000CN	1
Figure 320; 15	Jet-Link grounding cable	RG5-6249-000CN	1
Figure 320; 12	Power supply	RG5-6250-000CN	1
Figure 294; 5	Main fuser front guide assembly	RG9-1595-000CN	1
Figure 294; 6	Sub fuser front guide assembly	RG9-1596-000CN	1
Figure 300; 24	Cable, flat	RH2-5507-000CN	1
Figure 303; 2	Cable, flat	RH2-5508-000CN	1
Figure 300; 23	Cable, flat	RH2-5509-000CN	1
Figure 300; 25	High-voltage power supply PCB unit	RH3-0353-000CN	1
Figure 300; 7	Power supply assembly 110-127V	RH3-2236-000CN new	1
	Power supply assembly 220-240V	C8546-69003 exchange RH3-2237-000CN new C8546-69004 exchange	1
Figure 300; 19	Cable, rear upper	RH5-5920-000CN	1
Figure 321; 1	Motor (M303)	RH7-1481-000CN	1
Figure 296; 17	Motor, DC24V	RH7-1518-000CN	1
Figure 304; 1	Motor, DC24V	RH7-1519-000CN	1
Figure 300; 20	Fan	RH7-1521-000CN	1
Figure 300; 21	Fan	RH7-1522-000CN	1
Figure 316; 2	Fan	RH7-1546-000CN	2
Figure 298; 14	Fan	RH7-1554-000CN	1
Figure 298; 16	Fan	RH7-1564-000CN	1
Figure 319; 8	Screw, stepped	RS5-9099-000CN	
Figure 294; 14	Spring, tension	RS6-2442-000CN	1
Figure 296; 33	Spring, compression	RS6-2840-000CN	1
Figure 299; 14	Connector, 3P	VS1-5057-003CN	1
Figure 299; 15	Connector, 5P	VS1-5057-005CN	1
Figure 299; 16	Connector, 10P	VS1-5057-010CN	1
Figure 299; 17	Connector, 20P	VS1-5057-020CN	1
Figure 294; 16	Photo interrupter (TLP1241)	WG8-5362-000CN	1
Figure 295; 29	Photo interrupter (TLP1241)	WG8-5362-000CN	1
Figure 303; 10	Photo-interrupter TLP1241	WG8-5362-000CN	4
Figure 319; 9	Screw, W/W, M4 by 6	XA-0994-000CN	
Figure 319; 18	Screw, M4 by 8	XA9-0732-000CN	NA

Table 121. Numerical parts list (continued)

Ref	Description	Part number	Qty
Figure 320; 8	Screws, M4 by 8	XA9-0732-000CN	
Figure 320; 3	Screw, M5 by 12	XA9-0912-000CN	
Figure 320; 11	Screw, M4 by 6	XA9-0994-000CN	
Figure 321; 2	Screw, M3 by 6	XB2-6300-607CN	
Figure 320; 10	Screw, M4 by 6	XB6-7300-607CN	
Figure 319; 10	Screw, M4 by 6	XB6-7400-000CN	

Index

2,000-sheet feeder. *See* tray 4

A4 media settings 62

AC/DC power conversion 137

accessories

available 21

diagrams 26

ordering 47, 443

part numbers 445

verifying installation 323

acoustic emissions

specifications 24

adhesive labels

print modes 67

specifications 36

adjustment, laser/scanner

about 223

page, printing 219

page, reading 221

step 1 224

step 2 228

alphabetical lists

messages 389

part numbers 506

APC (automatic light emission control) 151

AppleTalk settings 72

applications, changing settings from 81

auto continue 70

auto sense mode 67

back cover, removing and replacing 214

band test, color 77

basis-weight field test 40

beams

detect errors 153, 155

operations 148, 149

skew calibration 157

belt test 78

bins

capacities 32

default, setting 61

locating 25

blank

control panel display 308

blinking lights, interpreting

tray 4 440

blisters mode 68

block diagram 109

bond paper, weight equivalence table 40

box

contents 30

size 27

buttons, control panel 54

cables

troubleshooting 323

cables, connectors 25

cables, flat flexible (FFCs)

removing and replacing 185

signals 118

calibration

color plane registration (CPR) 155

environment 166

halftone 168

laser beam skew 157

menu settings 66

skipping 89

caliper field test 42

Cancel Job button 54

capacities, trays and bins 32

carbonless media 39

cardstock mode 67

cartridges

block diagram 109

diagrams 158

drive assembly, diagrams and part numbers 474

drive assembly, removing and replacing 282

motor, testing 78

motors, operations 140

non-HP 96

operations 160

part numbers 96, 445

removing 183, 187

storing 97

terminology 444

testing 75

warranty 50

cassette assembly, diagrams and part numbers 478

cassettes. *See* trays

CD-ROM, parts information 48

charging operations 159

checks. *See* tests

chemically treated media 38

circuits

capacity 23

DC controller 131

flat flexible cable (FFC) signals 118

laser diodes 150

wiring diagrams 114

cleaning

components 94

precautions 93

toner, spilled 93

waste toner operations 164, 165

cleaning blade

diagrams 158

operations 164, 165

removing and replacing 192

terminology 444

cleaning kit

page count, resetting 79

part numbers 445

cleaning page 66

clearable warnings 70

clothing, toner on 93

clutches

diagrams 131, 142

paper path 169, 177

- cold reset
 - paper size settings 79
 - performing 89
- color
 - band test 77
 - mode 69
 - plane registration (CPR) 155
 - settings 64
- components
 - block diagram 109
 - internal, diagrams and part numbers 454
 - testing 76
- configuration page
 - HP Jetdirect 437
 - using 323
- configuration page, printing 58
- Configure Device menu 61
- connectors
 - DC controller, checking for damage 186
 - locating 25, 126
- consumables. *See* supplies
- continue settings 70
- control panel
 - blank, troubleshooting 308
 - clearable warning settings 70
 - cover, removing and replacing 195
 - default settings 81
 - language 70, 81
 - lights and buttons 54
 - locating 25
 - menus 56
 - messages, alphabetical list 389
 - overlay, removing and replacing 194
 - part numbers 445
 - removing and replacing 195
 - service ID 79
- copies, default number 61
- counts, page 79
- Courier font settings 62
- covers
 - back, removing and replacing 214
 - diagrams and part numbers 448
 - left back, removing and replacing 210
 - left lower, removing and replacing 211
 - left upper, removing and replacing 198
 - right back, removing and replacing 213
 - top left, removing and replacing 201
 - top right, removing and replacing 199
 - upper right, removing and replacing 196
- CPR (color plane registration) 155
- CPU, DC controller PCA 134, 135
- curl
 - grain test 42
- current capacity 23
- custom media
 - configuring trays 83
 - detection operations 171
- Customer care Reseller Sales and Support Center 48
- cut edge condition field test, media 43
- cutouts, avoiding media with 38
- damaged connectors, DC controller 186
- DC controller
 - circuit components 131
 - color plane registration (CPR) 155
 - connectors, checking for damage 186
 - engine-control system 130
 - feeding operations 169
 - flat flexible cable (FFC) signals 118
 - formatter operations 146
 - halftone calibration control 168
 - high-voltage power supply 138
 - last sheet detection, tray 1 176
 - media size detection 171
 - motors and fans 139
 - operations 134
 - paper width detection, tray 1 175
 - part numbers 445
 - pickup operations tray 2 or 3 172
 - removing and replacing 286
 - scanner motor 154
 - T driver circuit 135
 - tray 1 pickup operations 174
- default settings, restoring
 - print modes 68
 - printer 74
- delivery cover assembly, diagrams and part numbers 497
- delivery fan
 - diagrams 141
 - removing and replacing 276
- delivery feed assembly, diagrams and part numbers 495
- delivery unit sensor, removing and replacing 239
- delivery unit, removing and replacing 235
- demo page, printing 58
- density
 - control operations 166, 167
 - image formation operations 159
 - sensor assembly, removing and replacing 248
- developer motors test 78
- developing cylinder
 - block diagram 109
 - operations 160
- developing motors 139
- devices
 - verifying installation 323
- D-half (halftone calibration) 168
- diagnostics
 - menu 75
- DIMMs
 - part numbers 445
 - slots 146
 - specifications 20
- DIMMs (dual inline memory modules)
 - verifying installation 323
- diodes, laser 150, 151
- DIP switches, tray 4 438
- directory file page 58
 - using 328
- disk. *See* hard disk
- DLC/LLC settings 72
- documentation
 - ordering 49, 443
 - part numbers 446

- doors
 - diagrams and part numbers 448
 - front, removing and replacing 203
 - fuser, removing and replacing 204
 - image drum, removing and replacing 215
 - ITB, removing and replacing 206
 - jam detection operations 178
 - left switch, removing and replacing 296
 - locating 25
 - right switch, removing and replacing 297
 - upper left sensor, removing and replacing 299
- dots per inch (dpi) 20
- downloading drivers 47
- dpi (dots per inch) 20
- drivers
 - downloading 47
 - included 20
- drums, image
 - block diagram 109
 - diagrams 158
 - door, removing and replacing 215
 - drive assembly, diagrams and part numbers 473
 - drive assembly, removing and replacing 278
 - handling 98
 - motor test 78
 - motors, operations 139
 - non-HP 96
 - operations 159
 - part numbers 98, 445
 - removing 183, 189
 - terminology 444
 - testing 75
 - warranty 50
- dual-beam method 149
- duplexer
 - deflector 109
 - part numbers 446
 - removing and replacing 244
 - settings 62
- duty cycle 21
- edge printing 85
- EIO cards
 - part numbers 446
 - slots 21, 25
- EIO disk. *See* hard disk
- EIO submenu 72
- electrical specifications 23
- electrophotographic process 158
- electrostatic discharge (ESD) precautions 183
- embossed media, specifications 38
- energy consumption 23
- engine
 - control system, block diagram 130
- envelopes
 - default size 61
 - grain test 42
 - print mode 67
 - specifications 35
 - storing 39
- environment calibration control 166
- environmental specifications
 - printer 23, 24
 - storing media 39
- equivalence table, paper weight 40
- error messages
 - log 75
 - settings 70

- ESD (electrostatic discharge) precautions 183
- event log
 - configuration page 324
 - diagnostics menu 75
- exchange program 47
- eye contact, toner 93
- face down delivery assembly, diagrams and part numbers 496
- face-up deflector 109
- face-up delivery fans 141
- face-up solenoid test 78
- factory defaults, restoring
 - print modes 68
 - printer 74
- fans
 - delivery, removing and replacing 276
 - diagrams 131, 139
 - fuser, removing and replacing 277
 - right back, removing and replacing 251
 - right front, removing and replacing 252
- Fast Infrared (FIR) connect 25
- fasteners, types 184
- FastRes 20
- features, printer 20
- feed guide, cleaning 94
- feed rollers
 - block diagram 109
 - operations 169, 172
- feed unit, vertical 240
- feeding operations
 - last sheet detection, tray 1 176
 - lifting 173
 - paper path 169, 177
 - testing 78
 - tray 1 174
 - tray 2 or 3 172
- feeding problems, ADF 381
- FFCs (flat flexible cables)
 - removing and replacing 185
 - signals 118
- fiber composition test 43
- field replaceable units (FRUs)
 - part numbers 448
 - removing and replacing 183
- file directory page 58
 - using 328
- finish test, paper 42
- FIR connector 25
- firmware updates
 - downloading 99
 - Macintosh 102
 - messages received during 105
 - troubleshooting 105
 - UNIX 100
 - Windows, FTP 101
 - Windows, local port 99
 - Windows, LPR commands 104
 - Windows, network 100
- first aid procedures, toner 93
- first page out, specifications 20
- flags, diagrams 109
- flashing lights, interpreting
 - tray 4 440
- flat flexible cables (FFCs)
 - removing and replacing 185
 - signals 118
- focusing lenses, operations 148, 149

- fonts
 - Courier settings 62
 - DIMMs, part numbers 445
 - included 20
 - list, printing 58
 - PCL settings 63
- foreign interface harness (FIH) 25
- formatter
 - cage, removing and replacing 289
 - color plane registration (CPR) 155
 - halftone calibration control 168
 - heartbeat LED 147
 - operations 146
 - part numbers 445
 - PCB, removing and replacing 288
 - power supplies 137
- forms, preprinted 37
- frequent jams, troubleshooting 382
- front doors
 - locating 25
 - removing and replacing 203
- front fuser guide, cleaning 94
- front paper sensor, removing and replacing 300
- FRUs (field replaceable units)
 - part numbers 448
 - removing and replacing 183
- FTP firmware updates
 - Macintosh 102
 - Windows 101
- furnish test, media 43
- fuser
 - cleaning 94
 - control circuit operations 136
 - diagrams 158
 - door, removing and replacing 204
 - drive assembly, diagrams and part numbers 476
 - drive assembly, removing and replacing 285
 - front paper sensor, removing and replacing 300
 - kit, part numbers 445
 - kit, resetting page count 79
 - media compatibility 36
 - part numbers 498
 - removing and replacing 245
 - sensor PCA, removing and replacing 301
 - warranty 50
- fuser fan
 - diagrams 141
 - removing and replacing 277
- fuser motor
 - diagrams 140
 - removing and replacing 284
 - testing 78
- fusing rollers
 - block diagram 109
 - operations 163
- glossy mode 67
- grain field test 42
- gray levels 20
- guides, cleaning 94
- halftone calibration control 168
- hard disk
 - file directory page 58
 - included 21
 - part numbers 446
 - reinitializing 86
 - skip disk function 89
- hard disks
 - file directory page 328
- harnesses, wiring 183
- heartbeat LED, formatter 147
- heaters, operations 136
- heavy media mode 67
- held jobs 57, 69
- help
 - troubleshooting 303
- high-voltage contact, removing and replacing 291
- high-voltage power supply
 - operations 138
 - removing and replacing 267
- HP Fast Infrared (FIR) connector 25
- HP FastRes 20
- HP Jetdirect
 - configuration page 437
- HP Jetdirect print servers
 - connector, locating 25
 - EIO submenu 72
 - included 20
 - model number 21
 - troubleshooting 436
- HP Jet-Link
 - cabling, troubleshooting 323
- HP Jet-Link connector 25
- HP LaserJet utility, Macintosh firmware updates 103
- HP media 33
- HP PCL 5c driver 20
- HP Web JetAdmin, firmware updates 104
- humidity
 - calibration control 166
 - meter, suppliers 44
 - sensor, removing and replacing 266
 - specifications 24
 - storing media 39
- I/O submenu 71
- identification label 22
- image cleaning kit, part numbers 445
- image density detection operations 167
- image drums
 - block diagram 109
 - diagrams 158
 - door, removing and replacing 215
 - drive assembly, diagrams and part numbers 473
 - drive assembly, removing and replacing 278
 - handling 98
 - motor test 78
 - motors, operations 139
 - non-HP 96
 - operations 159
 - part numbers 98, 445
 - removing 183, 189
 - terminology 444
 - testing 75
 - warranty 50
- image formation operations 158
- image mask control 152
- image quality, troubleshooting. See print quality, troubleshooting
- image stabilization control 166
- image transfer kit, part numbers 445

- imaging area 85
- Information menu 58
- information pages
 - configuration 323
 - file directory 328
 - HP Jetdirect 437
 - supplies status 325
- ingestion, toner 93
- inhalation, toner 93
- initialization
 - hard disk 86
 - NVRAM 87, 88
- input trays
 - behavior modes 69
 - capacities 32
 - custom media settings 83
 - detection operations 171
 - diagrams and part numbers 478
 - included 20
 - jam detection operations 178
 - last sheet detection, tray 1 176
 - lifting operations 173
 - locating 25
 - media size detection operations 169, 171
 - media supported 32
 - motors, testing 78
 - paper path operations 169
 - paper path test 75
 - paper-handling menu 59
 - paper-width detection, tray 1 175
 - pickup operations, cassettes 172
 - pickup operations, tray 1 174
 - printable area 85
 - registration 64
 - sensors, diagrams 133, 142
 - separation pad, cleaning 95
 - standard paper size, setting 82
- installation
 - box contents 30
 - space requirements 27
 - verifying for accessories 323
- interface connections 21, 25
- intermediate transfer belt. *See* ITB
- internal components, diagrams and part numbers 454
- INTR (initial rotation) sequence 111
- IP address 69, 436
- IPX/SPX settings 72
- ITB
 - block diagram 109
 - cleaning operations 164
 - density detection operations 167
 - diagrams 158
 - door, removing and replacing 206
 - fan 141
 - motor 139
 - operations 161
 - part numbers 445
 - removing 183
 - removing and replacing 246
 - sensor, removing and replacing 298
 - terminology 444
- jams
 - cleaning spilled toner 93
 - detection operations 111, 178
 - multifeeds, troubleshooting 379
 - recovery settings 70
- JetAdmin, firmware updates 104
- Jetdirect print servers
 - connector, locating 25
 - EIO submenu 72
 - included 20
 - model number 21
 - troubleshooting 436
- Jet-Link connector 25
- job storage 57, 69
- kits
 - page count, resetting 79
 - part numbers 445
- labels
 - print modes 67
 - specifications 36
- language, control panel 70, 81
- languages
 - verifying installation 323
- languages, printer
 - included 20
 - settings 70
- laser/scanner assemblies
 - adjusting 223, 224, 228
 - adjustment page, printing 219
 - adjustment page, reading 221
 - Beam detect errors 153
 - beam skew calibration 157
 - block diagram 109
 - laser control operations 150, 151
 - operations 148, 149
 - power supplies 137
 - removing and replacing 217
 - scanner motor control 154, 155
 - testing 78
- LaserJet utility, Macintosh firmware updates 103
- last sheet detection, tray 1 176
- LEDs
 - tray 4 440
- LEDs. *See* lights
- left back cover, removing and replacing 210
- left bin, locating 25
- left cover, diagrams and part numbers 452
- left door switch, removing and replacing 296
- left lower cover, removing and replacing 211
- left side access door, locating 25
- left upper cover, removing and replacing 198
- lenses, operations 148, 149
- letterhead specifications 37
- lifter motor 141
- lifting operations 173
- light control, laser diodes 150, 151
- light media mode 67
- lights
 - control panel 54
 - formatter heartbeat LED 147
- limited warranty 50
- link speed 73
- long-grain paper test 42
- low-voltage power supply
 - operations 137
 - removing and replacing 268
- LPR commands, firmware updates 104
- LSTR (last rotation) sequence 111

- Macintosh firmware updates 102
- maintenance
 - agreements 50
 - cleaning procedures 93, 94
 - counts, resetting 79
- manual feed
 - pickup assembly, diagrams and part numbers 486
 - settings 62
- manuals
 - ordering 49
 - part numbers 446
- map, menu 56
- margins 85
- mask control, image 152
- media
 - custom sizes 83
 - default size 61, 79
 - envelopes 35
 - finish test 42
 - HP 33
 - last sheet detection, tray 1 176
 - lifting operations 173
 - optimize settings 65
 - preprinted 37
 - print modes 64, 67
 - recommended 33
 - selecting 31
 - sensors 133
 - size detection operations 169, 171
 - sizes supported 32
 - storing 39
 - test tools 44
 - testing 39
 - tray settings 59, 82
 - troubleshooting 77
 - types 35
 - weight equivalence table 40
 - width detection, tray 1 175
- media jams. *See* jams
- memory
 - clearing 89
 - configuration page information 324
 - DIMM slots 146
 - NVRAM initialization 87, 88
 - part numbers 445
 - specifications 20
- Memory Enhancement technology (MEt) 20
- menus, control panel 56
- messages
 - alphabetical list 389
 - log 75
 - settings 70
- MEt (Memory Enhancement technology) 20
- metal, screws for 184
- metric weight equivalence table, paper 40
- Microsoft Windows. *See* Windows
- mirrors, operations 148, 149
- misfeeds, ADF 381
- misfeeds, troubleshooting 379
- model number 22
- moisture
 - media content field test 42
 - meters, suppliers 44
- mono mode 69
- monthly duty cycle 21
- motors
 - diagrams 131, 139
 - fuser, removing and replacing 284
 - paper path 169, 177
 - pickup operations, tray 2 or 3 172
 - power supplies 137
 - registration assembly, removing and replacing 269
 - scanner 154, 155
 - testing 78
- MPPCA 175
- multifeeds
 - troubleshooting 379
- multifunction finisher
 - locating 26
 - Output Setup submenu 71
 - part numbers 446
 - supplies, part numbers 445
- networks
 - features 21
- next-day onsite service 51
- noise
 - specifications 24
- non-HP print cartridges 96
- Novell Status information 436
- numerical lists
 - part numbers 512
- NVRAM
 - initialization 87, 88
- on/off switch 25
- onsite service agreements 51
- operating environment
 - calibration 166
 - specifications 23, 24

operations

- Beam detect errors 153, 155
- block diagram 109
- cassette detection 171
- color plane registration (CPR) 155
- connector location diagrams 126
- DC controller 131, 134
- density detection 167
- dual-beam method 149
- electrophotographic process 158
- engine control system 130
- environment calibration 166
- fans 139
- flat flexible cable (FFC) signals 118
- formatter 146
- formatter heartbeat LED 147
- fuser control circuit 136
- halftone calibration 168
- high-voltage power supply 138
- image formation 158
- image mask control 152
- image stabilization 166
- jam detection 178
- laser control 150, 151
- laser/scanner system 148
- laser-beam skew calibration 157
- last sheet detection, tray 1 176
- lifting 173
- low-voltage power supply 137
- media size detection 169, 171
- motors 139
- paper path 169, 177
- paper-width detection, tray 1 175
- pickup, tray 1 174
- pickup, tray 2 or 3 172
- scanner motor 154, 155
- sequences 110
- systems 108
- T driver PCA 135
- timing chart 112

optimize media settings 65

ordering

- documentation and software 49
- parts and supplies 47, 443

output bins

- capacities 32
- default, setting 61
- locating 25

output quality, troubleshooting. *See* print quality, troubleshooting

Output Setup submenu 71

overhead transparencies

- printer modes 67
- specifications 37

overheating control 136

overlay for control panel, removing and replacing 194

override A4/letter settings 62

ozone

- fan 141
- filter 25

packaging, removing 27

page counts 79

pages per minute (ppm) 20

panels. *See* covers

paper

- custom sizes 83
- default size 61, 79
- finish test 42
- HP 33
- last sheet detection, tray 1 176
- lifting operations 173
- optimize settings 65
- preprinted 37
- print modes 64, 67
- recommended 33
- selecting 31
- sensors 133
- size detection operations 169, 171
- sizes supported 32
- storing 39
- test tools 44
- testing 39
- tray settings 59, 82
- troubleshooting 77
- types 35
- weight equivalence table 40
- width detection, tray 1 175

Paper handling menu 59

paper jams. *See* jams

paper path

- operations 169, 177
- test 75

paper pickup assembly, diagrams and part numbers 480

parallel cable connector 25

Parallel Input submenu 71

parts

- alphabetical list 506
- CD-ROM 48
- numerical list 512
- ordering 47, 443
- removing and replacing 183
- voltage 443

Pause/Resume button 55

PCB assemblies, diagrams and part numbers 499

PCBA, screws for 184

PCL

- font list, printing 58
- included 20
- submenu 63

P-crg drive assembly, removing and replacing 278

perforated media, avoiding 38

periods, operations 110

personalities

- included 20
- settings 70
- verifying installation 323

pH test kit 44

phases, operations 110

phone numbers

- ordering documentation and software 49
- ordering supplies 47
- service agreements 51
- support 48

physical specifications 22

pickup assembly, diagrams and part numbers 480

pickup motor 141

pickup rollers

- block diagram 109
- motors 140
- operations 172, 174
- tray 1, removing and replacing 294

- pickup system operations
 - cassette detection 171
 - feeding 169, 171
 - last sheet detection, tray 1 176
 - lifting 173
 - paper path 177
 - tray 1 174
 - tray 2 or 3 172
- pickup unit, removing and replacing 258
- PIN, Service menu 79
- PJL (printer job language) 20
- plastic, screws for 184
- pliers, required 184
- ports
 - included 21
 - locating 25
- post charger
 - cleaning 94
 - diagrams 158
 - operations 162
 - removing and replacing 292
- PostScript Level 3 emulation 20
- power
 - consumption 23
 - operations 110
 - troubleshooting 308
 - unplugging printer 136, 183
- power cord
 - connector 25
 - part numbers 446
- power supplies
 - engine-control system 130
 - fans 141
 - high-voltage 138
 - high-voltage, removing and replacing 267
 - low-voltage 137
 - low-voltage, removing and replacing 268
 - part numbers 445
 - post charger, removing and replacing 292
- power switch, locating 25
- PowerSave
 - energy consumption 23
 - settings 69
 - turning on and off 74
- ppm (pages per minute) 20
- preprinted media specifications 37
- preregistration motor 177
- pressure roller
 - block diagram 109
 - heating operations 136
- primary charging roller
 - block diagram 109
 - operations 159, 165
- print cartridges
 - block diagram 109
 - diagrams 158
 - drive assembly, diagrams and part numbers 474
 - drive assembly, removing and replacing 282
 - motor, testing 78
 - motors, operations 140
 - non-HP 96
 - operations 160
 - part numbers 96, 445
 - removing 183, 187
 - storing 97
 - terminology 444
 - testing 75
 - warranty 50
- print modes 64, 67
- Print Quality submenu 64
- PRINT sequence 111
- print servers, HP Jetdirect
 - connector, locating 25
 - EIO submenu 72
 - included 20
 - model number 21
- print stop test 77
- printable area 85
- printer drivers
 - downloading 47
 - included 20
- printer job language (PJL) 20
- printer messages
 - alphabetical list 389
- Printing submenu 61
- priority onsite service 51
- private jobs 57, 69
- process cartridges. *See* image drums
- production code 22
- programs, changing settings from 81
- proof and hold jobs 57, 69
- protocol settings 72
- protocols, network
 - troubleshooting 436
- PS error pages 62
- PS fonts, included 20
- PS Level 3 emulation 20
- quick copy jobs 57, 69
- RAM (random-access memory) specifications 20
- RAM disk
 - settings 70
- random-access memory (RAM) specifications 20
- recycled media 39
- region of origin 22
- registration
 - settings 64
- registration assembly
 - diagrams and part numbers 490
 - removing and replacing 269
- registration drive assembly, diagrams and part numbers 472
- registration motors
 - operations 140
 - testing 78
- registration roller
 - block diagram 109
 - cleaning 95
- registration sensor assembly, removing and replacing 248
- regulatory information 22
- reinitialization
 - hard disk 86
 - NVRAM 87, 88
- remanufactured parts 47
- remote firmware updates
 - downloading 99
 - Macintosh 102
 - messages received during 105
 - troubleshooting 105
 - UNIX 100
 - Windows, FTP 101
 - Windows, LPR commands 104
 - Windows, network 100
- removing parts 183
- replacing parts 183
- Resets submenu 74

- resetting
 - cold reset 89
 - NVRAM 87, 88
 - page counts 79
 - print modes 68
 - printer settings 74
- residual jams, detection operations 179
- residual toner cleaning operations 164, 165
- resistivity test tools 44
- resolution 20
- Resolution Enhancement technology (REt) 20
- restoring default settings
 - cold reset 89
 - NVRAM initialization 87, 88
 - print modes 68
 - printer 74
- REt (Resolution Enhancement technology) 20
- retention, job 57, 69
- Retrieve job menu 57
- revision level 22
- right back cover, removing and replacing 213
- right back fan, removing and replacing 251
- right door
 - diagrams and part numbers 453
 - switch, removing and replacing 297
- right front fan, removing and replacing 252
- right upper cover, removing and replacing 196
- rollers
 - cleaning 95
 - diagrams 109
 - feed, operations 169
 - high-voltage power supply 138
 - image formation system 158
 - motors 139
 - pickup operations, tray 2 or 3 172
 - primary charging operations 159, 165
 - transfer operations 163
 - transfer, removing and replacing 193
 - tray 1 pickup, removing and replacing 294
- rough media, smoothness test 42
- saving settings 88
- scanner motor 154, 155
- screwdrivers, required 184
- screws, torque values 184
- secondary transfer assembly
 - diagrams and part numbers 492
 - removing and replacing 253
- secondary transfer roller, diagrams 158
- security information 324
- security, web sites 73
- sensors
 - delivery unit, removing and replacing 239
 - density and registration, removing and replacing 248
 - density detection 167
 - diagrams 109, 131, 142
 - fuser front paper, removing and replacing 300
 - fuser PCA, removing and replacing 301
 - ITB, removing and replacing 298
 - paper path 169
 - temperature and humidity, removing and replacing 266
 - testing 76
 - tray 1 pickup 174
 - tray 4 439
 - upper left door, removing and replacing 299
- separation guide, cleaning 94
- separation operations 163
- separation pad
 - block diagram 109
 - cleaning 95
 - operations 174
 - removing and replacing 295
- separation roller
 - block diagram 109
 - operations 172
- sequences, operations 110
- serial number
 - locating 22
 - resetting 79
- servers, HP Jetdirect
 - connector, locating 25
 - EIO submenu 72
 - included 20
 - model number 21
- service agreements 48, 51
- service approach 46
- service ID 79, 80
- Service menu 79
- settings
 - cold reset 89
 - saving 88
 - service ID 80
 - types of 81
- setup
 - box contents 30
 - requirements 27
- Sheffield meter 42, 44
- short-grain paper test 42
- signals
 - flat flexible cable (FFC) 118
 - image mask control 152
 - laser control 150, 151
- site requirements 27
- size
 - box 27
 - custom media 83
 - default, media 61
 - detection operations, media 169, 171
 - envelopes 35
 - media supported 32
 - media, tray settings 59
 - printer 22
- skew, laser-beam 157
- skin contact, toner 93
- skip calibration 89
- skip disk 89
- smoothness test, paper 42
- software
 - ordering 49
 - settings 81
- solenoids
 - diagrams 131, 142
 - paper path operations 169
 - testing 78
 - tray 1 pickup 174
- space requirements 27
- special media
 - embossed 38
 - envelope specifications 35
 - label specifications 36
 - perforated 38
 - preprinted 37
 - storing 39
 - testing 39
 - transparency specifications 37

- specifications
 - environmental 23, 24
 - media 31
 - size, printer 22
 - speed 20
- speed specifications 20
- speed/cost settings 69
- spilled toner, cleaning 93
- stabilization, image 166
- stacker
 - locating 26
 - Output Setup submenu 71
 - part numbers 446
- stages, operations 110
- stapler/stacker
 - calibration 79
 - locating 26
 - Output Setup submenu 71
 - part numbers 446
 - supplies, part numbers 445
- static charge eliminator 161, 163
- static precautions 183
- status
 - supplies 325
- status, supplies 58
- STBY (standby) sequence 111
- storage capabilities, verifying 328
- storage specifications 24
- stored jobs 57, 69
- storing
 - image drums 98
 - media 39
 - print cartridges 97
- suppliers, media test tools 44
- supplies
 - See also* print cartridges
 - low, settings 70
 - ordering 47, 443
 - part numbers 445
 - resetting 74
- supplies status page
 - printing 58
 - using 325
- support
 - centers, phone numbers and websites 48
 - service agreements 51
- surface coatings, media 38
- surface resistivity test tools 44
- switches
 - diagrams 142
 - left door, removing and replacing 296
 - paper-length detection 171
 - power, locating 25
 - right door, removing and replacing 297
 - thermal, operations 136
 - tray 4 438
- synthetic media 38
- System Setup submenu 69
- systems, printer 108
- T driver PCA 135
- TCP/IP protocols 436
- TCP/IP settings 72
- T-crg drive assembly, removing and replacing 282
- telephone numbers
 - ordering documentation and software 49
 - ordering supplies 47
 - service agreements 51
 - support 48
- temperature
 - calibration control 166
 - label specifications 36
 - meter, suppliers 44
 - sensor, removing and replacing 266
 - specifications 24
 - storing media 39
- temporary settings 81
- terminology 444
- tests
 - color band 77
 - components 76, 78
 - Diagnostics menu 75
 - image drum 75
 - media 39
 - paper path 75
 - print stop 77
 - sensors 76
- theory of operations. *See* operations
- thermistors, operations 136
- thermoswitches, operations 136
- timing chart, printer operations 112
- toner
 - charging operations 159
 - cleaning operations 164, 165
 - cleaning spilled 93
 - collection bottle, removing 183, 191
 - coverage, usage page information 327
 - first aid measures 93
 - fusing operations 163
 - image formation operations 160
 - mode 68
 - parts terminology 444
 - post charger operations 162
 - transfer operations 161
- toner cartridges. *See* print cartridges
- tools
 - media test 44
 - required for service 184
- top bin, locating 25
- top left cover, removing and replacing 201
- top right cover, removing and replacing 199
- torque values for screws 184
- tough paper mode 67
- transfer kit page count, resetting 79
- transfer motor test 78
- transfer roller
 - block diagram 109
 - operations 163
 - removing and replacing 193
- transfer unit
 - block diagram 109
 - warranty 50
- transparencies
 - printer modes 67
 - specifications 37
- tray 4
 - drive assembly, diagrams and part numbers 504
 - lights, interpreting 440
 - main body, diagrams and part numbers 500
 - part numbers 446
 - PCA, diagrams and part numbers 505
 - sensors, testing 439

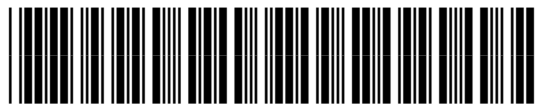
- trays
 - behavior modes 69
 - capacities 32
 - custom media settings 83
 - detection operations 171
 - diagrams and part numbers 478
 - included 20
 - jam detection operations 178
 - last sheet detection, tray 1 176
 - lifting operations 173
 - locating 25
 - media size detection operations 169, 171
 - media supported 32
 - motors, testing 78
 - paper path operations 169
 - paper path test 75
 - paper-handling menu 59
 - paper-width detection, tray 1 175
 - pickup operations, cassettes 172
 - pickup operations, tray 1 174
 - printable area 85
 - registration 64
 - sensors, diagrams 133, 142
 - separation pad, cleaning 95
 - standard paper size, setting 82
- troubleshooting
 - communications 436
 - Diagnostics menu 75
 - firmware updates 105
 - HP Jetdirect print servers 436
 - power 308
 - service approach 46
- TrueType fonts 20
- turning off printer 136, 183
- UNIX firmware updates 100
- unpacking printer 27
- unplugging printer 136, 183
- updating firmware
 - downloading files 99
 - Macintosh 102
 - messages received during 105
 - troubleshooting 105
 - UNIX 100
 - Windows, FTP 101
 - Windows, local port 99
 - Windows, LPR commands 104
 - Windows, network 100
- upper covers, removing and replacing
 - left 198
 - right 196
- upper left door sensor, removing and replacing 299
- upper right fan 141
- usage page 58
- user guides
 - ordering 49
 - part numbers 446
- vacuuming spilled toner 93
- vertical feed unit, removing and replacing 240
- viewing
 - current MFP settings 323
 - directory structures 328

- voltage
 - high-voltage power supply 138
 - low-voltage power supply 137
 - part numbers 443
 - specifications 23
- volume onsite service 51
- WAIT sequence 111
- warranty 50
- washing off toner 93
- waste toner collection bottle
 - operations 164, 165
 - removing 183, 191
- Web JetAdmin, firmware updates 104
- websites
 - documentation 49
 - firmware updates 99
 - HP media 33
 - ordering parts and supplies 47, 443
 - security, settings 73
- weekly onsite service 51
- weight
 - basis test, media 40
 - equivalence table, paper 40
 - printer 27
- Wide A4 settings 62
- width detection, tray 1 175
- Windows, updating firmware through
 - FTP 101
 - local port 99
 - LPR commands 104
 - network 100
- wireless printing 21
- wiring
 - diagrams 114
 - replacing harnesses 183
- wood pulp test kits 43, 44



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