



RICOH UNIVERSITY
Learning ♦ Knowledge ♦ Performance



D017/D018/D019/D020
SERVICE MANUAL

003320MIU

LANIER RICOH SAVIN®



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D017/D018/D019/D020

TABLE OF CONTENTS

INSTALLATION

| | |
|--|------------|
| 1. INSTALLATION..... | 1-1 |
| 1.1 INSTALLATION REQUIREMENTS | 1-1 |
| 1.1.1 ENVIRONMENT | 1-1 |
| 1.1.2 MACHINE LEVEL..... | 1-1 |
| 1.1.3 MINIMUM SPACE REQUIREMENTS | 1-1 |
| 1.1.4 POWER REQUIREMENTS | 1-2 |
| 1.1.5 SYSTEM CONFIGURATION AND OPTIONS | 1-3 |
| 1.2 COPIER INSTALLATION | 1-6 |
| 1.2.1 POWER SOCKETS FOR PERIPHERALS | 1-6 |
| 1.2.2 INSTALLATION FLOW CHART | 1-7 |
| 1.2.3 ACCESSORY CHECK | 1-8 |
| 1.2.4 INSTALLATION PROCEDURE | 1-8 |
| Tapes and Retainers..... | 1-8 |
| Developer | 1-9 |
| Re-assembly | 1-11 |
| Toner Bottle | 1-12 |
| Emblem, Decals..... | 1-13 |
| Completion..... | 1-13 |
| SP Settings | 1-14 |
| 1.2.5 TRANSPORTING THE MACHINE | 1-15 |
| 1.3 PAPER TRAY UNIT (D331)..... | 1-16 |
| 1.3.1 ACCESSORY CHECK | 1-16 |
| 1.3.2 INSTALLATION PROCEDURE | 1-16 |
| SP Settings | 1-18 |
| 1.4 LCT (B391) | 1-19 |
| 1.4.1 ACCESSORY CHECK | 1-19 |
| 1.4.2 INSTALLATION PROCEDURE | 1-19 |
| SP Setting | 1-22 |
| 1.5 ARDF (D366)..... | 1-23 |
| 1.5.1 COMPONENT CHECK..... | 1-23 |

| | |
|--|------|
| 1.5.2 INSTALLATION PROCEDURE | 1-23 |
| 1.6 INTERCHANGE UNIT (D371) | 1-27 |
| 1.6.1 COMPONENT CHECK..... | 1-27 |
| 1.6.2 INSTALLATION PROCEDURE | 1-27 |
| 1.7 1-BIN TRAY UNIT (D367)..... | 1-29 |
| 1.7.1 COMPONENT CHECK..... | 1-29 |
| 1.7.2 INSTALLATION PROCEDURE | 1-29 |
| 1.8 SHIFT TRAY (D385)..... | 1-33 |
| 1.8.1 COMPONENT CHECK..... | 1-33 |
| 1.8.2 INSTALLATION PROCEDURE | 1-33 |
| 1.9 BYPASS FEED UNIT (D370) | 1-36 |
| 1.9.1 COMPONENTS CHECK | 1-36 |
| 1.9.2 INSTALLATION PROCEDURE | 1-36 |
| 1.10 DUPLEX UNIT (D369) | 1-39 |
| 1.10.1 ACCESSORY CHECK..... | 1-39 |
| 1.10.2 INSTALLATION PROCEDURE..... | 1-39 |
| 1.11 BRIDGE UNIT (D368)..... | 1-43 |
| 1.11.1 COMPONENT LIST | 1-43 |
| 1.11.2 INSTALLATION PROCEDURE..... | 1-44 |
| 1.12 1000-SHEET FINISHER (B408) | 1-45 |
| 1.12.1 ACCESSORY CHECK..... | 1-45 |
| 1.12.2 INSTALLATION PROCEDURE..... | 1-46 |
| 1.13 1000-SHEET BOOKLET FINISHER (B793) | 1-48 |
| 1.13.1 ACCESSORY CHECK..... | 1-48 |
| 1.13.2 INSTALLATION PROCEDURE..... | 1-49 |
| 1.14 500-SHEET FINISHER (D372) | 1-53 |
| 1.14.1 ACCESSORY CHECK..... | 1-53 |
| 1.14.2 INSTALLATION PROCEDURE..... | 1-53 |
| 1.15 PLATEN COVER (B406) | 1-56 |
| 1.16 KEY COUNTER (B452) | 1-57 |
| 1.16.1 INSTALLATION PROCEDURE..... | 1-57 |
| 1.17 HEATERS | 1-59 |
| 1.17.1 ANTI-CONDENSATION HEATER (SCANNER UNIT) | 1-59 |
| Installation Procedure | 1-59 |
| 1.17.2 TRAY HEATER (COPIER)..... | 1-60 |
| 1.17.3 TRAY HEATER (OPTIONAL PAPER TRAY UNIT) | 1-61 |
| 1.17.4 TRAY HEATER (OPTIONAL LCT)..... | 1-65 |

| | | |
|--------|---|------|
| 1.18 | COPY DATA SECURITY UNIT (B829) | 1-69 |
| 1.18.1 | ACCESSORIES | 1-69 |
| 1.18.2 | INSTALLATION PROCEDURE..... | 1-69 |
| 1.19 | HARD DISK (D362, ONLY FOR D017/D019)..... | 1-72 |
| 1.19.1 | ACCESSORY CHECK..... | 1-72 |
| 1.19.2 | INSTALLATION | 1-72 |
| | After Installing the HDD | 1-72 |
| 1.20 | HDD ENCRYPTION UNIT | 1-73 |
| 1.20.1 | INSTALLATION | 1-73 |
| | Seal Check and Removal | 1-73 |
| | Installation Procedure | 1-73 |
| 1.20.2 | RECOVERY FROM A DEVICE PROBLEM | 1-75 |
| | Restoring the encryption key..... | 1-75 |
| | Clearing the NVRAM..... | 1-76 |
| 1.20.3 | MORE ABOUT HDD ENCRYPTION UNIT (D377) | 1-76 |
| | Overview | 1-76 |
| | Encrypted Data | 1-76 |
| | Procedure Flow..... | 1-77 |
| | Encryption Key..... | 1-77 |
| | Encryption Key Restoration | 1-78 |
| 1.21 | DATA OVERWRITE SECURITY UNIT (D362) | 1-79 |
| 1.21.1 | BEFORE YOU BEGIN | 1-79 |
| 1.21.2 | SEAL CHECK AND REMOVAL | 1-80 |
| 1.21.3 | DOS INSTALLATION..... | 1-80 |
| 1.22 | BROWSER UNIT TYPE D (D377) | 1-83 |
| 1.22.1 | ACCESSORIES | 1-83 |
| 1.22.2 | INSTALLATION | 1-83 |
| 1.23 | FILE FORMAT CONVERTER TYPE E (D377) | 1-84 |
| 1.23.1 | ACCESSORY CHECK..... | 1-84 |
| 1.23.2 | INSTALLATION | 1-84 |
| 1.24 | VM CARD TYPE E (D377)..... | 1-85 |
| 1.24.1 | ACCESSORIES | 1-85 |
| 1.24.2 | INSTALLATION | 1-85 |

PREVENTIVE MAINTENANCE

| | |
|---------------------------------------|------------|
| 2. PREVENTIVE MAINTENANCE..... | 2-1 |
| 2.1 PM TABLE | 2-1 |
| 2.2 MAIN MOTOR DRIVE GEAR | 2-7 |

REPLACEMENT AND ADJUSTMENT

| | |
|---|------------|
| 3. REPLACEMENT AND ADJUSTMENT | 3-1 |
| 3.1 SPECIAL TOOLS AND LUBRICANTS | 3-1 |
| 3.1.1 SPECIAL TOOLS | 3-1 |
| 3.1.2 LUBRICANTS..... | 3-1 |
| 3.2 GENERAL CAUTIONS | 3-2 |
| 3.2.1 PCU (PHOTOCOCONDUCTOR UNIT) | 3-2 |
| 3.2.2 TRANSFER ROLLER UNIT..... | 3-2 |
| 3.2.3 SCANNER UNIT..... | 3-2 |
| 3.2.4 LASER UNIT | 3-3 |
| 3.2.5 FUSING UNIT..... | 3-3 |
| 3.2.6 PAPER FEED..... | 3-3 |
| 3.2.7 OTHERS..... | 3-3 |
| 3.3 SCANNER UNIT..... | 3-4 |
| 3.3.1 EXPOSURE GLASS..... | 3-4 |
| 3.3.2 ORIGINAL LENGTH/WIDTH SENSORS..... | 3-4 |
| 3.3.3 EXPOSURE LAMP | 3-5 |
| Reassembling | 3-7 |
| 3.3.4 SCANNER MOTOR..... | 3-8 |
| 3.3.5 SENSOR BOARD UNIT (SBU)..... | 3-8 |
| Monochrome Scanner Unit | 3-8 |
| Color Scanner Unit..... | 3-9 |
| When reassembling | 3-10 |
| 3.3.6 EXPOSURE LAMP STABILIZER | 3-10 |
| 3.3.7 FRONT SCANNER WIRE | 3-11 |
| Reinstalling the Front Scanner Wire | 3-11 |
| 3.3.8 REAR SCANNER WIRE..... | 3-14 |
| Reinstalling the Rear Scanner Wire | 3-14 |
| 3.3.9 TOUCH PANEL POSITION ADJUSTMENT | 3-15 |

| | |
|--|------|
| 3.4 LASER UNIT | 3-16 |
| 3.4.1 CAUTION DECAL LOCATIONS | 3-16 |
| 3.4.2 LASER UNIT | 3-16 |
| 3.4.3 POLYGON MIRROR MOTOR | 3-19 |
| 3.4.4 LD UNIT | 3-19 |
| 3.4.5 LASER SYNCHRONIZATION DETECTOR..... | 3-20 |
| 3.5 PHOTOCONDUCTOR UNIT (PCU) | 3-21 |
| 3.5.1 PCU REMOVAL | 3-21 |
| 3.5.2 PICK-OFF PAWLS | 3-22 |
| 3.5.3 OPC DRUM | 3-22 |
| 3.5.4 CHARGE ROLLER, CLEANING ROLLER | 3-23 |
| 3.5.5 CLEANING BLADE | 3-24 |
| 3.5.6 DEVELOPER..... | 3-24 |
| 3.5.7 AFTER REPLACEMENT OF PCU COMPONENTS..... | 3-29 |
| 3.6 TRANSFER UNIT | 3-31 |
| 3.6.1 TRANSFER ROLLER UNIT..... | 3-31 |
| 3.6.2 IMAGE DENSITY SENSOR | 3-32 |
| 3.7 FUSING/EXIT | 3-33 |
| 3.7.1 FUSING UNIT..... | 3-33 |
| 3.7.2 THERMISTORS | 3-34 |
| 3.7.3 THERMOSTATS | 3-34 |
| 3.7.4 HOT ROLLER AND FUSING LAMPS | 3-36 |
| 3.7.5 PRESSURE ROLLER/CLEANING ROLLER..... | 3-38 |
| 3.7.6 PAPER EXIT SENSOR/PAPER OVERFLOW SENSOR..... | 3-39 |
| 3.8 PAPER FEED | 3-40 |
| 3.8.1 FEED ROLLER: TRAY 1 | 3-40 |
| 3.8.2 FEED ROLLER: TRAY 2 | 3-41 |
| 3.8.3 FRICTION PAD | 3-41 |
| 3.8.4 PAPER END SENSOR..... | 3-42 |
| 3.8.5 PAPER TRAY LIFT MOTORS..... | 3-42 |
| 3.8.6 REGISTRATION CLUTCH | 3-43 |
| 3.8.7 PAPER FEED CLUTCHES..... | 3-44 |
| Lower Paper Feed Clutch | 3-44 |
| Upper Paper Feed Clutch | 3-44 |
| 3.8.8 RELAY CLUTCHES | 3-45 |
| 3.8.9 UPPER/LOWER PAPER SIZE SENSORS..... | 3-46 |
| 3.8.10 REGISTRATION SENSOR | 3-46 |

| | | |
|--------|---|------|
| 3.8.11 | UPPER, LOWER RELAY SENSORS | 3-49 |
| 3.8.12 | DUST COLLECTION BIN | 3-50 |
| 3.9 | PCBS AND OTHER ITEMS..... | 3-51 |
| 3.9.1 | CONTROLLER BOARD | 3-51 |
| | Before replacing the controller board in the model without HDD..... | 3-51 |
| | Replacement Procedure | 3-51 |
| | After installing the controller board..... | 3-53 |
| 3.9.2 | NVRAM | 3-53 |
| 3.9.3 | BCU BOARD | 3-54 |
| 3.9.4 | POWER PACK | 3-55 |
| 3.9.5 | MAIN MOTOR | 3-55 |
| 3.9.6 | PSU | 3-56 |
| 3.9.7 | SIO | 3-57 |
| | Monochrome Scanner Unit (D017/D019)..... | 3-57 |
| | Color Scanner Unit (D018/D020) | 3-57 |
| 3.9.8 | SIU | 3-58 |
| 3.9.9 | IPU | 3-58 |
| 3.9.10 | HDD | 3-59 |
| 3.10 | COPY ADJUSTMENTS: PRINTING/SCANNING | 3-61 |
| 3.10.1 | PRINTING | 3-61 |
| | Registration - Leading Edge/Side-to-Side | 3-61 |
| | Blank Margin | 3-62 |
| | Main Scan Magnification | 3-63 |
| | Parallelogram Image Adjustment..... | 3-64 |
| 3.10.2 | SCANNING | 3-65 |
| | Registration: Platen Mode..... | 3-65 |
| | Magnification..... | 3-65 |
| 3.10.3 | ADF IMAGE ADJUSTMENT | 3-66 |
| | Registration..... | 3-66 |
| | Sub Scan Magnification | 3-67 |
| 3.10.4 | TOUCH SCREEN CALIBRATION | 3-67 |

TROUBLESHOOTING

| | | |
|-----------|-------------------------------|------------|
| 4. | TROUBLESHOOTING | 4-1 |
| 4.1 | SERVICE CALL CONDITIONS | 4-1 |
| 4.1.1 | SUMMARY | 4-1 |

| | |
|---|------|
| 4.1.2 SC CODE DESCRIPTIONS | 4-2 |
| 4.2 SELF-DIAGNOSTIC MODE | 4-35 |
| 4.2.1 SELF-DIAGNOSTIC MODE AT POWER ON | 4-35 |
| Self-Diagnostic Test Flow Chart..... | 4-36 |
| 4.2.2 DETAILED SELF-DIAGNOSTIC MODE..... | 4-37 |
| Purpose | 4-37 |
| Executing Detailed Self-Diagnosis | 4-37 |
| 4.3 PAPER FEED TROUBLESHOOTING | 4-39 |
| 4.4 SKEWED IMAGE..... | 4-40 |
| 4.5 IMAGE PROBLEMS | 4-41 |
| 4.5.1 SKEWED, TRAPEZOID AND PARALLELOGRAM IMAGES..... | 4-41 |
| Skewed Images | 4-41 |
| Trapezoid Images | 4-42 |
| Parallelogram Images | 4-43 |
| 4.5.2 CHECKING IMAGES WITH THE TRIMMING PATTERN..... | 4-44 |
| 4.5.3 CORRECTING THE IMAGES | 4-45 |
| Correcting Skewed Images | 4-45 |
| Correcting Trapezoid Images..... | 4-49 |
| Correcting Parallelogram Images..... | 4-50 |
| 4.6 ELECTRICAL COMPONENT DEFECTS..... | 4-51 |
| 4.6.1 SENSORS | 4-51 |
| 4.6.2 SWITCHES..... | 4-58 |
| 4.7 BLOWN FUSE CONDITIONS | 4-59 |

SERVICE TABLES

| | |
|--|------------|
| 5. SERVICE TABLES..... | 5-1 |
| 5.1 SERVICE PROGRAM MODE..... | 5-1 |
| 5.1.1 SERVICE MODE LOCK/UNLOCK | 5-1 |
| 5.1.2 SERVICE PROGRAM MODE OPERATION..... | 5-1 |
| Overview | 5-1 |
| Entering and Exiting SP mode | 5-2 |
| SP Mode Button Summary | 5-2 |
| Switching Between SP Mode and Copy Mode for Test Printing..... | 5-3 |
| Selecting the Program Number..... | 5-3 |
| 5.1.3 COMMONLY USED SP CODES AND FEATURES | 5-4 |
| Test Pattern Printing (SP2902) | 5-5 |

| | |
|---|-------|
| SMC Data Lists (SP5990)..... | 5-6 |
| Memory All Clear (SP5801) | 5-7 |
| APS Output Display (SP4301) | 5-9 |
| Nip Band Width Measurement (SP1109) | 5-10 |
| Software Reset | 5-10 |
| System Setting Reset | 5-11 |
| Copier Setting Reset..... | 5-11 |
| 5.1.4 SERVICE PROGRAM MODE TABLES | 5-12 |
| Service Table Key | 5-12 |
| 5.2 SP1XXX: FEED | 5-13 |
| 5.3 SP2XXX: DRUM | 5-21 |
| 5.4 SP3XXX..... | 5-40 |
| 5.5 SP4XXX: SCANNER | 5-41 |
| 5.6 SP5XXX: MODE | 5-70 |
| 5.7 SP6XXX: PERIPHERALS..... | 5-139 |
| 5.8 SP7XXX: DATA LOG..... | 5-157 |
| 5.9 SP8XXX: DATA LOG 2..... | 5-169 |
| 5.10 FIRMWARE UPDATE | 5-213 |
| 5.11 USER TOOLS..... | 5-214 |
| 5.11.1 UP MODE INITIAL SCREEN: USER TOOLS/COUNTER DISPLAY | 5-214 |
| 5.11.2 SYSTEM SETTINGS | 5-214 |
| 5.11.3 COPIER/DOCUMENT SERVER FEATURES..... | 5-214 |
| 5.11.4 PRINTER, FACSIMILE, SCANNER SETTINGS..... | 5-215 |
| 5.11.5 INQUIRY | 5-215 |
| 5.11.6 COUNTER | 5-215 |
| 5.12 LED AND DIP SWITCHES | 5-216 |
| 5.12.1 LEDS | 5-216 |
| Controller | 5-216 |
| SBCU..... | 5-216 |
| 5.12.2 DIP SWITCHES | 5-216 |
| Controller | 5-216 |
| SBCU..... | 5-217 |
| 5.13 USING THE DEBUG LOG | 5-218 |
| 5.13.1 SWITCHING ON AND SETTING UP 'SAVE DEBUG LOG' | 5-218 |
| 5.13.2 RETRIEVING THE DEBUG LOG FROM THE HDD | 5-222 |
| 5.13.3 RECORDING ERRORS MANUALLY | 5-222 |

| | |
|---|-------|
| 5.13.4 NEW DEBUG LOG CODES..... | 5-223 |
| SP5857-015 Copy SD Card-to-SD Card: Any Desired Key | 5-223 |
| SP5857-016 Create a File on HDD to Store a Log | 5-223 |
| SP5857-017 Create a File on SD Card to Store a Log | 5-223 |

DETAILED SECTION DESCRIPTIONS

| | |
|---|------------|
| 6. DETAILED SECTION DESCRIPTIONS | 6-1 |
| 6.1 OVERVIEW | 6-1 |
| 6.1.1 MECHANICAL COMPONENTS | 6-1 |
| 6.1.2 PAPER PATH | 6-3 |
| 6.1.3 ELECTRICAL COMPONENT DESCRIPTIONS | 6-4 |
| 6.1.4 DRIVE LAYOUT | 6-11 |
| 6.2 BOARD STRUCTURE | 6-12 |
| 6.2.1 MAIN BOARDS | 6-12 |
| 6.2.2 CONTROLLER BOARD | 6-14 |
| 6.3 COPY PROCESS | 6-16 |
| 6.4 SCANNING..... | 6-18 |
| 6.4.1 OVERVIEW | 6-18 |
| 6.4.2 SCANNER DRIVE | 6-19 |
| 6.4.3 ORIGINAL SIZE DETECTION | 6-20 |
| 6.4.4 ANTI-CONDENSATION HEATER..... | 6-21 |
| 6.5 IMAGE PROCESSING | 6-22 |
| 6.5.1 OVERVIEW | 6-22 |
| 6.5.2 SBU (SENSOR BOARD UNIT)..... | 6-23 |
| Monochrome Scanner Unit | 6-23 |
| Color Scanner Unit..... | 6-24 |
| 6.5.3 AUTO IMAGE DENSITY | 6-25 |
| 6.5.4 ORIGINAL TYPE SETTINGS | 6-26 |
| 6.5.5 IPU (IMAGE PROCESSING UNIT) | 6-27 |
| Overview | 6-27 |
| 6.6 LASER EXPOSURE | 6-29 |
| 6.6.1 OVERVIEW | 6-29 |
| 6.6.2 AUTO POWER CONTROL (APC)..... | 6-30 |
| 6.6.3 LD SAFETY SWITCH | 6-31 |
| 6.7 PHOTOCONDUCTOR UNIT (PCU) | 6-32 |
| 6.7.1 OVERVIEW | 6-32 |

| | |
|--|------|
| 6.7.2 DRIVE | 6-33 |
| 6.8 DRUM CHARGE..... | 6-34 |
| 6.8.1 OVERVIEW | 6-34 |
| 6.8.2 CHARGE ROLLER VOLTAGE CORRECTION | 6-35 |
| 6.8.3 ID SENSOR PATTERN PRODUCTION TIMING..... | 6-36 |
| 6.8.4 DRUM CHARGE ROLLER CLEANING | 6-36 |
| 6.9 DEVELOPMENT | 6-37 |
| 6.9.1 OVERVIEW | 6-37 |
| 6.9.2 DRIVE | 6-38 |
| 6.9.3 DEVELOPER MIXING..... | 6-38 |
| 6.9.4 DEVELOPMENT BIAS | 6-39 |
| 6.9.5 TONER SUPPLY..... | 6-40 |
| Toner Bottle Replenishment Mechanism | 6-40 |
| Toner Supply Mechanism | 6-41 |
| 6.9.6 TONER DENSITY CONTROL | 6-41 |
| Overview | 6-41 |
| Toner Density Sensor Initial Setting..... | 6-44 |
| Toner Density Measurement..... | 6-44 |
| V _{sp} /V _{sg} Detection | 6-44 |
| Toner Supply Reference Voltage (V _{ref}) Determination | 6-44 |
| Toner Supply Determination | 6-45 |
| Toner Supply Motor On Time Determinations..... | 6-45 |
| 6.9.7 TONER SUPPLY IN ABNORMAL SENSOR CONDITIONS..... | 6-46 |
| ID sensor | 6-46 |
| TD Sensor..... | 6-46 |
| 6.9.8 TONER NEAR-END/END DETECTION AND RECOVERY..... | 6-47 |
| Toner Near-end Detection | 6-47 |
| Toner Near-end Recovery | 6-47 |
| Toner End Detection | 6-47 |
| Toner End Recovery | 6-47 |
| 6.10 DRUM CLEANING AND TONER RECYCLING | 6-48 |
| 6.10.1 DRUM CLEANING..... | 6-48 |
| 6.10.2 TONER RECYCLING | 6-49 |
| 6.11 PAPER FEED | 6-50 |
| 6.11.1 OVERVIEW..... | 6-50 |
| 6.11.2 PAPER FEED DRIVE | 6-51 |
| 6.11.3 PAPER FEED AND SEPARATION..... | 6-52 |

| | | |
|---------|--|------|
| 6.11.4 | PAPER LIFT | 6-53 |
| 6.11.5 | PAPER END DETECTION..... | 6-54 |
| 6.11.6 | SIDE AND END FENCES..... | 6-55 |
| | Side Fences | 6-55 |
| | End Fence | 6-55 |
| 6.11.7 | PAPER REGISTRATION | 6-56 |
| 6.11.8 | PAPER SIZE DETECTION | 6-57 |
| | Paper Tray 1, Paper Tray 2 | 6-57 |
| | By-pass Tray..... | 6-60 |
| 6.11.9 | PAPER HEIGHT DETECTION..... | 6-62 |
| 6.11.10 | FEED PRESSURE ADJUSTMENT FOR PAPER SIZE..... | 6-63 |
| 6.11.11 | SPECIAL PAPER SETTING..... | 6-65 |
| 6.11.12 | TRAY LOCK MECHANISM | 6-66 |
| 6.12 | IMAGE TRANSFER AND PAPER SEPARATION | 6-67 |
| 6.12.1 | OVERVIEW..... | 6-67 |
| 6.12.2 | IMAGE TRANSFER CURRENT TIMING | 6-67 |
| 6.12.3 | TRANSFER ROLLER CLEANING | 6-68 |
| 6.12.4 | PAPER SEPARATION MECHANISM | 6-69 |
| 6.13 | IMAGE FUSING AND PAPER EXIT | 6-70 |
| 6.13.1 | OVERVIEW..... | 6-70 |
| 6.13.2 | FUSING DRIVE AND RELEASE MECHANISM..... | 6-71 |
| 6.13.3 | FUSING ENTRANCE GUIDE SHIFT MECHANISM | 6-71 |
| 6.13.4 | PRESSURE ROLLER..... | 6-72 |
| 6.13.5 | CLEANING MECHANISM..... | 6-72 |
| 6.13.6 | FUSING TEMPERATURE CONTROL | 6-73 |
| | Temperature Control..... | 6-73 |
| | Fusing Lamp Control..... | 6-73 |
| 6.13.7 | OVERHEAT PROTECTION..... | 6-74 |
| 6.13.8 | PAPER EXIT | 6-75 |
| 6.14 | ENERGY SAVER MODES | 6-76 |
| 6.14.1 | OVERVIEW..... | 6-76 |
| 6.14.2 | ENERGY SAVER MODE | 6-76 |
| | Entering the energy saver mode | 6-76 |
| | What happens in energy saver mode | 6-77 |
| | Return to stand-by mode | 6-77 |
| 6.14.3 | AUTO OFF MODE | 6-77 |
| | Entering off stand-by and off modes | 6-78 |

| | |
|---------------------------------|------|
| Off Stand-by mode..... | 6-78 |
| Off Mode | 6-78 |
| Returning to stand-by mode..... | 6-78 |

SPECIFICATIONS

| | |
|---------------------------------|------------|
| 7. SPECIFICATIONS..... | 7-1 |
| 7.1 SPECIFICATIONS..... | 7-1 |
| 7.1.1 MAIN MACHINE | 7-1 |
| 7.1.2 OPTIONS | 7-3 |
| ARDF (D366) | 7-3 |
| Duplex Unit (D369) | 7-4 |
| Bypass Feed Unit (D370)..... | 7-4 |
| Interchange Unit (D371)..... | 7-5 |
| 1-Bin Tray (D367) | 7-5 |
| Bridge Unit (D368) | 7-6 |
| Shift Tray Unit (D385) | 7-6 |
| Paper Tray Unit (D331)..... | 7-7 |
| LCT (B391) | 7-7 |
| 500-Sheet Finisher (D372)..... | 7-8 |
| 1000-Sheet Finisher (B408)..... | 7-10 |
| 1000-Sheet Finisher (B793)..... | 7-11 |

B391 LARGE CAPACITY TRAY PS500

SEE SECTION B391 FOR DETAILED TABLE OF CONTENTS

B408 1000-SHEET FINISHER SR790

SEE SECTION B408 FOR DETAILED TABLE OF CONTENTS

B793 BOOKLET FINISHER SR3000

SEE SECTION B793 FOR DETAILED TABLE OF CONTENTS

D331 PAPER FEED UNIT PB3030

SEE SECTION D331 FOR DETAILED TABLE OF CONTENTS

D361 FAX OPTION TYPE 3350

SEE SECTION D361 FOR DETAILED TABLE OF CONTENTS

D366 ARDF DF3030

SEE SECTION D366 FOR DETAILED TABLE OF CONTENTS

D367 1-BIN TRAY BN3030

SEE SECTION D367 FOR DETAILED TABLE OF CONTENTS

D368 BRIDGE UNIT BU3020

SEE SECTION D368 FOR DETAILED TABLE OF CONTENTS

D369 DUPLEX UNIT AD3000

SEE SECTION D369 FOR DETAILED TABLE OF CONTENTS

D370 BYPASS TRAY BY3000

SEE SECTION D370 FOR DETAILED TABLE OF CONTENTS

D371 INTERCHANGE UNIT TYPE 3350

SEE SECTION D371 FOR DETAILED TABLE OF CONTENTS

D372 500-SHEET FINISHER SR3050

SEE SECTION D372 FOR DETAILED TABLE OF CONTENTS

D383 PRINTER/SCANNER OPTION

SEE SECTION D383 FOR DETAILED TABLE OF CONTENTS

D385 INTERNAL SHIFT TRAY SH3010

SEE SECTION D385 FOR DETAILED TABLE OF CONTENTS

Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.
2. The plug should be near the machine and easily accessible.
3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green), keep hands away from the mechanical and the electrical components as the machine starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.
7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

HEALTH SAFETY CONDITIONS

1. Never operate the machine without the ozone filters installed.
2. Always replace the ozone filters with the specified types at the proper intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The machine and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with

local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

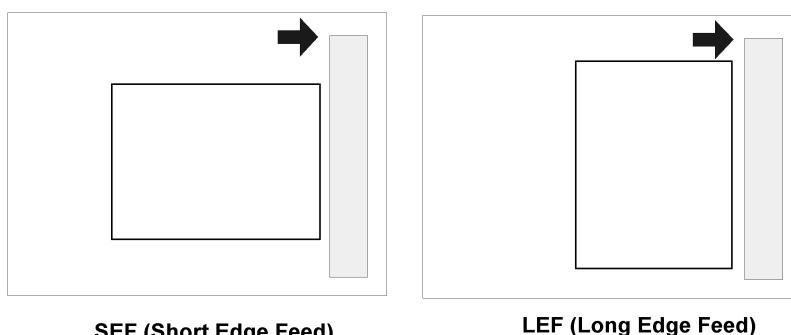
⚠ CAUTION

- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

CONVENTIONS AND TRADEMARKS

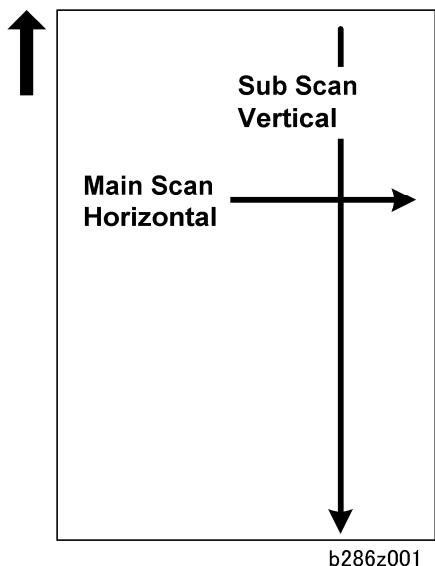
Conventions

| Symbol | What it means |
|---|---------------------|
|  | Core Tech Manual |
|  | Screw |
|  | Connector |
|  | E-ring |
|  | C-ring |
|  | Harness clamp |
| FFC | Flat Film Connector |



The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate

the direction of paper feed.



In this manual "Horizontal" means the "Main Scan Direction" and "Vertical" means the "Sub Scan Direction" relative to the paper feed direction.

WARNINGS, CAUTIONS, NOTES

In this manual, the following important symbols and notations are used.

⚠ WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

⚠ CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

★ Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

↓ Note

- This information provides tips and advice about how to best service the machine.

Trademarks

- Microsoft®, Windows®, and MS-DOS® are registered trademarks of Microsoft Corporation in the United States and /or other countries.
- PostScript® is a registered trademark of Adobe Systems, Incorporated.
- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.

- PowerPC® is a registered trademark of International Business Machines Corporation.
- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

INSTALLATION

D366 ARDF DF3030

D361 FAX OPTION TYPE 3350

TAB
POSITION 1

PREVENTIVE MAINTENANCE

D331 PAPER FEED UNIT PB3030

TAB
POSITION 2

REPLACEMENT AND ADJUSTMENT

B391 LARGE CAPACITY TRAY PS500

TAB
POSITION 3

TROUBLESHOOTING

B408 1000-SHEET FINISHER SR790

B793 BOOKLET FINISHER SR3000

D372 500-SHEET FINISHER SR3050

D383 PRINTER/SCANNER OPTION

TAB
POSITION 4

SERVICE TABLES

D369 DUPLEX UNIT AD3000

D371 INTERCHANGE UNIT TYPE 3350

TAB
POSITION 5

DETAILED DESCRIPTIONS

D370 BYPASS TRAY BY3000

TAB
POSITION 6

SPECIFICATIONS

D367 1-BIN TRAY BN3030

TAB
POSITION 7

APPENDIX

D368 BRIDGE UNIT BU3020

D385 INTERNAL SHIFT TRAY SH3010

TAB
POSITION 8

INSTALLATION

1. INSTALLATION

1.1 INSTALLATION REQUIREMENTS

1.1.1 ENVIRONMENT

1. Temperature Range: 10 °C to 32 °C (50 °F to 89.6 °F)
2. Humidity Range: 15% to 80% RH
3. Ambient Illumination: Less than 1,500 lux (do not expose to direct sunlight.)
4. Ventilation: Room air should turn over at least 30 m³/hr/person
5. Ambient Dust: Less than 0.10 mg/m³
6. Avoid an area which is exposed to sudden temperature changes. This includes:
 - Areas directly exposed to cool air from an air conditioner.
 - Areas directly exposed to heat from a heater.
7. Do not place the machine in an area where it will be exposed to corrosive gases.
8. Do not install the machine at any location over 2,000 m (6,500 ft.) above sea level.
9. Place the copier on a strong and level base. (Inclination on any side should be no more than 5 mm.)
10. Do not place the machine where it may be subjected to strong vibrations.

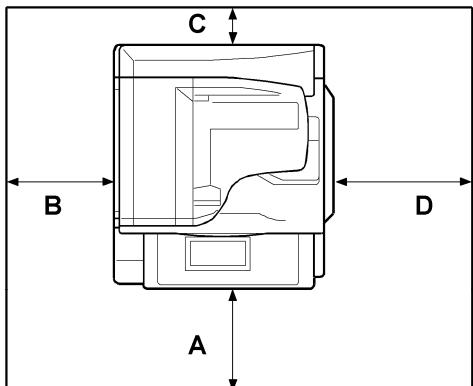
1.1.2 MACHINE LEVEL

Front to back: Within 5 mm (0.2") of level

Right to left: Within 5 mm (0.2") of level

1.1.3 MINIMUM SPACE REQUIREMENTS

Place the copier near the power source, and provide clearance as shown:

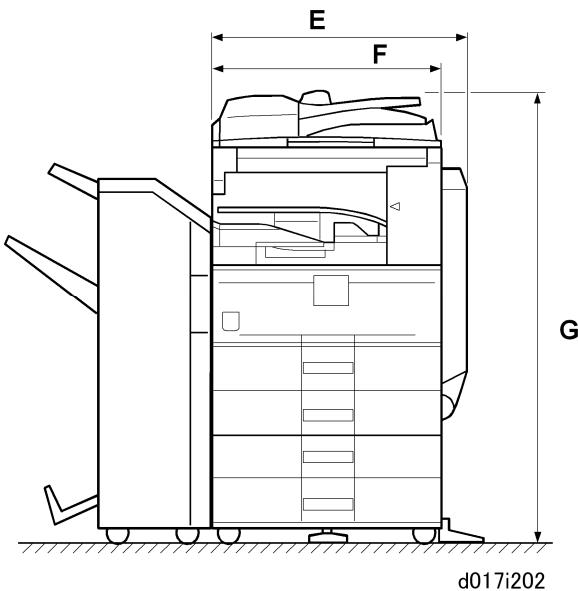


d017i201

Installation Requirements

A: In Front: Over 750 mm (29.6"), B: Left: Over 100 mm (0.4")

C: To Rear: Over 100 mm (0.4"), D: Right: Over 100 mm (0.4")



d017i202

E: 640 mm (25.2"), F: 550 mm (21.7"), G: 1137 mm (44.8")

Note

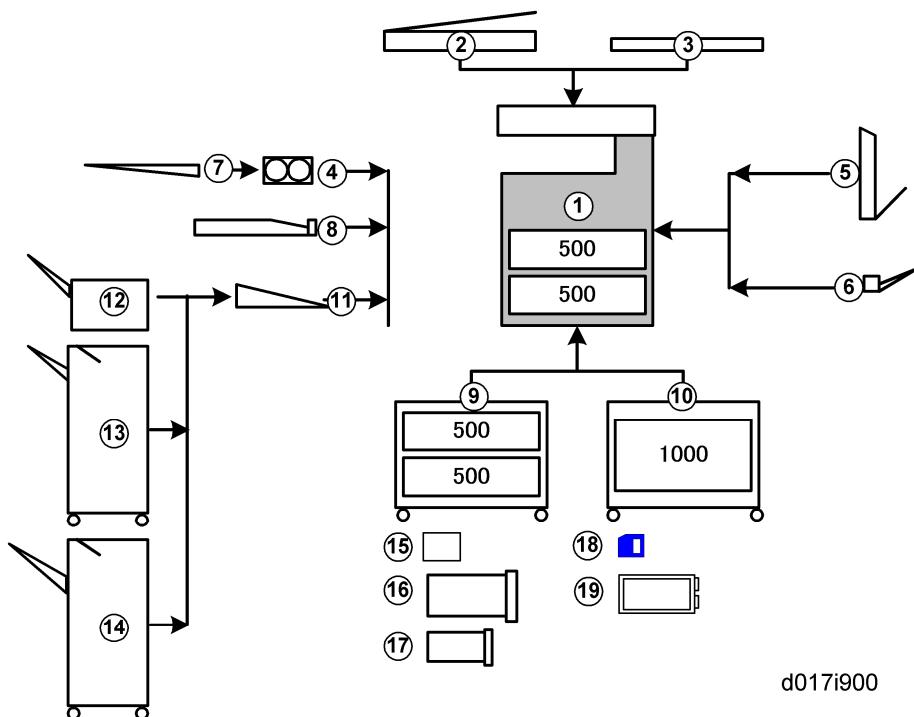
- The 750 mm recommended for the space at the front is only for pulling out the paper tray. If an operator stands at the front of the copier, more space is required.

1.1.4 POWER REQUIREMENTS

CAUTION

- Make sure that the wall outlet is near the copier and easily accessible.
 - Make sure the plug is firmly inserted in the outlet.
 - Avoid multi-wiring.
 - Be sure to ground the machine.
- Input voltage level
 - 120 V, 60 Hz: More than 12 A
 - 220 V to 240 V, 50 Hz/60 Hz: More than 7 A
 - 110V, 50 Hz/60 Hz: More than 13 A
 - Permissible voltage fluctuation: 10 %
 - Do not set anything on the power cord.

1.1.5 SYSTEM CONFIGURATION AND OPTIONS



| No. | Item | Comments |
|-----|----------------------------------|---|
| 1 | Main Machine D017/D018/B019/D020 | D019/D017 Monochrome -or- D018/D020 Color |
| 2 | ARDF (D366) | |
| 3 | Platen Cover (B406) | |
| 4 | Interchange Unit (D371) | Required for Item 5, 7 |
| 5 | Duplex Unit (D369) | |
| 6 | Bypass Tray (D370) | |
| 7 | 1-Bin Tray (D367) | Requires Item 4 |
| 8 | Internal Shift Tray (D385) | |
| 9 | Paper Tray Unit (D331) | |

Installation Requirements

| No. | Item | Comments |
|-----|---|-----------------------------|
| 10 | LCT (B391) | |
| 11 | Bridge Unit (D368) | Required for Items 12,13,14 |
| 12 | 500-Sheet Finisher (D372) | Requires Item 11 |
| 13 | 1000-Sheet Finisher (B408: Common with R-C4/4.5) | Requires Item 11 |
| 14 | 1000-Sheet Booklet Finisher (B793) | Requires Item 11 |
| 15 | Copy Data Security Unit (B829) | PCB (installed on BICU) |
| 16 | Fax Unit (D361) | See Fax manual |
| 17 | Interface Board Controller Options | See Note 1 |
| 18 | SD Card Controller Options | See Note 2 |
| 19 | HDD Unit (D362) | D017/D019 only |

Note 1:

The following interface boards are available for installation.



- There is only one board slot on the back of the machine. Only one of these options can be installed.

These options can be installed at any time.

| Interface Board | For Installation See: |
|--|------------------------|
| Bluetooth Interface Unit Type 3245 (B826) | Printer/Scanner Option |
| Cumin-M (Modem for @Remote Service) | This Section |
| File Format Converter Type E (D377) | This Section |
| IEEE1284 Interface Board Type A (B679) | Printer/Scanner Option |
| IEEE802.11a/g Interface Unit Type J (D377) -or- | Printer/Scanner Option |

Installation Requirements

| Interface Board | For Installation See: |
|--|------------------------|
| IEEE802.11g Interface Unit Type K (D377) | |
| Gigabit Ethernet Type 7300 (G381) | Printer/Scanner Option |

Note 2:

The following options are provided on SD cards.

- Two SD card slots are available. If more than two options need to be installed, the applications can be moved to one SD card with SP5873-1.
- Due to copyright restrictions, the PostScript Unit (D383) cannot be moved to another SD card. However, other applications can be moved onto the PostScript 3 SD card.
(For more, see the Printer/Scanner Option manual.)

These options can be installed at any time.

| SD Cards | For Installation See: |
|--|------------------------|
| Browser Unit Type D (D377) | This Section |
| Data Overwrite Security Unit Type I (D362) | Printer/Scanner Option |
| HDD Encryption Option (D377) | This Section |
| PostScript3 Unit Type 3350 (D383) | Printer/Scanner Option |
| Printer Enhance Option Type 3350 (D383) | Printer/Scanner Option |
| Printer Unit Type 3350 (D383) | Printer/Scanner Option |
| Printer/Scanner Unit Type 3350 (D383) | Printer/Scanner Option |
| RPCS Printer Unit Type 3350 (D383) | Printer/Scanner Option |
| Scanner Enhance Option Type 3350 (D383) | Printer/Scanner Option |
| VM Card Type E (D377) | This Section |

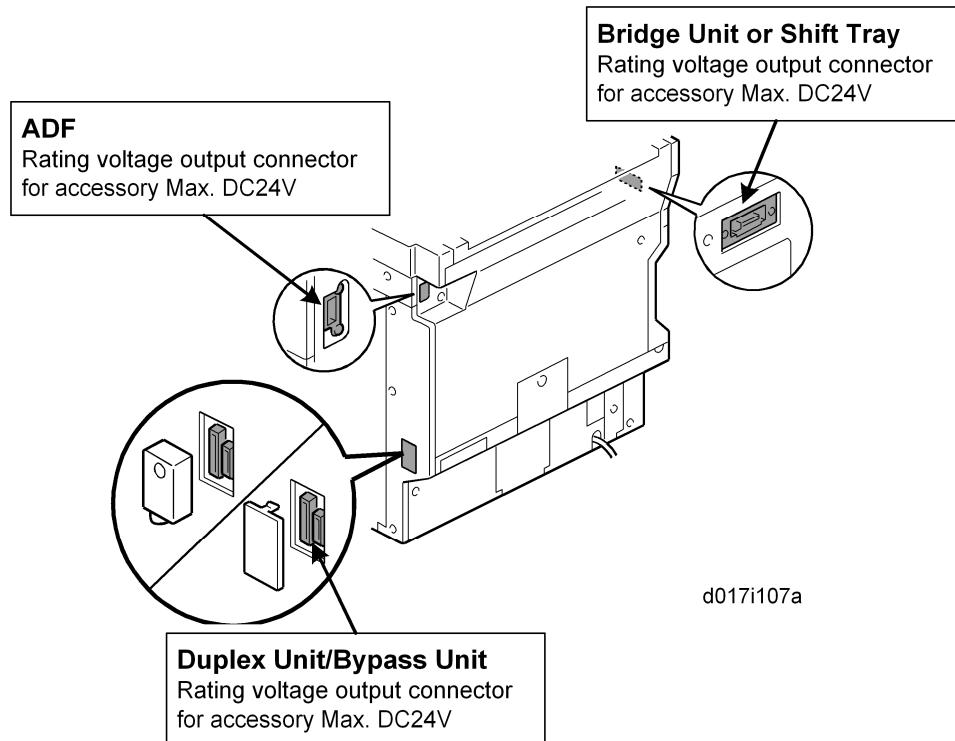
Copier Installation

1.2 COPIER INSTALLATION

1.2.1 POWER SOCKETS FOR PERIPHERALS

CAUTION

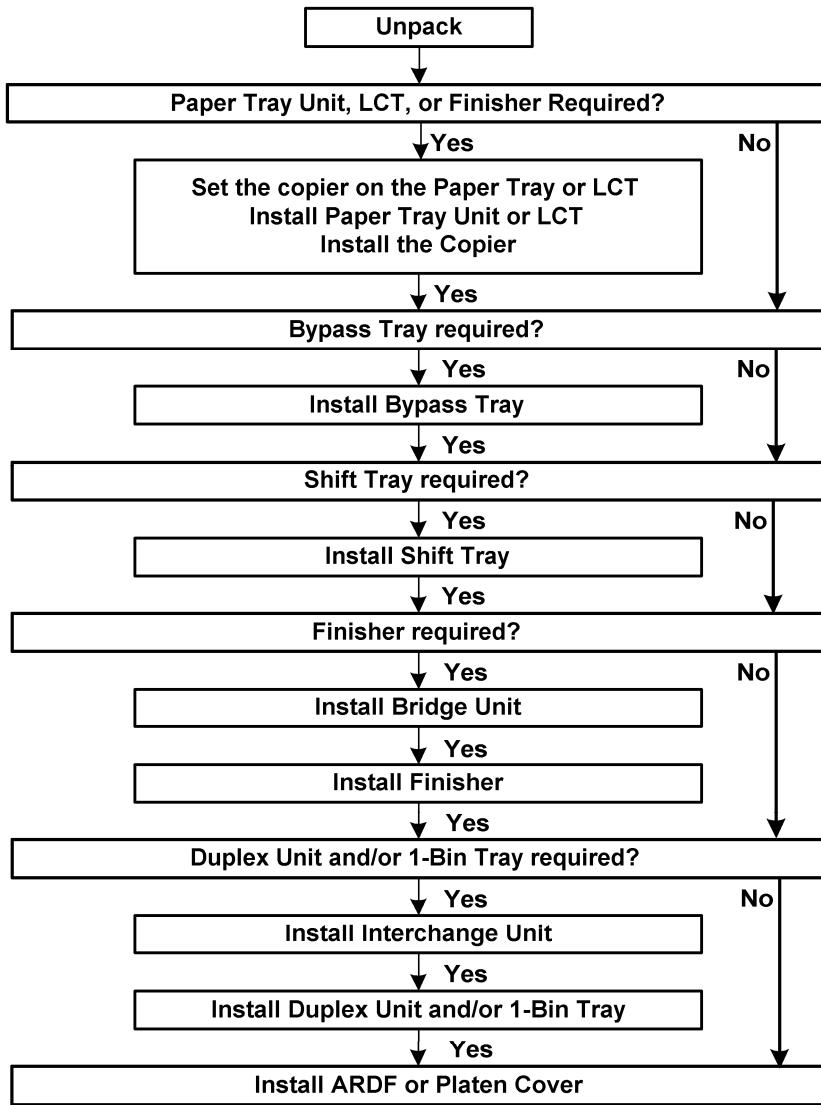
- Rating voltages for peripherals.



Make sure to connect the cables to the correct sockets.

1.2.2 INSTALLATION FLOW CHART

The following flow chart shows how to install the optional units more efficiently.



d017i513

Copier Installation

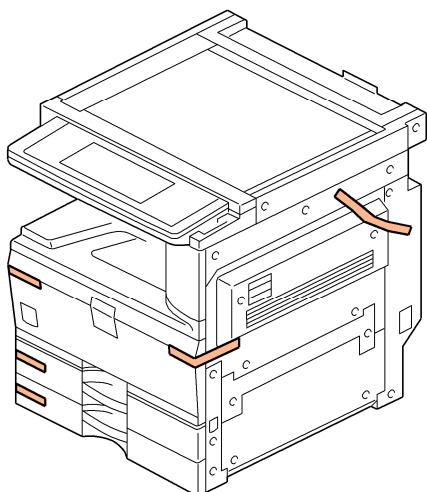
1.2.3 ACCESSORY CHECK

Check the quantity and condition of the accessories in the box against the following list:

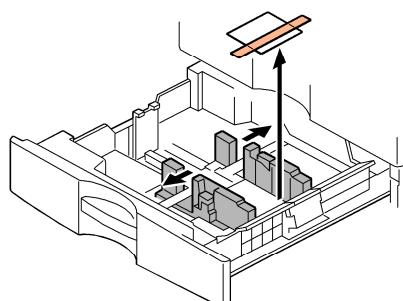
| No. | Description | Quantity |
|-----|---|----------|
| 1 | Paper Tray Decal | 1 |
| 2 | Emblem Cover | 1 |
| 3 | Emblem | 1 |
| 4 | Model Name Decal | 1 |
| 5 | End Fence | 1 |
| 6 | HDD Caution Decal (-17, -29 only) | 1 |
| 7 | Operating Instructions – System Setting | 1 |
| 8 | Operating Instructions – Copy Reference | 1 |

1.2.4 INSTALLATION PROCEDURE

Tapes and Retainers



d017i104



d017i904

CAUTION

- Unplug the machine power cord before you start the following procedure.

Copier Installation

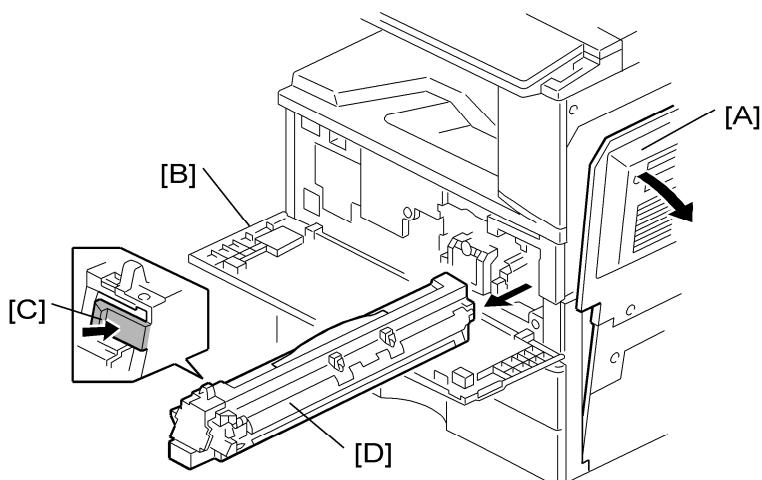
If the optional paper tray or the optional LCT is going to be installed now, put the copier on the paper tray unit or the LCT first, then install these options, then install the copier.

 Note

- Keep the shipping retainers after installing the machine. They will be reused if the machine is moved to another location in the future.

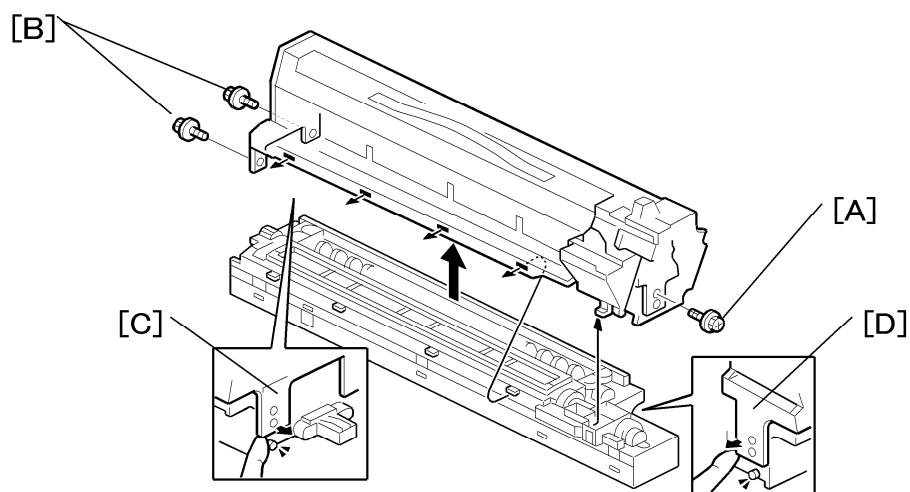
1. Remove the tapes and the shipping retainer on the exterior of the copier.
2. Install the end fence.

Developer



d017i920

1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Open the right door [A].
3. Open the front door [B].
4. Push the latch [C] and remove the PCU [D].



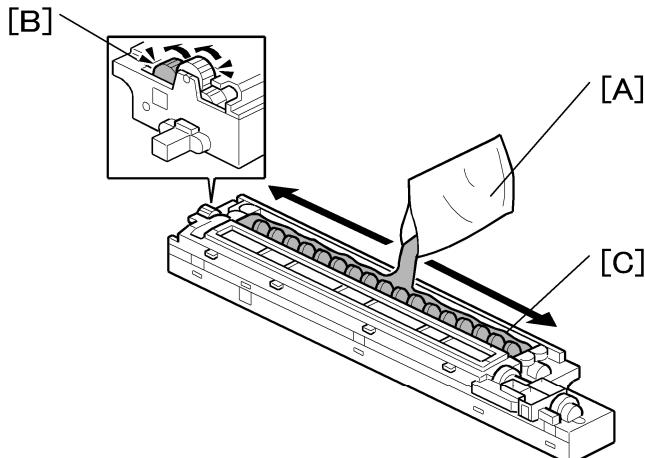
b205i102a

Copier Installation

5. Remove the front screw [A] (\wedge x1)
6. Remove the rear screws [B] (\wedge x2)
7. Release the rear tab [C] then front tab [D], then separate the top and bottom.

★ Important

- Be sure to release the rear tab first and the front tab second.

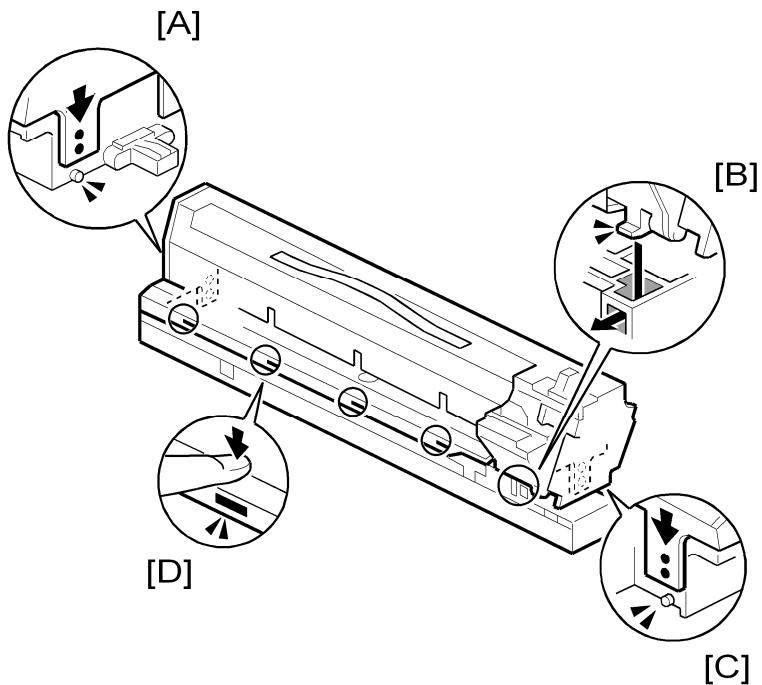


b205i103

8. Open the developer pack [A].
9. While turning the black gear [B], slowly move the pack left and right and pour half of the developer over the auger [C].
10. Continue to turn the black gear until the developer is level.
11. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the auger until the developer is level.

★ Important

- Be careful. Do not spill developer on the gears and sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

Re-assembly

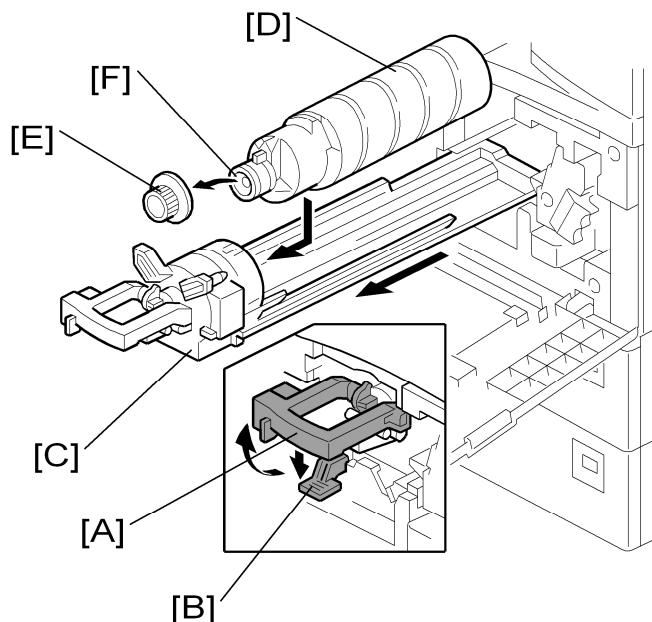
1. Make sure that all of the holes and tabs are engaged at [A], [B], [C], and [D]. Then push down to lock the tabs on the front and rear end of the PCU.
2. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.

★ Important

- Reattach the rear screws ($\wedge \times 2$) first, then reattach the front screw ($\wedge \times 1$).
- Do not push down on the top of the PCU when you attach the rear and front screws

Copier Installation

Toner Bottle



1. Raise the toner bottle holder lever [A], push lever [B] down, and pull the toner bottle holder [C] out.
2. Shake the toner bottle [D].

Note

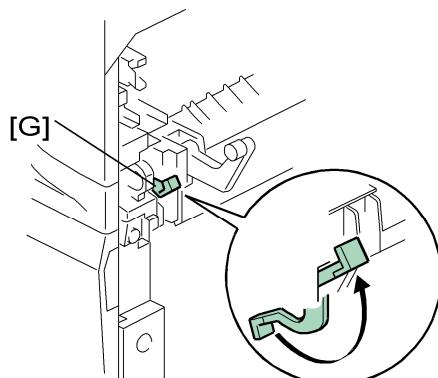
- Do not remove the toner bottle cap [E] until after shaking.

3. Unscrew the bottle cap [E] and insert the bottle into the holder.

Note

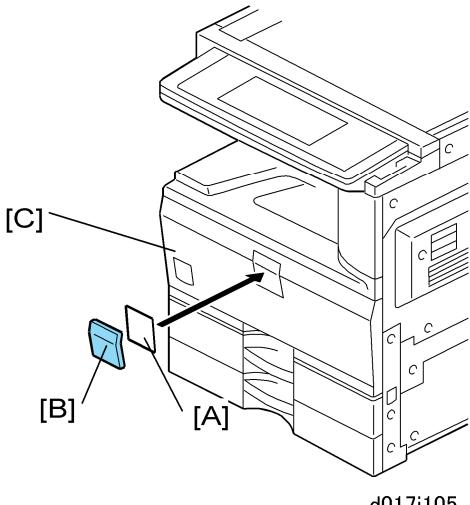
- Do not touch the inner bottle cap [F].

4. Reposition the holder and press down the holder lever to secure the bottle.
5. Open the right cover.



d017i500

6. Rotate the green fusing pressure lever [G] to the up position.

Emblem, Decals

1. Attach the emblem [A] and panel [B] to the front door [C].

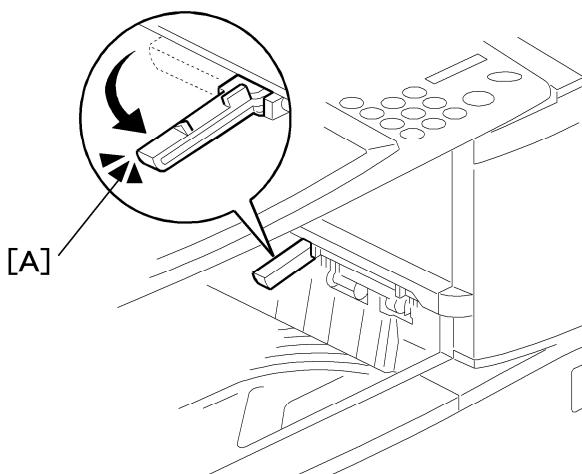
↓ Note

- Push the panel in until the emblem and panel move into their positions. You will hear a click.

2. Adjust the side guides and end guide to match the paper size.

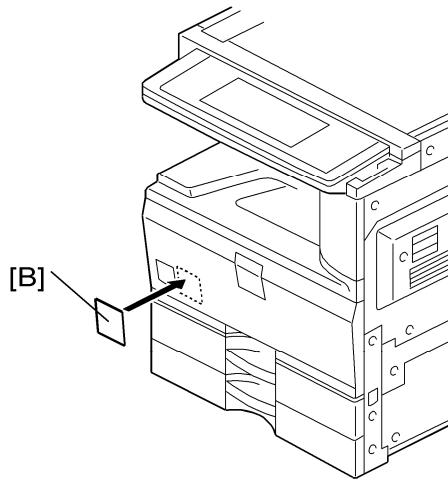
↓ Note

- To move the side guides, first pull out the tray fully, then push down the green lock at the rear of the tray.

Completion

1. If the optional bridge unit will not be installed, swing the sensor feeler [A] out.
2. Install the optional ARDF or the optional platen cover (see "ARDF Installation" or "Platen Cover").

Copier Installation



d017i108

3. If the HDD will be installed for a -17, -29 model, attach the HDD caution decal [B] to the front cover.

SP Settings

1. Connect the copier and turn the machine on.
2. Go into the SP mode and do SP2801 (Developer Initialization).
3. Do SP1912 and SP1913 to set automatic paper size selection for the upper and lower tray.

| | | |
|-------------|------------------------------------|--|
| 1912 | 1: Tray: Auto Paper Size Detection | Upper Tray |
| 1913 | 2: Tray: Auto Paper Size Detection | Lower Tray |
| 1 | Size 1: B5/Exe Landscape | [0 to 1/0/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.) |
| 2 | Size 2: A5/HLT | |
| 3 | A4/LT | |
| 4 | A4/LG | |
| 5 | A3/LT | |

4. Enable the NIB and/or USB function.
 - To enable the NIB function, enter the SP mode and set SP5985-001 (On Board NIC) to "1"(Enable).
 - To enable the USB function, enter the SP mode and set SP5985-002 (On Board USB) to "1"(Enable).

5. Exit SP mode.
6. Do some test copies to make sure that the machine operates correctly.

1.2.5 TRANSPORTING THE MACHINE

1. Do SP 4806-001 to move the scanner carriage from the home position. This prevents dust from falling into the machine during transportation.

Paper Tray Unit (D331)

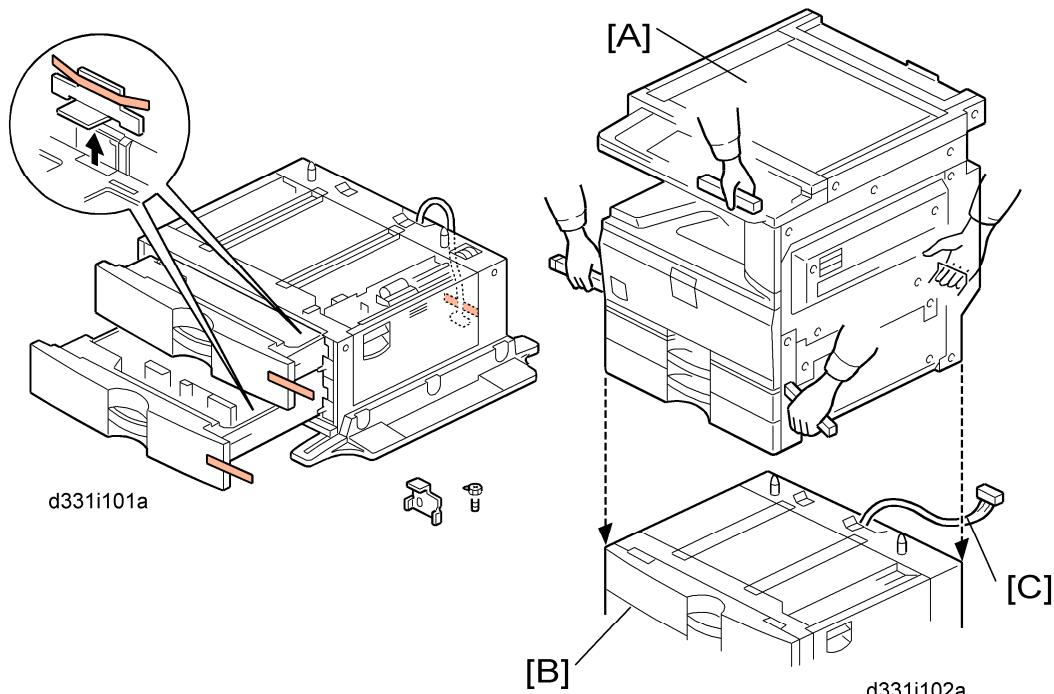
1.3 PAPER TRAY UNIT (D331)

1.3.1 ACCESSORY CHECK

Check the quantity and condition of the accessories against the following list.

| No. | Description | Quantity |
|-----|------------------|----------|
| 1 | Securing Bracket | 2 |
| 2 | Screw – M4 x 8 | 4 |

1.3.2 INSTALLATION PROCEDURE



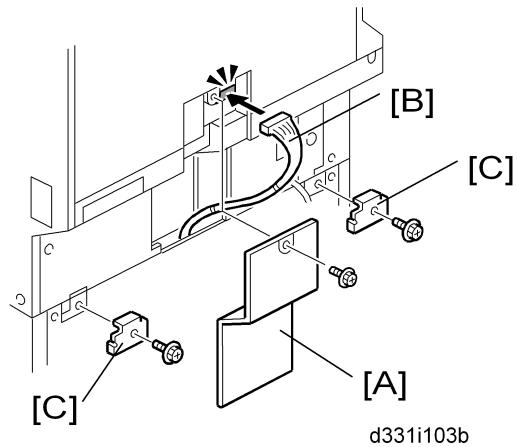
CAUTION

- Unplug the machine power cord before starting the following procedure.
 - The handles of the main machine for lifting must be inserted inside the machine and locked unless these handles are used for the installation or relocation of the main machine.
 - You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.
1. Remove the strips of tape.
 2. Put the copier [A] on the paper tray unit [B].

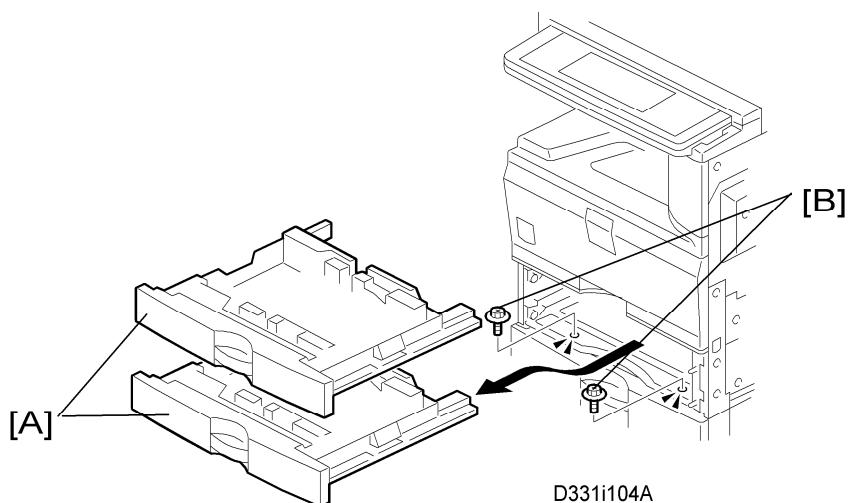
Paper Tray Unit (D331)

↓ Note

- When you install the copier, be careful not to pinch the cable [C].



3. Remove the connector cover [A] ($\wedge \times 1$: M3x8).
4. Connect the cable [B] to the copier, as shown.
5. Attach a securing bracket [C] to each side of the paper tray unit, as shown ($\wedge \times 1$: M4 x 8 each).
6. Re-install the connector cover.

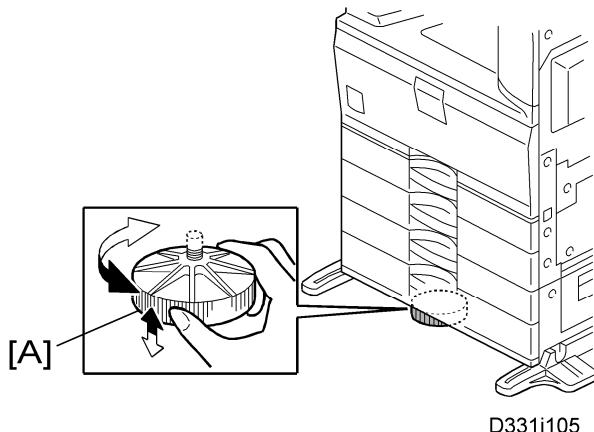


7. Remove the 1st and 2nd paper trays [A]
8. Fasten the paper tray unit at [B] ($\wedge \times 2$ M4x8).
9. Reinstall the all paper trays.
10. Attach the appropriate paper tray number decal and paper size decal to the each handle of the trays.

↓ Note

- The paper tray number and size sheet is in the accessory box of the main machine.

Paper Tray Unit (D331)



11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
12. Load paper into the paper trays and set the side fences and bottom fence.

SP Settings

1. Connect the copier and turn the machine on.
2. Do SP1914 and SP1915 to set automatic paper size detection for the upper and lower tray of the paper tray unit.

| | | |
|-------------|------------------------------------|--|
| 1914 | 3: Tray: Auto Paper Size Detection | Upper Tray |
| 1915 | 4: Tray: Auto Paper Size Detection | Lower Tray |
| 1 | Size 1: B5/Exe Landscape | |
| 2 | Size 2: A5/HLT | [0 to 1/0/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.) |
| 3 | A4/LT | |
| 4 | A4/LG | |
| 5 | A3/LT | |

3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

1.4 LCT (B391)

1.4.1 ACCESSORY CHECK

Check the quantity and condition of the accessories against the following list.

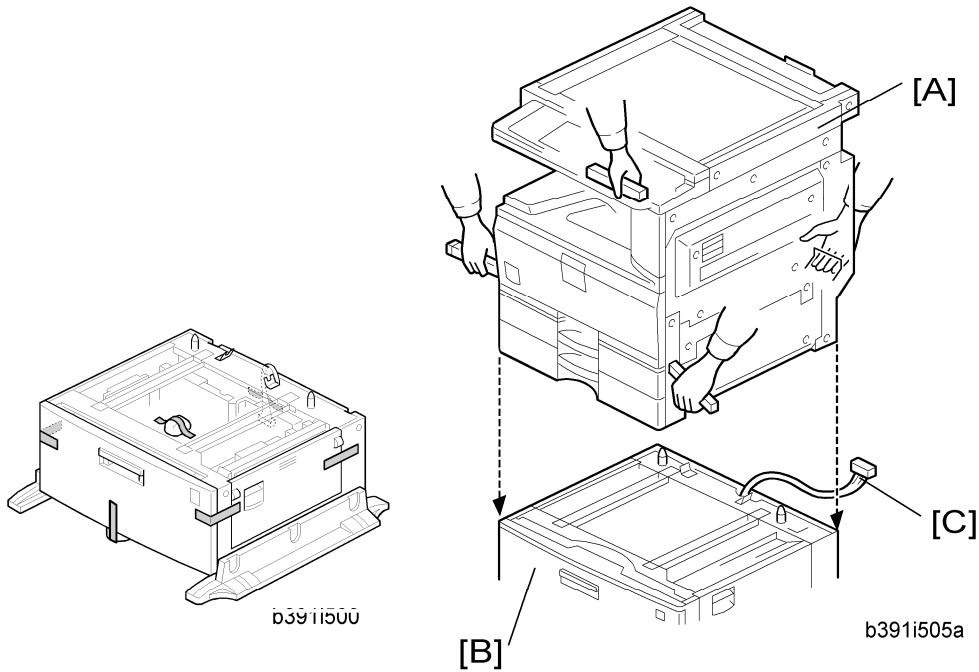
| No. | Description | Quantity |
|-----|------------------|----------|
| 1 | Securing Bracket | 2 |
| 2 | Screw – M4 x 10 | 4 |
| 3 | Paper Size Decal | 1 |

1.4.2 INSTALLATION PROCEDURE

CAUTION

- Unplug the machine power cord before starting the following procedure.
- The handles of the main machine for lifting must be inserted inside the machine and locked, unless these handles are used for the installation or relocation of the main machine.
- You need two or more persons to lift the copier. The copier is highly unstable when lifted by one person, and may cause human injury or property damage.

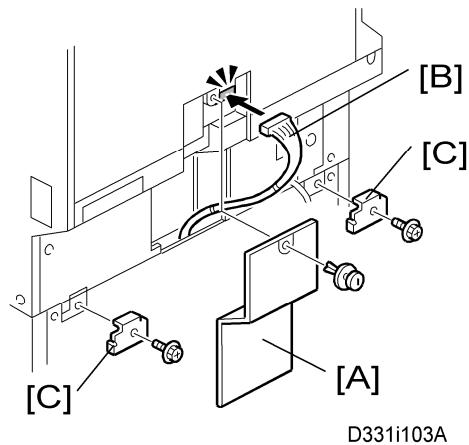
LCT (B391)



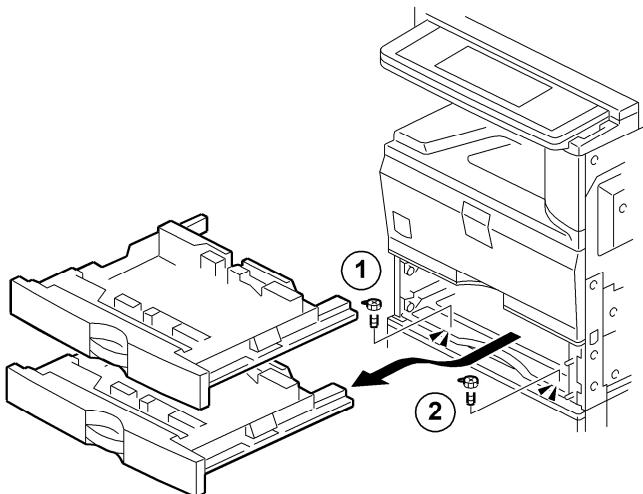
1. Remove the strips of tape.
2. Set the copier [A] on the LCT [B].

Note

- When installing the copier, Be careful not to pinch the cable [C].

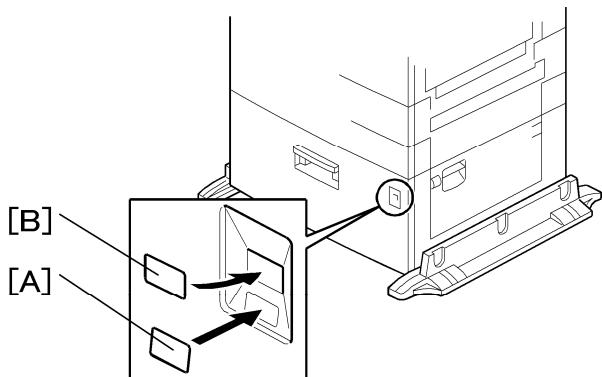


3. Remove the connector cover [A] (rivet screw x 1).
4. Connect the cable [B] to the copier, as shown.
5. Attach a securing bracket [C] to each side of the LCT, as shown (\wedge x 1 each).
6. Re-install the connector cover.



b391i501a

7. Remove the 1st and 2nd paper trays, and then secure the LCT with two screws ①, ②.
8. Load paper into the LCT
9. Reinstall the 1st and 2nd paper trays.



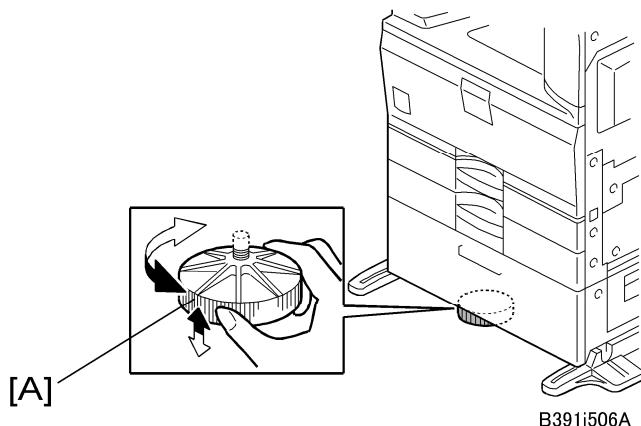
b391i502

10. Attach the appropriate paper tray number decal [A] and paper size decal [B] to the LCT tray cover.

 Note

- The paper tray number decal is in the accessory box for the main copier.

LCT (B391)



B391i506A

11. Rotate the adjuster [A] until the machine cannot be pushed across the floor.
12. Load paper into the paper tray and turn on the main switch.

SP Setting

1. Connect the copier and turn the machine on.
2. Do SP1914 to set automatic paper size detection for the LCT.

| | | |
|-------------|------------------------------------|---|
| 1914 | 3: Tray: Auto Paper Size Detection | |
| 1 | Size 1: B5/Exe Landscape | [0 to 1/ 0 /1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.) |
| 2 | Size 2: A5/HLT | |
| 3 | A4/LT | |
| 4 | A4/LG | |
| 5 | A3/LT | |

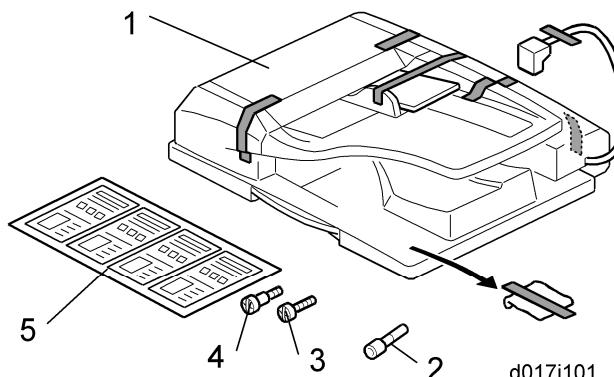
3. Exit SP mode.
4. Do some test copies to make sure that the machine operates correctly.

1.5 ARDF (D366)

1.5.1 COMPONENT CHECK

Check the quantity and condition of the accessories against the following list.

| No. | Description | Q'ty |
|-----|---------------------------|------|
| 1 | ARDF | 1 |
| 2 | Stamp Cartridge | 1 |
| 3 | Knob Screw | 2 |
| 4 | Stud Screw | 2 |
| 5 | Attention Decal-Top Cover | 1 |

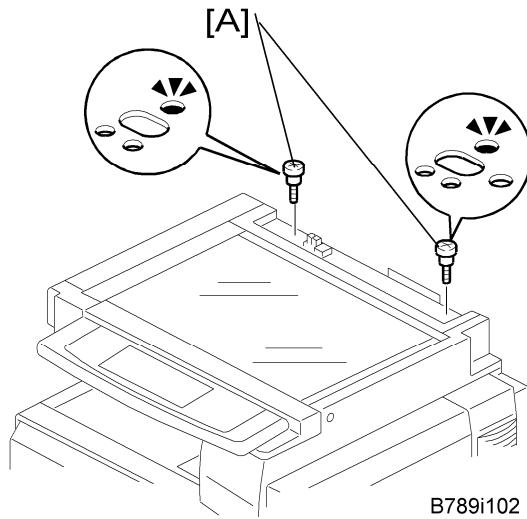


1.5.2 INSTALLATION PROCEDURE

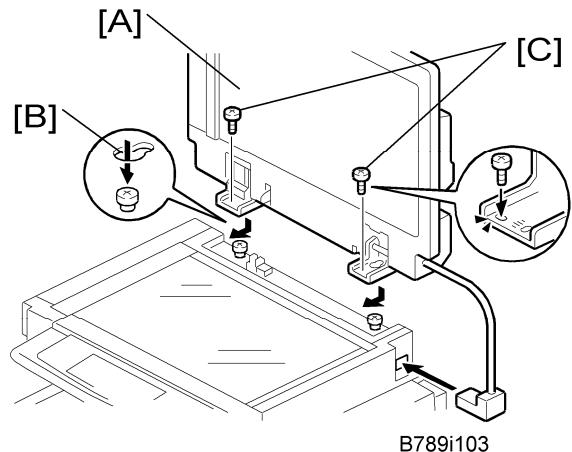
CAUTION

- Unplug the copier power cord before starting the following procedure.
1. Remove the all tapes and shipping retainers.

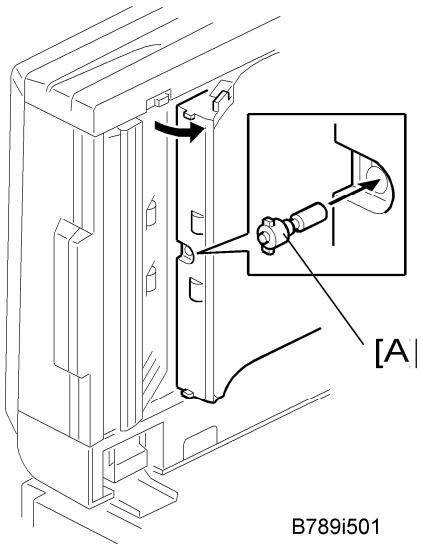
ARDF (D366)



2. Insert the two stud screws [A] on the top of the machine.

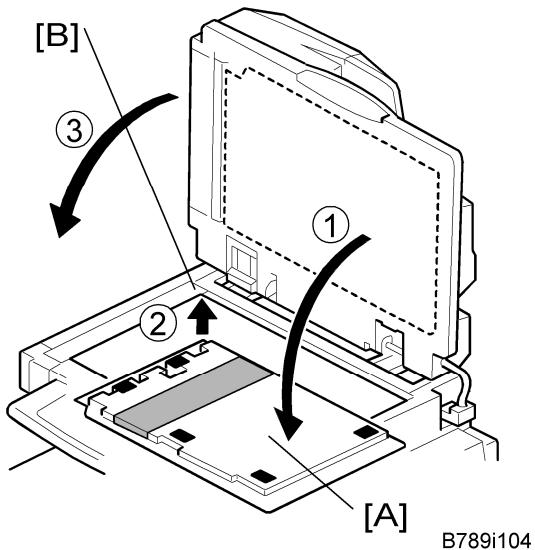


3. Mount the ARDF [A] by aligning the screw keyholes [B] of the ARDF support plate over the stud screws.
4. Slide the ARDF toward the front of the machine.
5. Secure the ARDF with the two knob screw [C].



B789i501

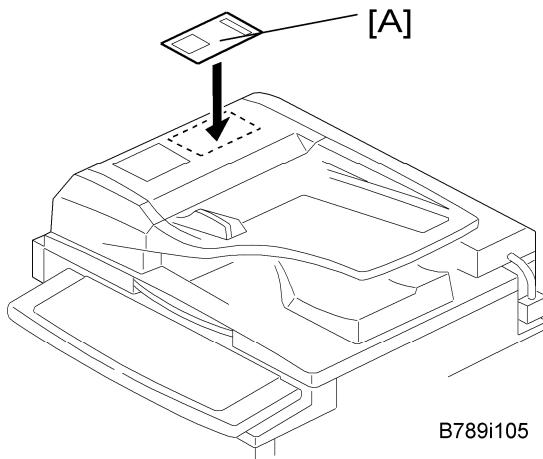
6. Install the stamp cartridge [A] in the ARDF.



B789i104

7. Peel off the platen sheet [A] and place it on the exposure glass.
8. Align the rear left corner (of the platen sheet) with the corner [B] on the exposure glass.
9. Close the ARDF.
10. Open the ARDF and check that the platen sheet is correctly attached.

ARDF (D366)



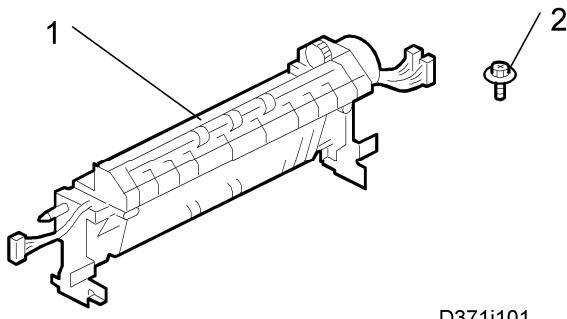
11. Attach the decal [A] to the top cover as shown. Choose the language you want.
12. Plug in and turn on the main power switch of the machine, and then check the ARDF operation.
13. Make a full size copy. Check that the registrations (side-to side and leading edge) and image skew are correct. If they are not, adjust the registrations and image skew, referring to the service manual ("Copy Adjustments" in the "Replacements and Adjustments").

1.6 INTERCHANGE UNIT (D371)

1.6.1 COMPONENT CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Quantity |
|-----|----------------------|----------|
| 1 | Interchange Unit | 1 |
| 2 | Tapping Screw M3 x 8 | 2 |

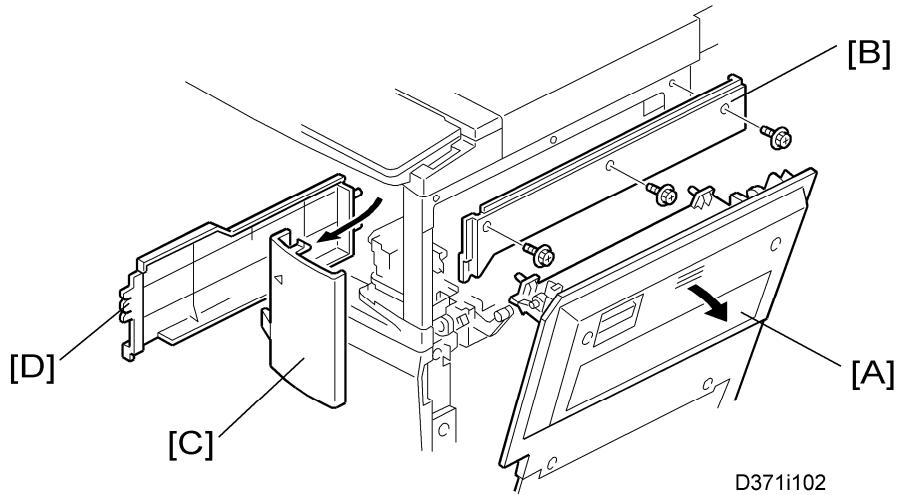


1.6.2 INSTALLATION PROCEDURE

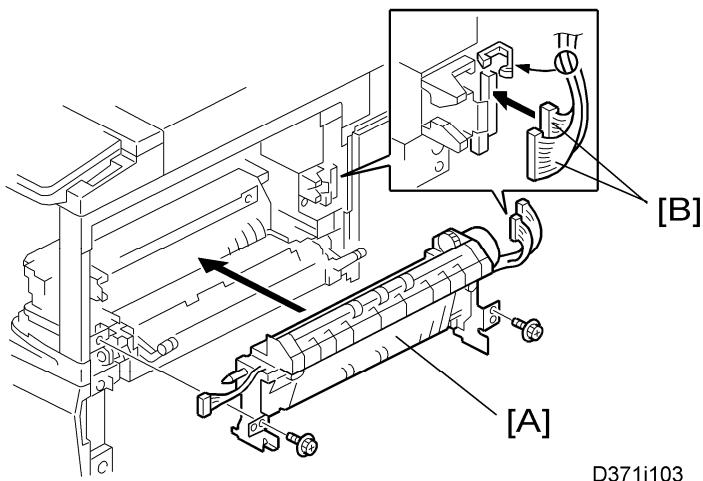
⚠ CAUTION

- Unplug the copier power cord before starting the following procedure.
1. Remove all tapes.

Interchange Unit (D371)



2. Open the right cover [A] of the copier.
3. Remove the right upper cover [B] (\wedge x 3)
4. Remove the front right cover [C] (hook)
5. Slide out the exit cover [D].



6. Install the interchange unit [A] (\wedge x 2).
7. Connect the two harnesses [B].

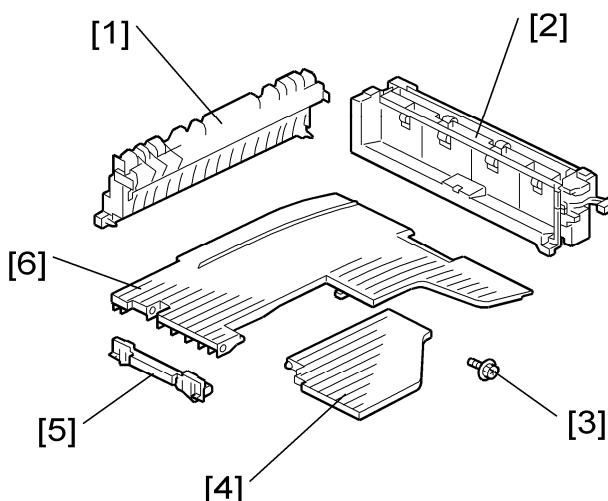
1-Bin Tray Unit (D367)

1.7 1-BIN TRAY UNIT (D367)

1.7.1 COMPONENT CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Qty |
|-----|----------------------|-----|
| 1 | 1-Bin Tray Guide | 1 |
| 2 | 1 Bin Tray Unit | 1 |
| 3 | Tapping Screw M3 x 8 | 1 |
| 4 | Sub-tray | 1 |
| 5 | Tray Guide | 1 |
| 6 | Tray | 1 |



D367i101

1.7.2 INSTALLATION PROCEDURE

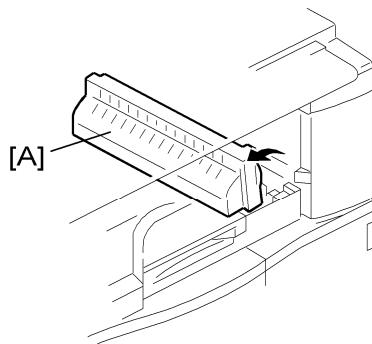
CAUTION

- Unplug the copier power cord before starting the following procedure.

Note

1-Bin Tray Unit (D367)

- Before installing this 1-bin tray unit, the optional interchange unit (D371) must be installed.
1. Remove all tapes.



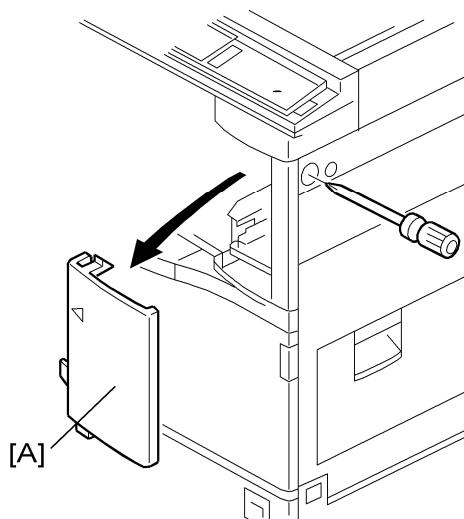
b413i501

2. If the optional bridge unit has been installed, open the right jam removal cover [A] of the bridge unit.
-or-

If the optional bridge unit is not installed, skip this step.

3. If the duplex unit has not been installed go to Step 7.

If the duplex unit has been installed...

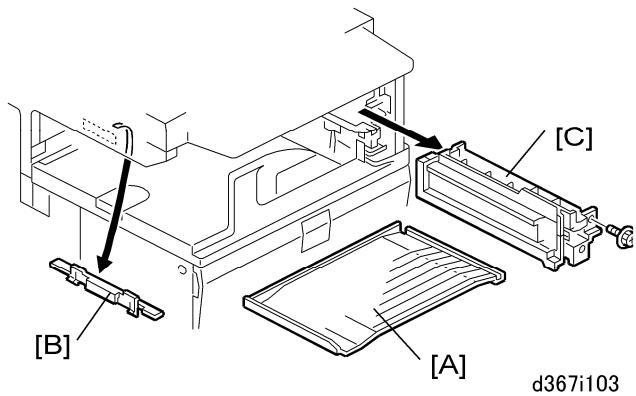


b416i502a

4. Remove the front right cover [A].

1-Bin Tray Unit (D367)

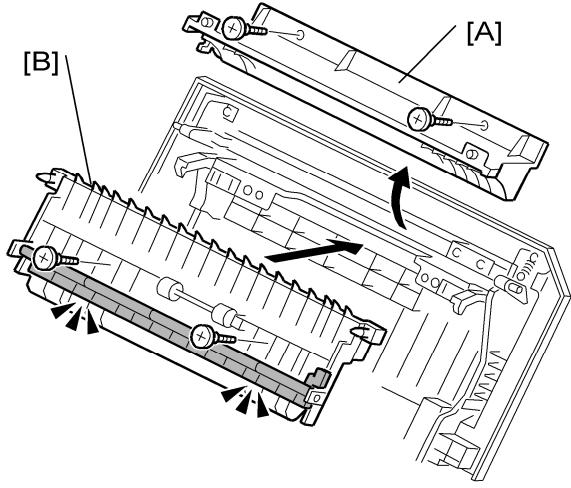
Installation



d367i103

5. Remove the duplex tray [A] and duplex tray guide [B].
6. Remove the duplex guide [C] (\wedge x 1).

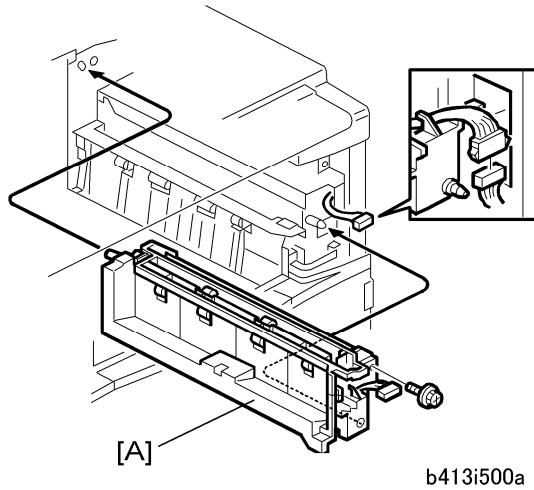
Install the 1-Bin Tray



d367i104

7. Remove plate [A] (\wedge x2)
8. Attach the 1-bin tray guide [B] (\wedge x2)

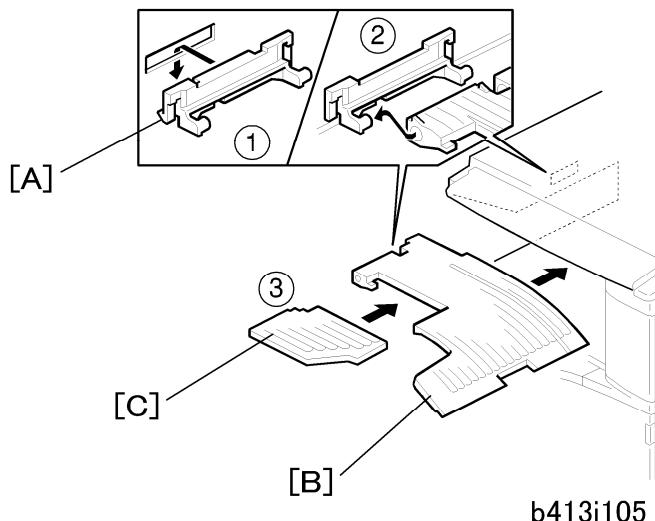
1-Bin Tray Unit (D367)



b413i500a

9. Install the 1-bin tray unit [A] (x 1, x 1)

10. Re-install the front right cover.



b413i105

11. Install the tray guide [A].

12. Install the tray [B].

13. Install the sub-tray [C].

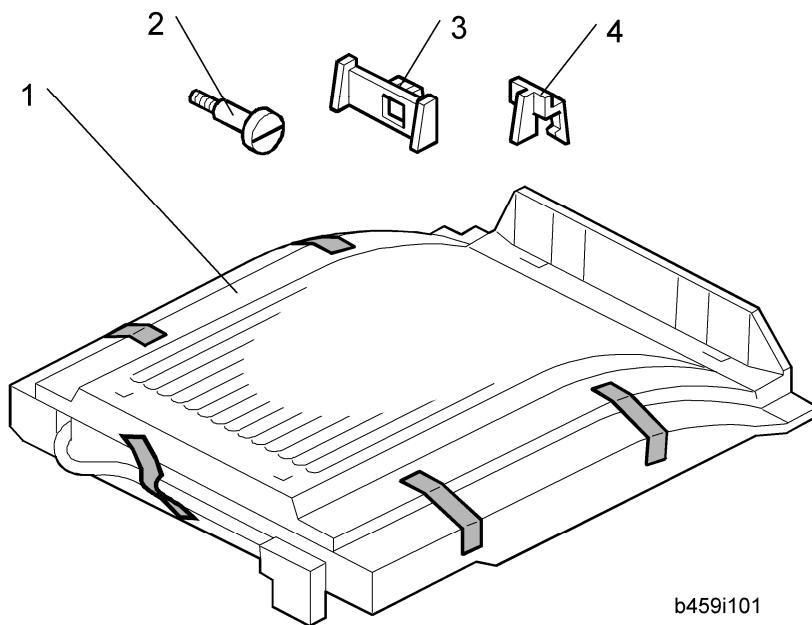
14. Turn on the main power switch and check the 1-bin tray unit operation.

1.8 SHIFT TRAY (D385)

1.8.1 COMPONENT CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Q'ty |
|-----|---------------------|------|
| 1 | Shift Tray Unit | 1 |
| 2 | Stepped Screw | 1 |
| 3 | Paper Guide – Large | 2 |
| 4 | Paper Guide - Small | 1 |



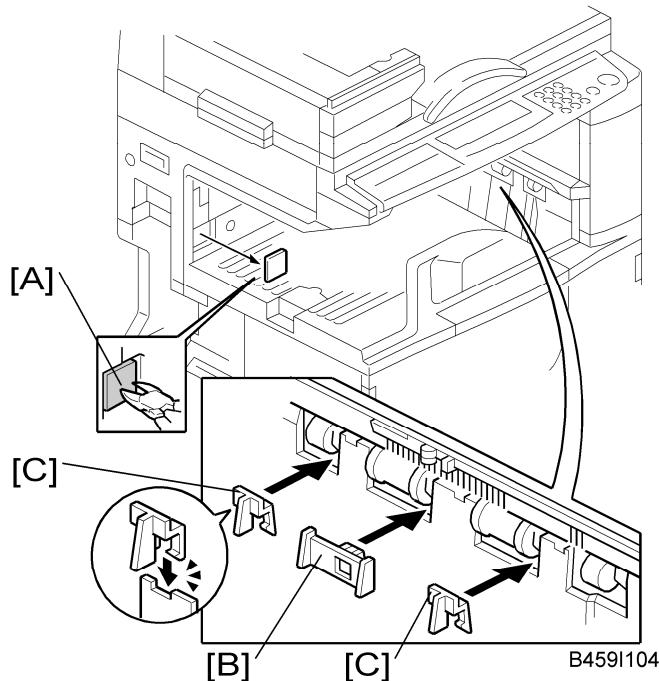
b459i101

1.8.2 INSTALLATION PROCEDURE

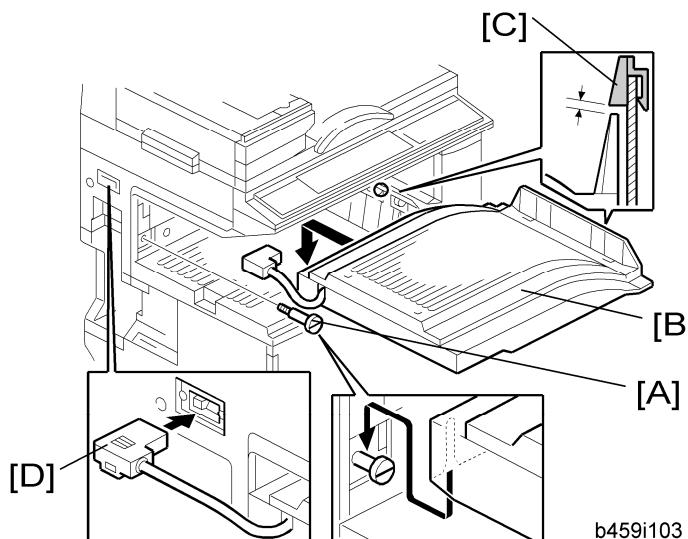
CAUTION

- Unplug the copier power cord before starting the following procedure.

Shift Tray (D385)



1. Remove all tapes.
2. Remove the plate [A].with nippers.
3. Install the large paper guide [B] and two small paper guides [C], as shown.



b459i103

4. Install the stepped screw [A].
5. Install the shift tray unit [B], as shown.

Note

- Set the shift tray on the stepped screw.
- The shift tray must be installed under the paper guide [C] installed in step 3.

6. Connect the cable [D] to the copier.

Shift Tray (D385)

7. Turn on the main power switch. Then select the shift tray with the user tool
 - System Settings - General Features - Output: Copier (and Output: Document Server, Facsimile, Printer): Enable the shift tray – you can also enable the standard tray (internal Tray 1), 1-bin tray (internal tray 2), or the finisher proof tray.
8. Check the shift tray operation.

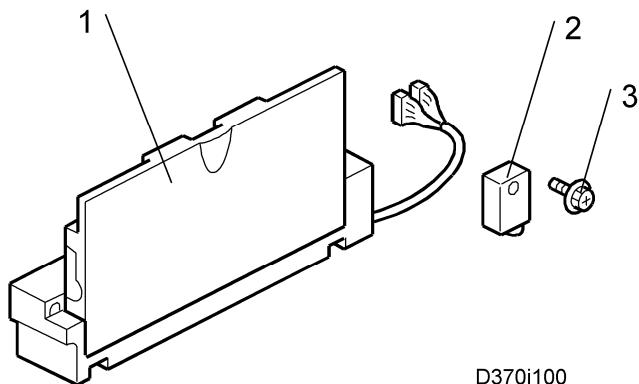
Bypass Feed Unit (D370)

1.9 BYPASS FEED UNIT (D370)

1.9.1 COMPONENTS CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Quantity |
|-----|-------------------|----------|
| 1 | By-pass Tray Unit | 1 |
| 2 | Connector Cover | 1 |
| 3 | Tapping Screw | 2 |

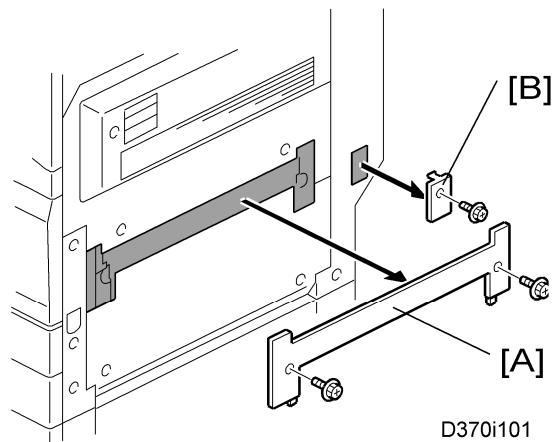


D370i100

1.9.2 INSTALLATION PROCEDURE

CAUTION

- Disconnect the copier power cord before you start this procedure.



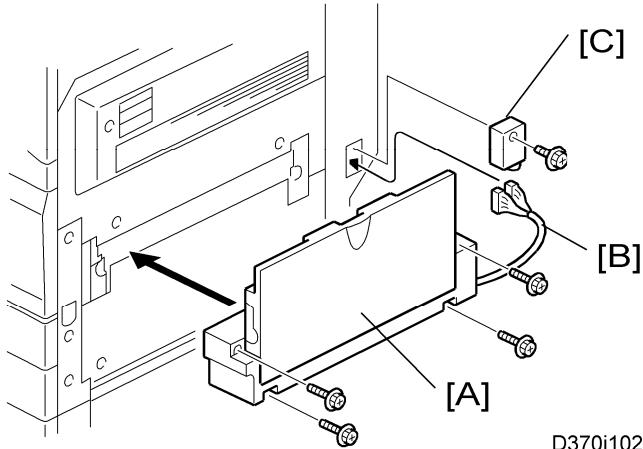
D370i101

Bypass Feed Unit (D370)

1. Remove all tapes.
2. Remove the entrance cover [A] (\wedge x 2) and cover [B] (\wedge x 2).

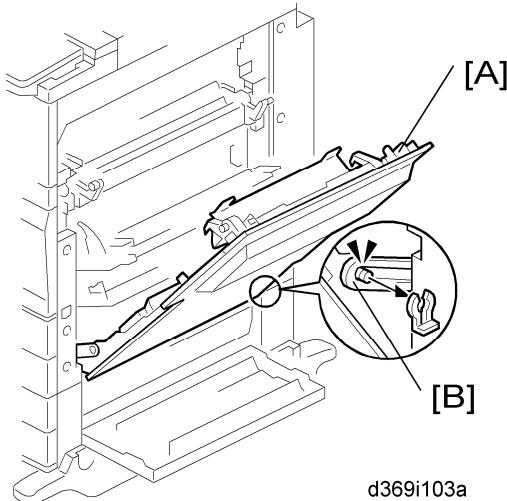
Note

- These removed screws will be used in steps 3 and 5.



D370i102

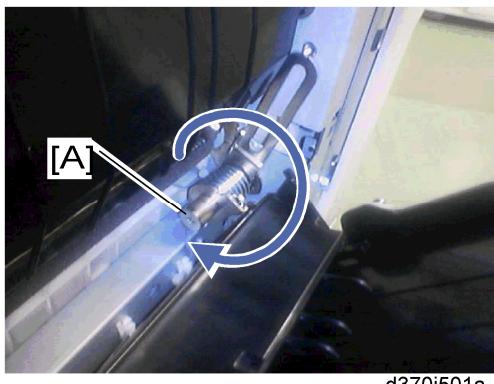
3. Install the by-pass tray unit [A] (\wedge x 4: two of these are removed in Step 2).
4. Connect the cable [B] to the machine.
5. Install the connector cover [C] (\wedge x 1: this screw is removed in Step 2).



d369i103a

6. Open the right cover [A].
7. Release the rear link [B] (\wedge x 1).

Bypass Feed Unit (D370)



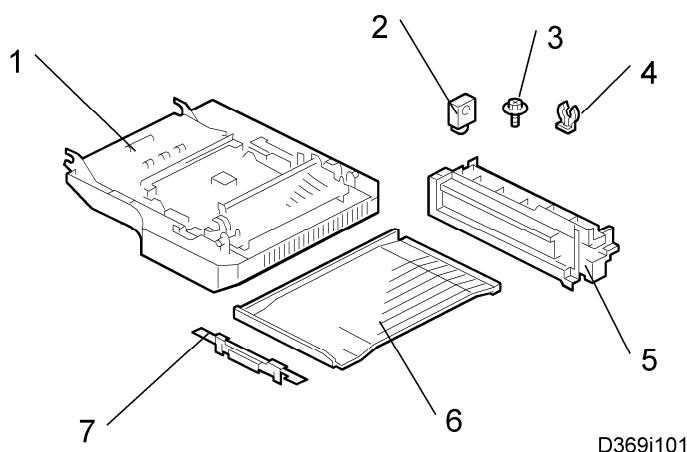
8. Rotate the rear link shaft [A] clockwise by 360 degrees to strengthen the spring tension.
9. Reattach the rear link ($\textcircled{O} \times 1$).
10. Close the right cover.
11. Turn the main power switch on and check the by-pass tray function.
12. Make a copy from the by-pass tray. Then check the registration.

1.10 DUPLEX UNIT (D369)

1.10.1 ACCESSORY CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Quantity |
|-----|------------------------|----------|
| 1 | Duplex Unit | 1 |
| 2 | Connector Cover | 1 |
| 3 | Tapping Screw – M3 x 8 | 3 |
| 4 | Clip | 1 |
| 5 | Duplex Guide | 1 |
| 6 | Duplex Tray | 1 |
| 7 | Duplex Tray Guide | 1 |



D369i101

1.10.2 INSTALLATION PROCEDURE

CAUTION

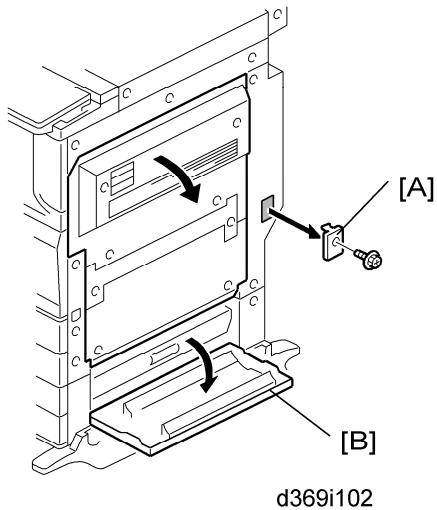
- Unplug the copier power cord before starting the following procedure.

Note

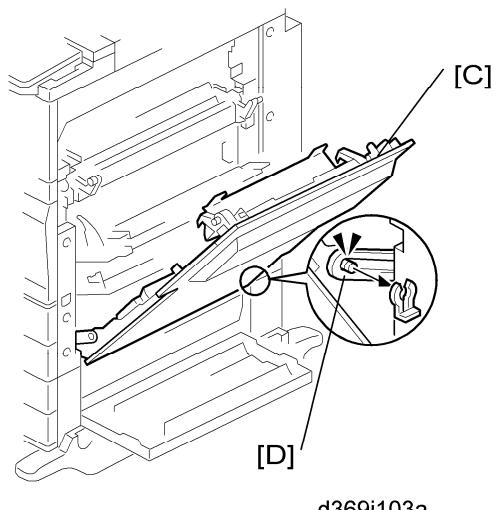
- Before installing the duplex unit, the optional interchange unit (D371) must be installed.

Duplex Unit (D369)

1. Remove all tapes.

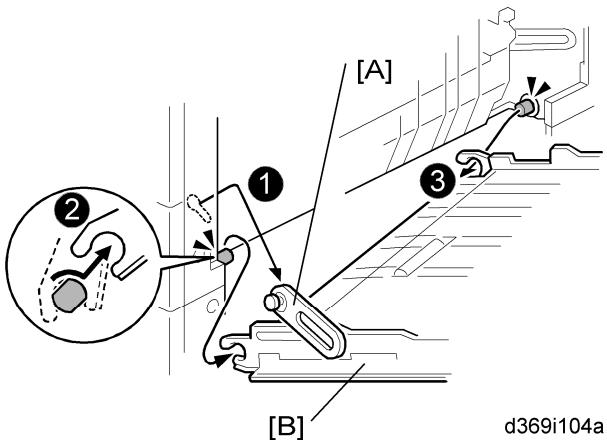


d369i102



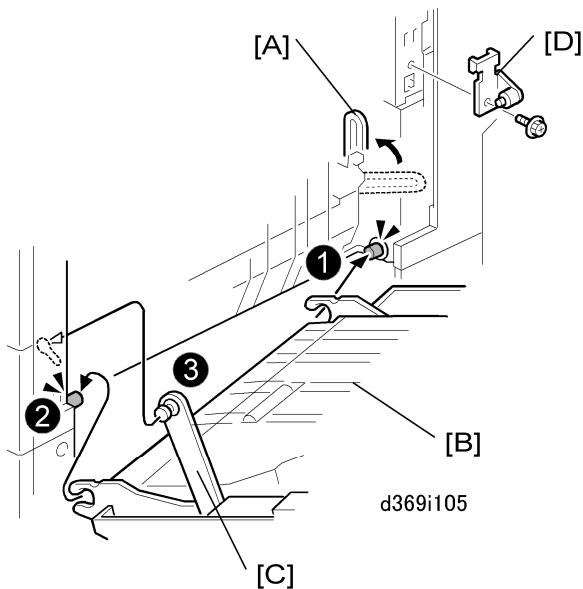
d369i103a

2. Remove the connector cover [A] (x 1).
3. Open the right cover [B] of the optional paper tray unit or LCT and right cover [C].
4. Release the rear link [D] from the right cover (x 1).

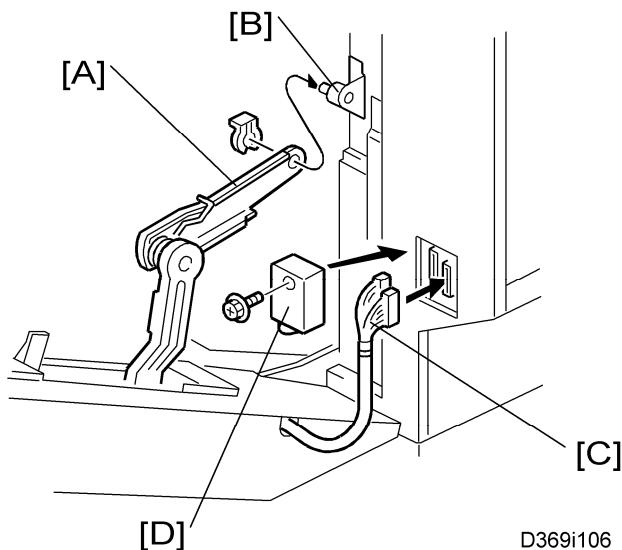


d369i104a

5. Release the front link [A] from the mainframe.
6. Remove the right cover [B].



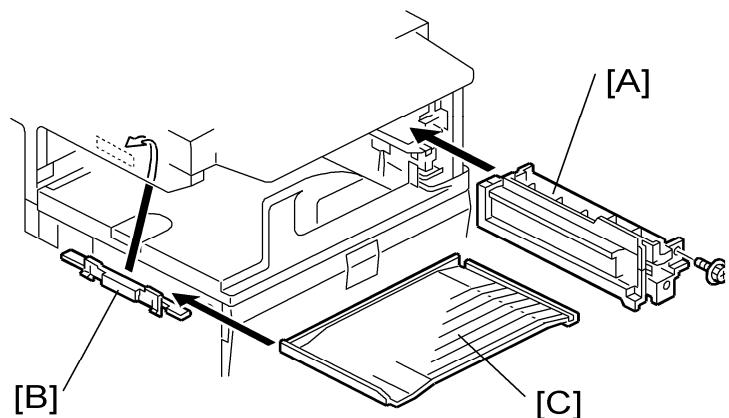
7. Turn up the rear link [A] of the main machine.
8. Install the duplex unit [B].
9. Attach the front link [C] of the duplex unit to the main machine.
10. Install the bracket [D] (\wedge x 1).



Note

- These last steps are not required if the 1-Bin Tray has been installed.

Duplex Unit (D369)



D369i107

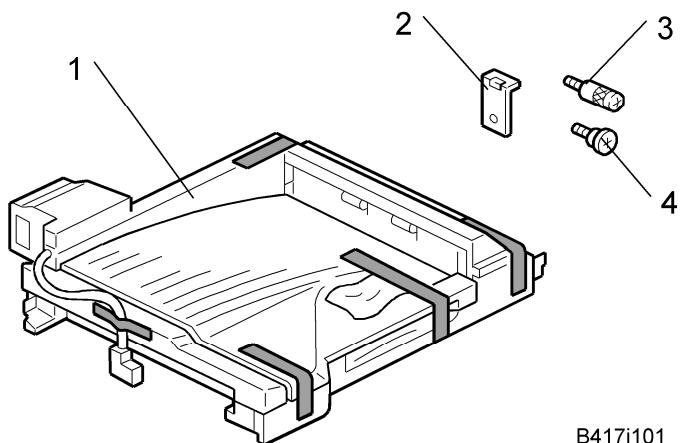
13. Install the duplex guide [A] (\wedge x 1).
14. Install the duplex tray guide [B] and duplex tray [C].
15. Turn on the main power switch and check the duplex unit function.

1.11 BRIDGE UNIT (D368)

1.11.1 COMPONENT LIST

Check the quantity and condition of the components against the following list.

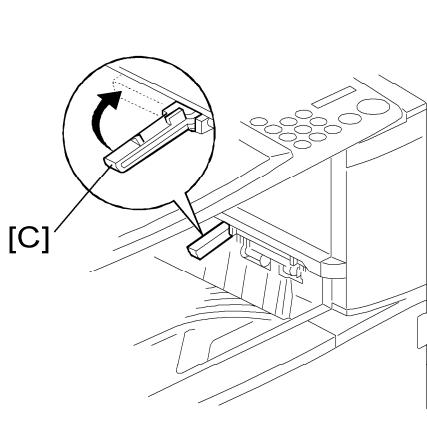
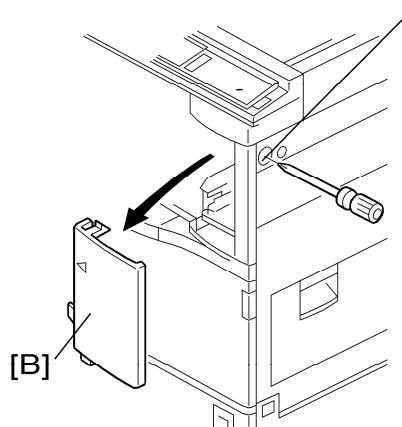
| No. | Description | Quantity |
|-----|----------------|----------|
| 1 | Bridge Unit | 1 |
| 2 | Securing Plate | 1 |
| 3 | Shoulder Screw | 1 |
| 4 | Knob Screw | 1 |



B417i101

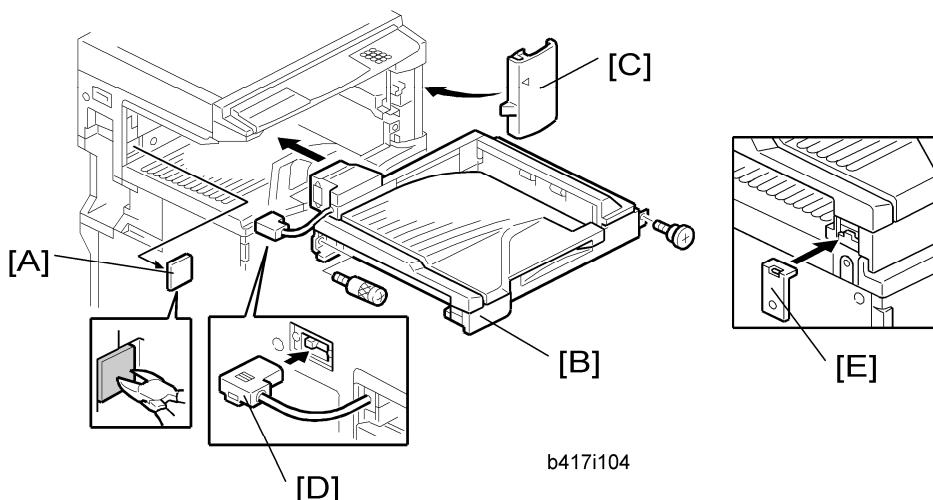
Bridge Unit (D368)

1.11.2 INSTALLATION PROCEDURE



CAUTION

- Unplug the copier power cord before starting the following procedure.
1. Remove all tapes.
 2. Loosen the screw [A] and remove the front right cover [B].
 3. If the sensor feeler [C] is out, fold it away into the machine.



4. Remove the cover [A].
5. Install the bridge unit [B] (1 shoulder screw, 1 knob screw).
6. Reinstall the front right cover [C].
7. Connect the cable [D] to the main machine.
8. Attach the securing plate [E], as shown.

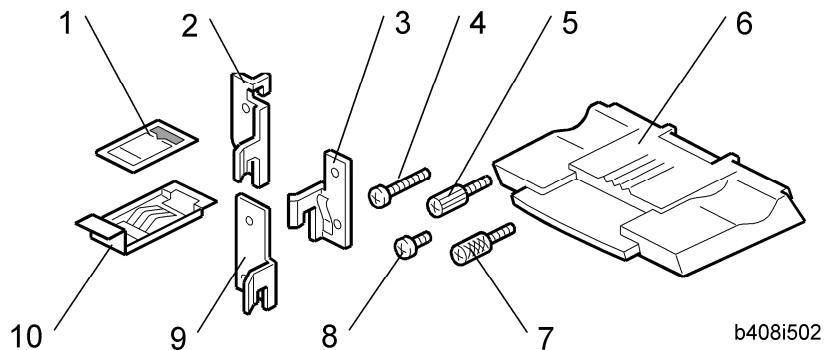
Note

- Do not attach it with a screw; This is done when securing the front stand for the optional finisher.
9. Install the optional finisher (refer to the finisher installation procedure).

1.12 1000-SHEET FINISHER (B408)

1.12.1 ACCESSORY CHECK

Check the quantity and condition of the accessories against the following list.



| No. | Description | Q'ty | For this model |
|-----|-----------------------|------|----------------|
| 1 | Staple Position Decal | 1 | ✓ |
| 2 | Rear Joint Bracket | 1 | ✓ |
| 3 | Front Joint Bracket | 1 | ✓ |
| 4 | Screw - M4 x 14 | 4 | ✓ (Use 3) |
| 5 | Knob Screw - M4 x 10 | 1 | ✓ |
| 6 | Copy Tray | 1 | ✓ |
| 7 | Knob Screw - M3 x 8 | 1 | ✓ |
| 8 | Screw - M3 x 8 | 1 | ✓ |
| 9 | Rear Joint Bracket | 1 | --- |
| 10 | Grounding Plate | 1 | ✓ |

✓ = Necessary, --- = Not necessary

1000-Sheet Finisher (B408)

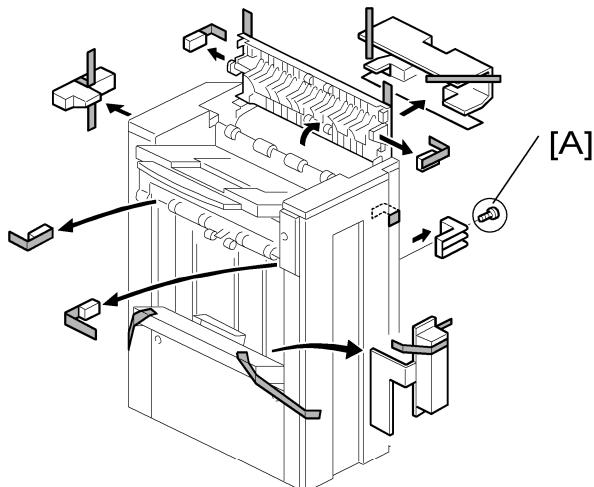
1.12.2 INSTALLATION PROCEDURE

CAUTION

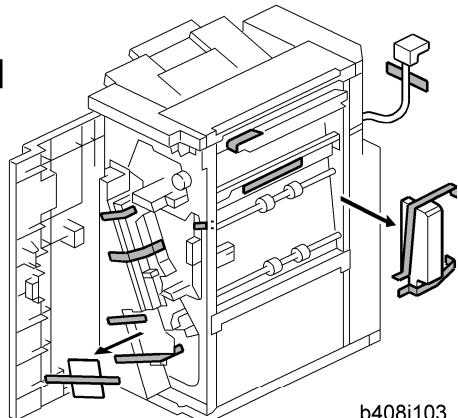
- Unplug the main machine power cord before starting the following procedure.

The following options must be installed before you install this finisher:

- Bridge Unit (D368)
- Paper Tray Unit (D331) or LCT (B391)



b408i102

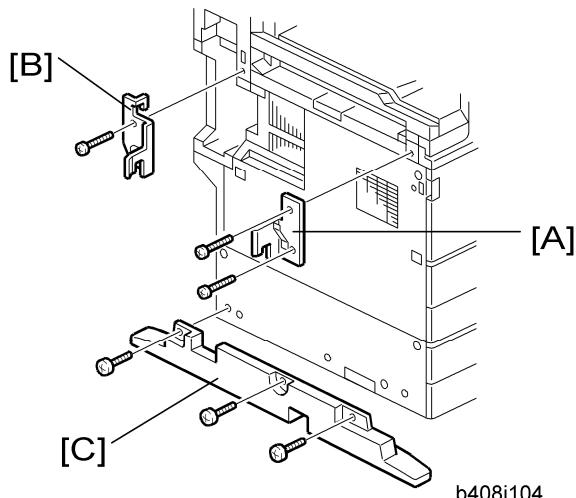


b408i103

1. Unpack the finisher and remove the tapes.

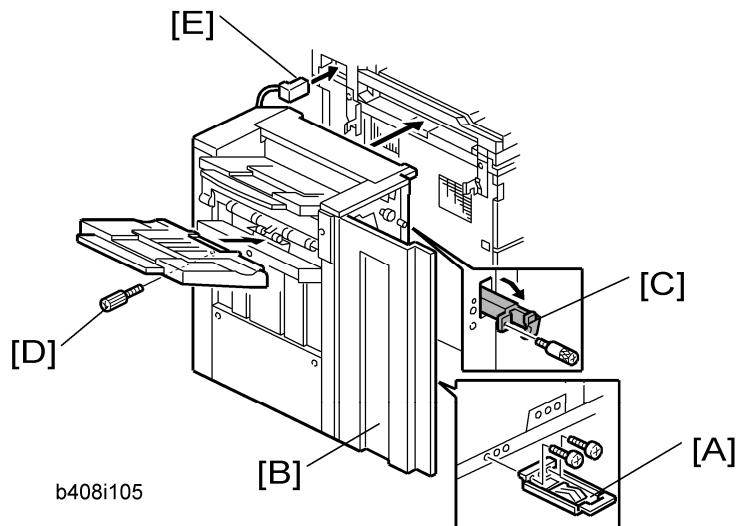
Note

- Be sure to keep screw [A]. It will be needed to secure the grounding plate in step 4.



b408i104

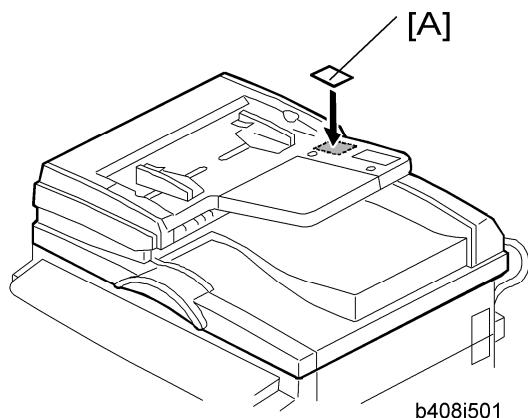
2. Install the front joint bracket [A] ($\frac{3}{8}$ x 2; M4 x 17) and rear joint bracket [B] ($\frac{3}{8}$ x 1; M4 x 17).
3. Remove the left stand [C] ($\frac{3}{8}$ x 3).



4. Install the lower grounding plate [A] on the finisher (\wedge x 2; M3 x 8).

Note

- Use the screw removed in step 1 and the screw from the accessory box.
5. Open the front door [B]. Then pull the locking lever [C] (\wedge x 1; knob M3 x 8).
 6. Align the finisher on the joint brackets, and lock it in place by pushing the locking lever.
 7. Secure the locking lever (\wedge x 1; knob M3 x 8) and close the front door.
 8. Install the copy tray [D] (\wedge x 1; knob M4 x 10).
 9. Connect the finisher cable [E] to the main machine.



10. Attach the staple position decal [A] to the ARDF as shown.
11. Turn on the ac switch and check the finisher operation.

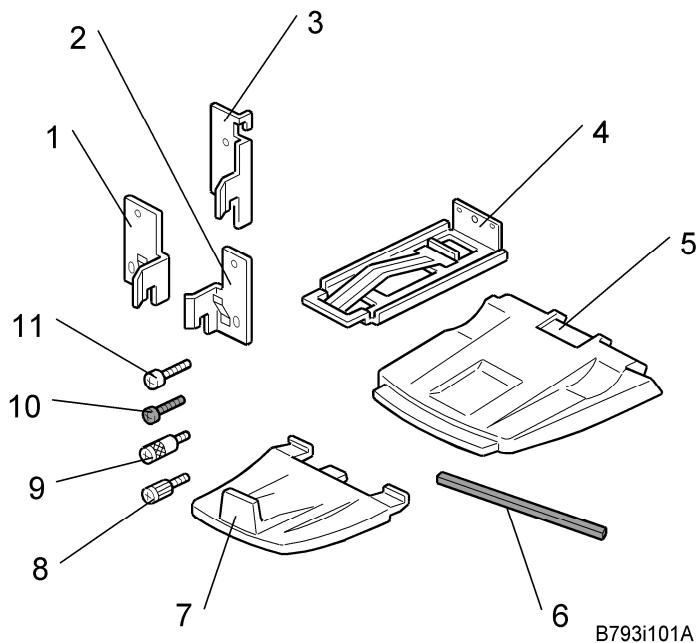
1000-Sheet Booklet Finisher (B793)

1.13 1000-SHEET BOOKLET FINISHER (B793)

1.13.1 ACCESSORY CHECK

Check the quantity and condition of the components against the following list.

| No. | Description | Quantity | For D017/D018/D019/D020 |
|-----|---------------------|----------|-------------------------|
| 1 | Rear Joint Bracket | 1 | No |
| 2 | Front Joint Bracket | 1 | Yes |
| 3 | Rear Joint Bracket | 1 | Yes |
| 4 | Grounding Plate | 1 | Yes |
| 5 | Upper Output Tray | 1 | Yes |
| 6 | Cushion | 2 | Yes |
| 7 | Lower Output Tray | 1 | Yes |
| 8 | Short Knob screw | 1 | Yes |
| 9 | Long Knob screw | 1 | Yes |
| 10 | Screw (M3 x 8) | 2 | Yes |
| 11 | Screw (M4 x 14) | 4 | Yes (Use all) |



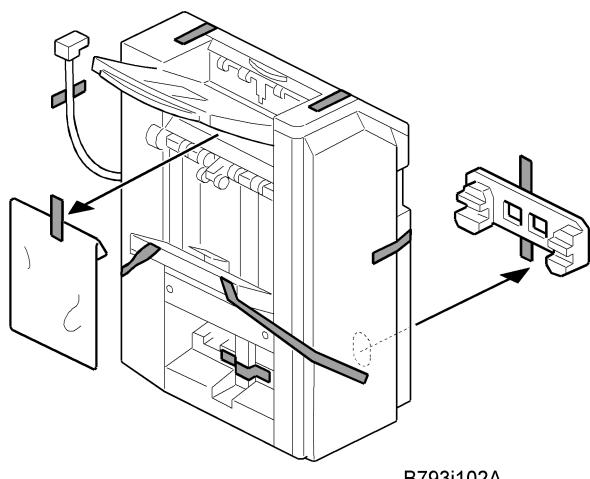
1.13.2 INSTALLATION PROCEDURE

CAUTION

- Unplug the machine power cord before starting the following procedure.

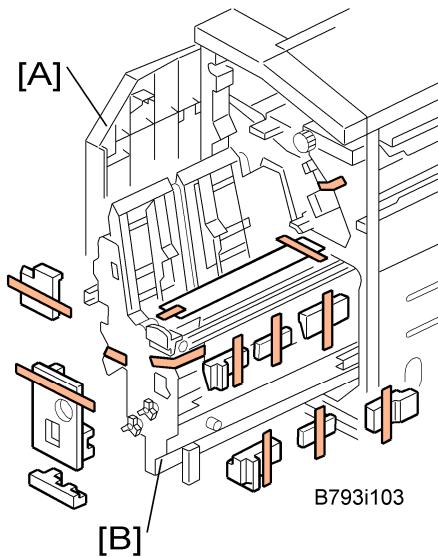
Some optional units must be installed before installing this finisher (B793). Refer to the table below about requirement options for each machine.

| Machine Code | Requirement Optional Units |
|---------------------|------------------------------|
| D017/D018/D019/D020 | D368 and either B391 or D331 |

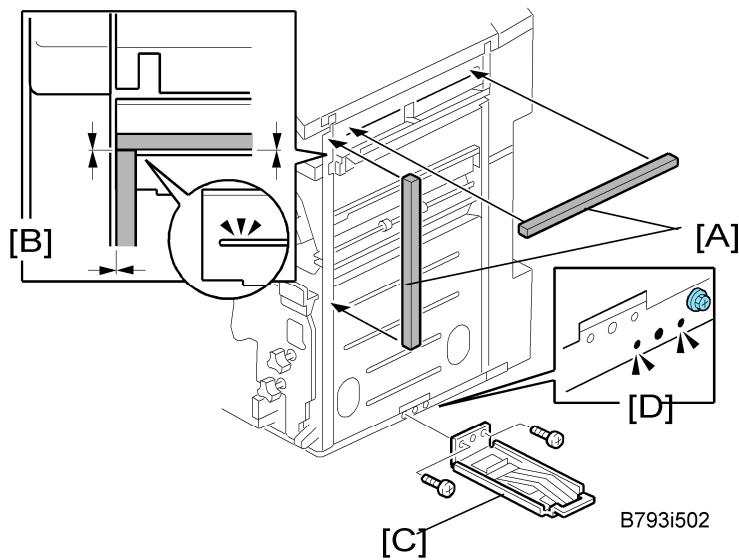


1000-Sheet Booklet Finisher (B793)

1. Unpack the finisher and remove all tapes and packing materials from the finisher.



2. Open the front door [A] of the 1000-sheet booklet finisher, and then pull out the jogger unit [B].
3. Remove all tapes and packing materials from the inside of the finisher.

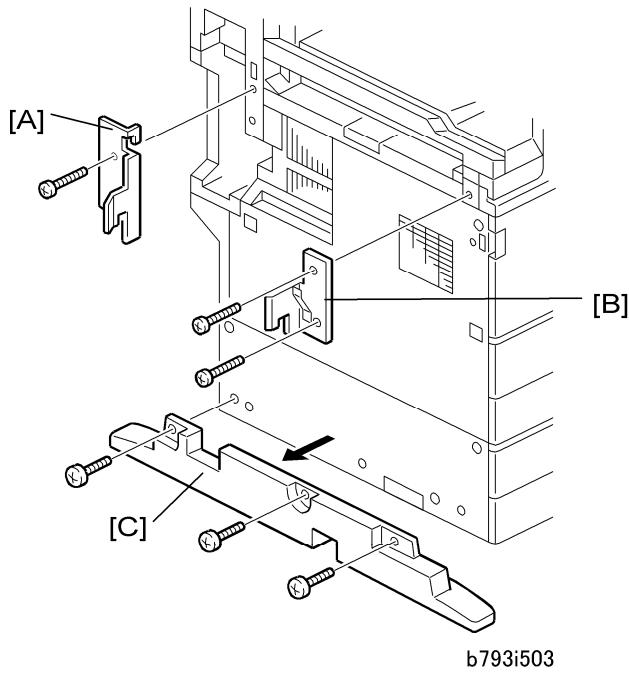


4. Attach the cushions [A] to the finisher.

Note

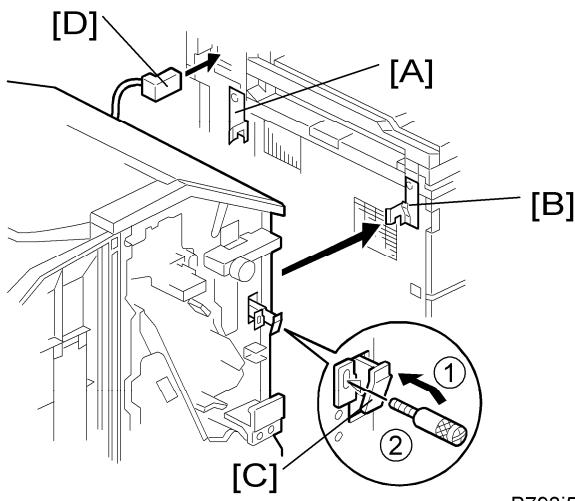
- Make sure that the cushions are placed within 0 to 1 mm [B] from the edge of the cover or frame.

5. Install the ground plate [C] on the finisher [D] ($\text{M}3 \times 8$).



b793i503

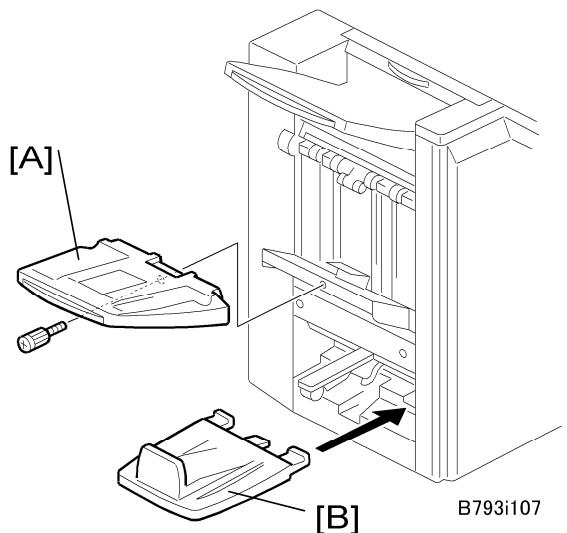
6. Attach the rear joint bracket [A] ($\frac{7}{16}$ x 1; M4 x 14).
7. Attach the front joint bracket [B] ($\frac{7}{16}$ x 2; M4 x 14).
8. Remove the left support [C] from the optional paper tray unit or LCT.



B793i504

9. Slowly push the finisher to the left side of the machine, keeping its front door open until the brackets [A] [B] go into their slots.
10. Push the lock lever [C], and then secure it (Long knob screw x 1).
11. Close the front door of the finisher.
12. Connect the finisher connector [D] to the machine.

1000-Sheet Booklet Finisher (B793)



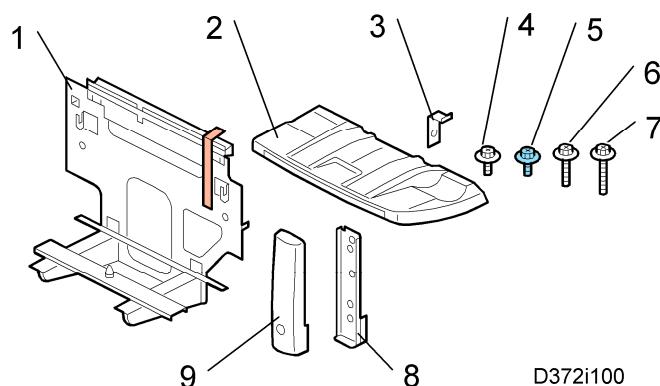
13. Install the upper output tray [A] (short knob screw x 1).
14. Install the lower output tray [B].
15. Turn on the main power switch of the machine.
16. Check the 1000-sheet booklet finisher operation.

1.14 500-SHEET FINISHER (D372)

1.14.1 ACCESSORY CHECK

Check the quantity and condition of the accessories against the following list.

| No | Description | Q'ty | For D017/D018/D019/D020 |
|----|-----------------------|------|-------------------------|
| 1 | Unit Holder | 1 | Yes |
| 2 | Shift Tray | 1 | Yes |
| 3 | Holder Bracket | 1 | Yes |
| 4 | Screw: M3 x 8 | 4 | Yes (Use 2) |
| 5 | Screw: M3 x 6 | 1 | Yes |
| 6 | Screw: M4 x 14 | 4 | Yes (Use 3) |
| 7 | Screw: M4 x 20 | 4 | No |
| 8 | Support Bracket | 2 | No |
| 9 | Support Bracket Cover | 2 | No |



D372i100

1.14.2 INSTALLATION PROCEDURE

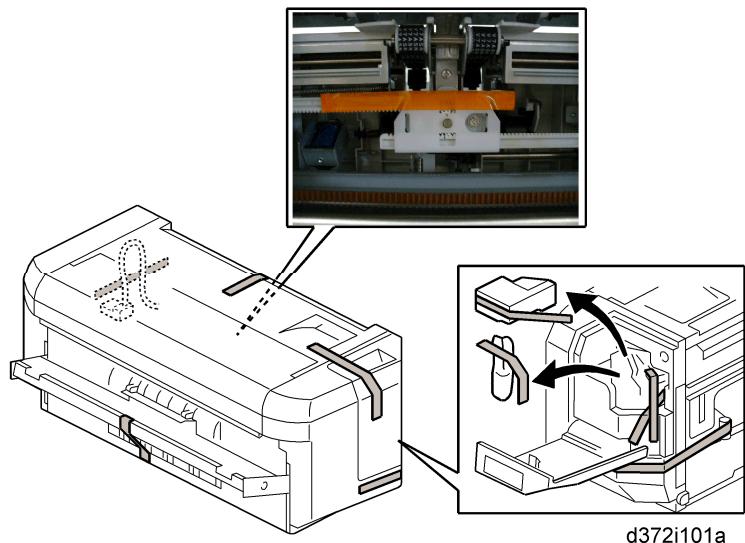
CAUTION

- Unplug the main machine power cord before starting the following procedure.

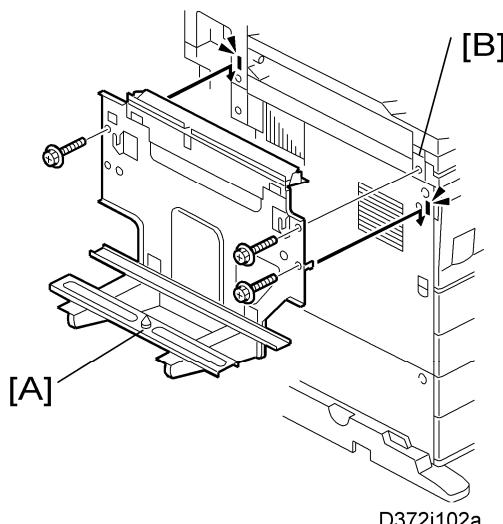
Note

500-Sheet Finisher (D372)

- Before you install the 500-sheet finisher, the optional bridge unit (D368) must be installed.



1. Unpack the finisher and remove the tapes.



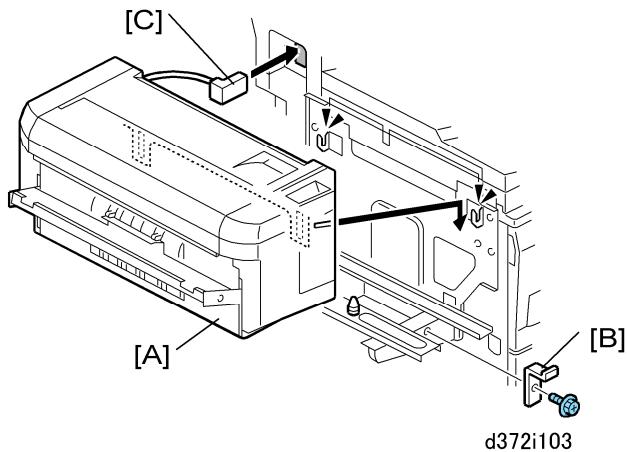
2. Install the unit holder [A] (\wedge x 3 - M4 x 14).

Note

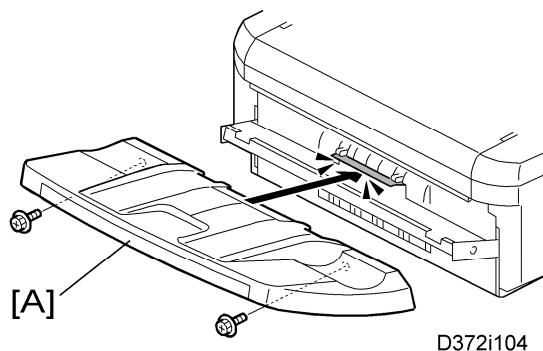
- Make sure that the bracket [B] is installed in the bridge unit.

500-Sheet Finisher (D372)

Installation



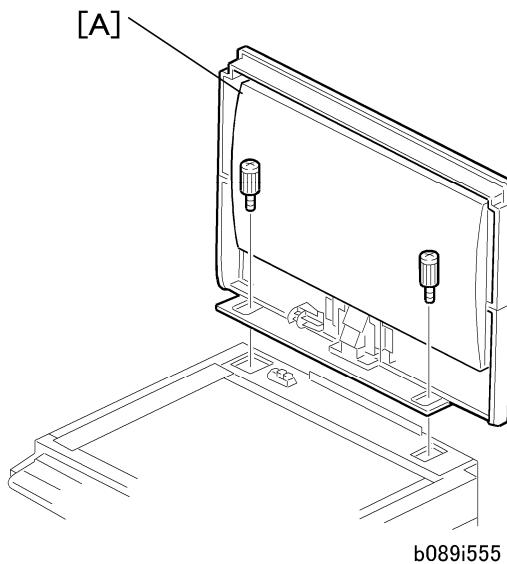
3. Install the 500-sheet finisher [A].
4. Install the holder bracket [B] ($\frac{1}{4} \times 1$; M3 x 6).
5. Connect the finisher cable [C].



6. Install the shift tray [A] ($\frac{1}{4} \times 2$ - M3 x 8).
7. Turn on the main power switch and check the finisher operation.

Platen Cover (B406)

1.15 PLATEN COVER (B406)



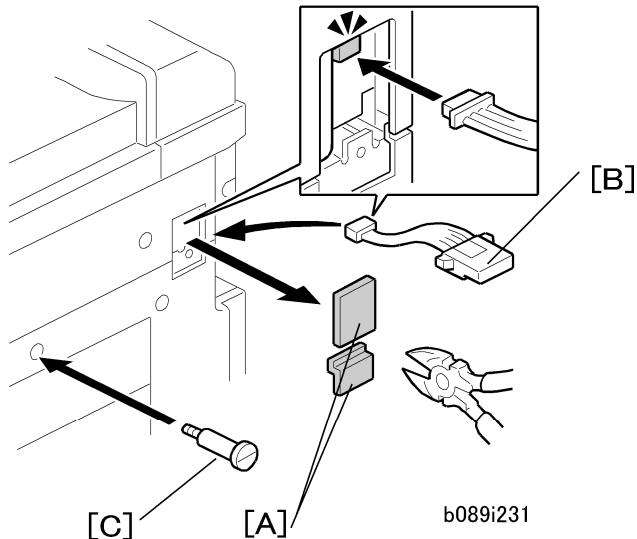
1. Install the platen cover [A] ($\frac{1}{4}$ x 2).

1.16 KEY COUNTER (B452)

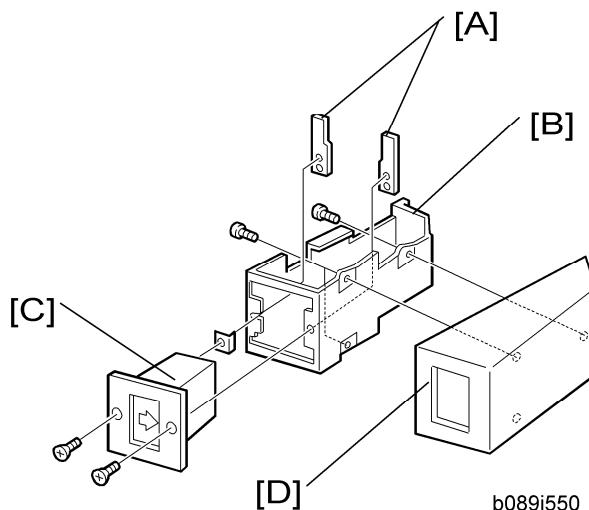
1.16.1 INSTALLATION PROCEDURE

CAUTION

- Disconnect the copier power cord before you start this procedure.



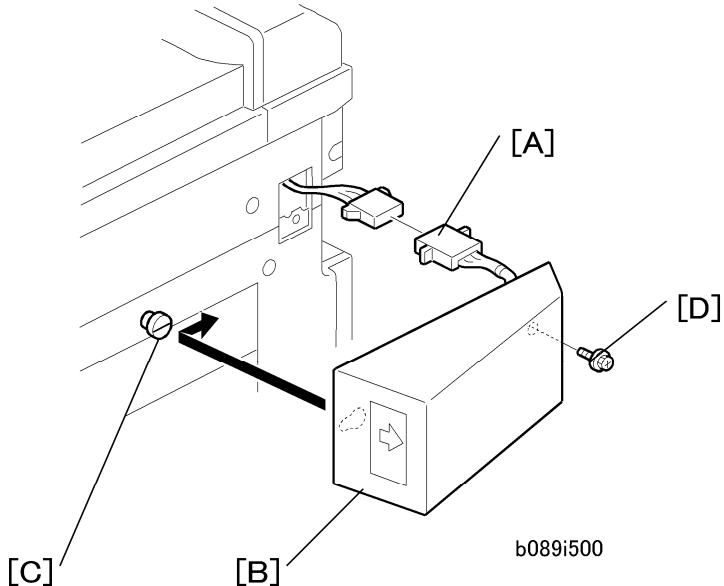
- Remove two caps [A].
- Connect the key counter cable [B].
- Install the stepped screw [C].



- Hold the key counter plate nuts [A] on the inside of the key counter bracket [B] and insert the key counter holder [C].
- Secure the key counter holder to the bracket ($\wedge \times 2$).

Key Counter (B452)

6. Install the key counter cover [D] ( x 2).

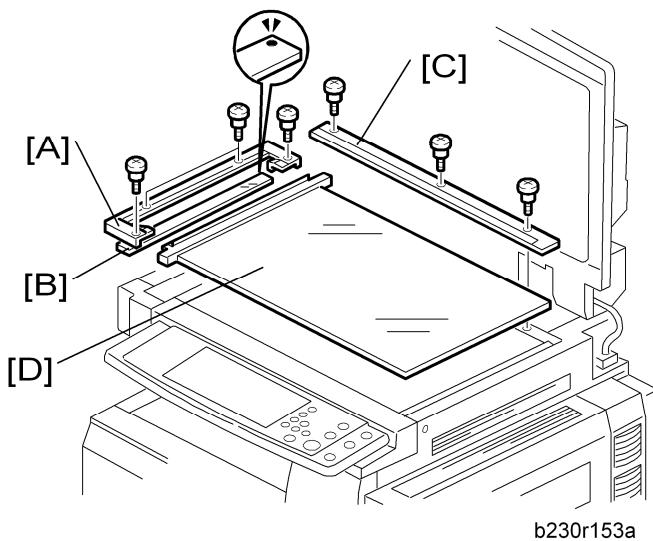


7. Connect the cable [A].
8. Hook the key counter holder assembly [B] onto the stepped screw [C].
9. Secure the key counter holder assembly with a screw [D].
10. Use the User Tools to enable the counter function for the following modes:
 - Copy mode
 - Document server mode
 - Fax mode
 - Scanner mode
 - Printer mode

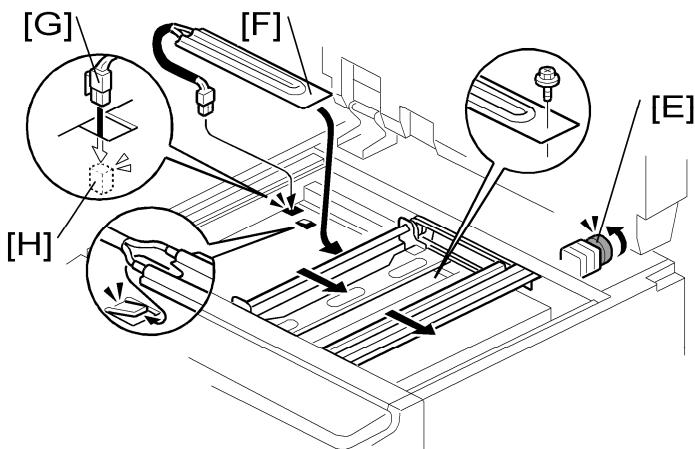
1.17 HEATERS

1.17.1 ANTI-CONDENSATION HEATER (SCANNER UNIT)

Installation Procedure



1. Rear cover (see "Rear Cover" in the "Replacement and Adjustment" section)
2. Open the ARDF or platen cover.
3. Glass cover [A] (\wedge x 4)
4. ARDF exposure glass [B]
5. Rear scale [C] (\wedge x 3)
6. Exposure glass with left scale [D]



7. Move the scanner carriage to the right side by rotating the scanner motor [E].
8. Install the heater [F] in the scanner unit (\wedge x 1, hook)
9. Put the connector [G] through the cutout.

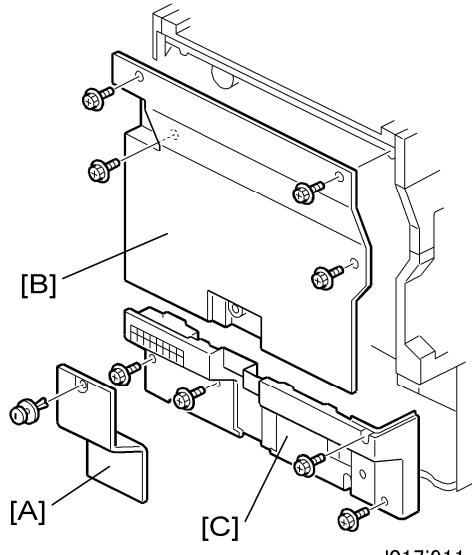
Heaters

10. Connect it to the connector [H] (blue and red cords) in the frame of the machine.
11. Reassemble the machine.

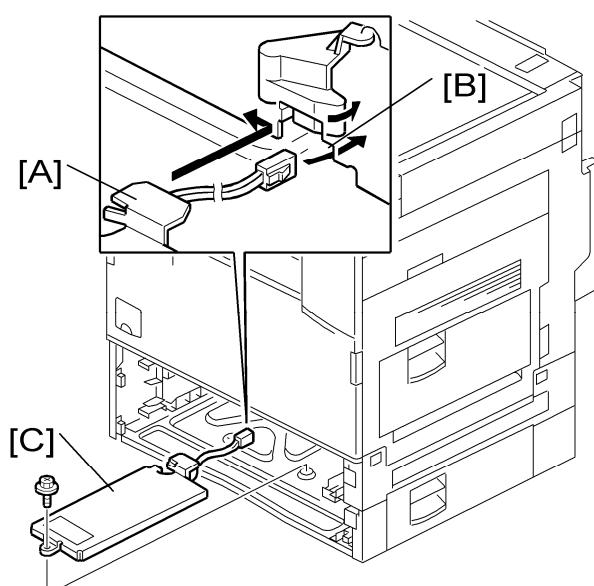
1.17.2 TRAY HEATER (COPIER)

CAUTION

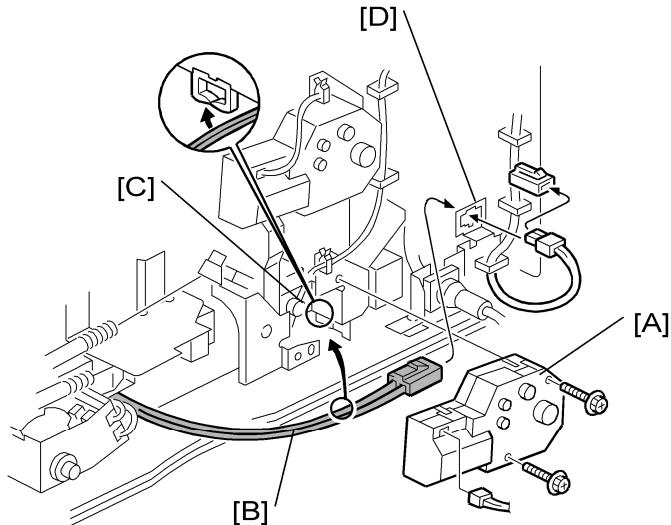
- Disconnect the copier power cord before you start this procedure.



1. Remove:
 - Connector cover [A]
 - Rear upper cover [B] (\wedge x 4)
 - Rear lower cover [C] (\wedge x 4)



2. Slide out the 1st and 2nd paper trays.
3. Pass the connector [A] through the opening [B].
4. Install the tray heater assembly [C] (\wedge x 1).



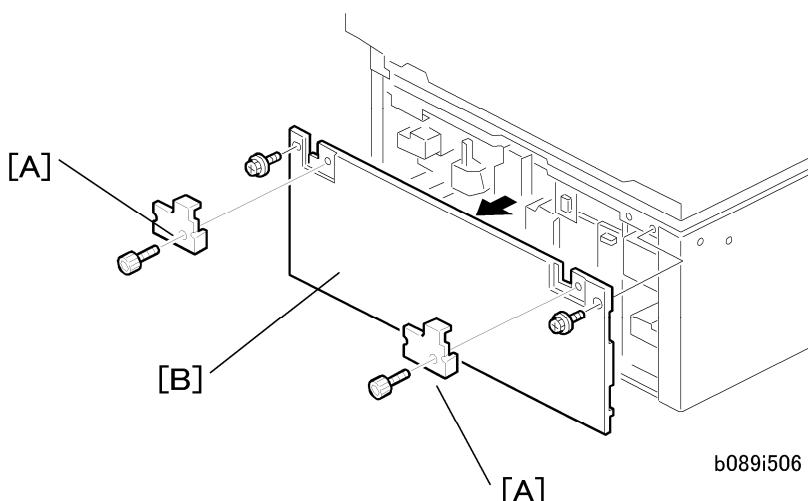
d017i551

5. Remove the 2nd paper lift motor [A] (\wedge x 2, \square x 1).
6. Route the heater cable [B] as shown.
7. Clamp the heater cable at [C] as shown.
8. Connect the heater cable to the ac cable at [D].

1.17.3 TRAY HEATER (OPTIONAL PAPER TRAY UNIT)

CAUTION

- Disconnect the copier power cord before you start this procedure.

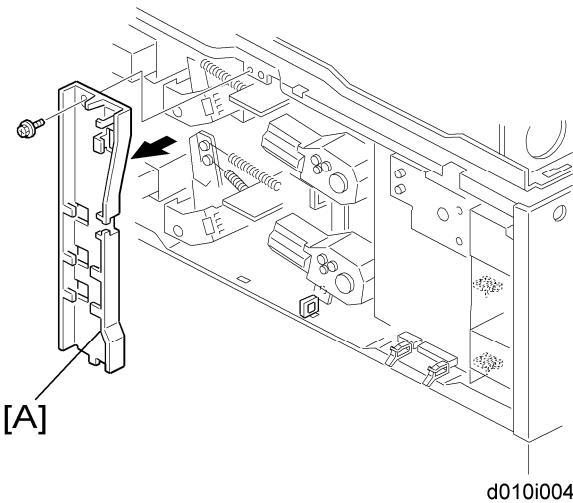


b089i506

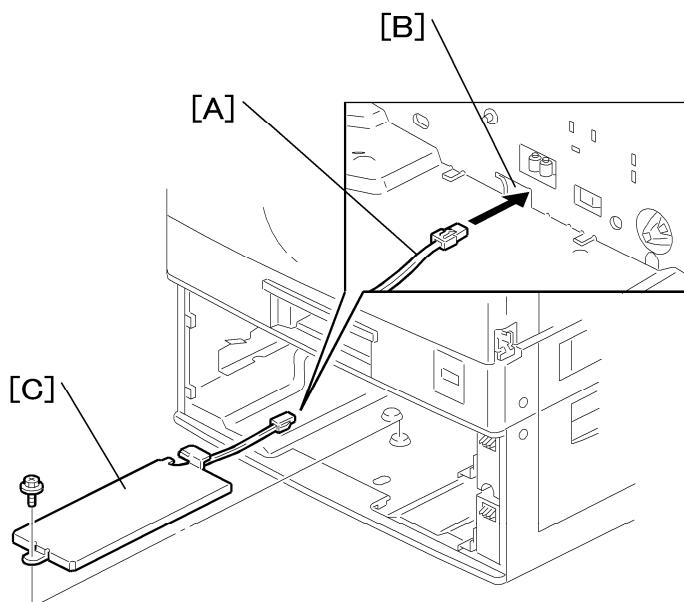
1. Remove the joint brackets [A] (\wedge x 1 each).

Heaters

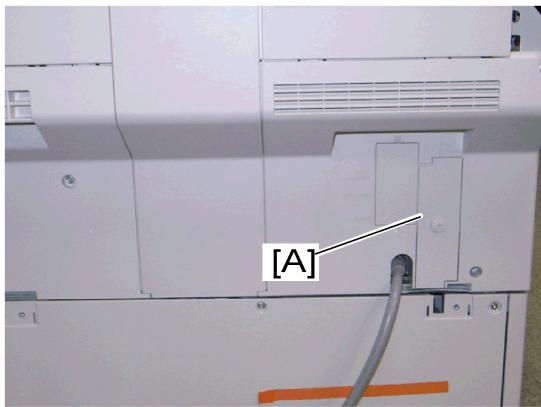
2. Remove the rear cover [B] for the optional paper tray unit (\wedge x 2).



3. Remove the cable guide [A] (\wedge x 1).

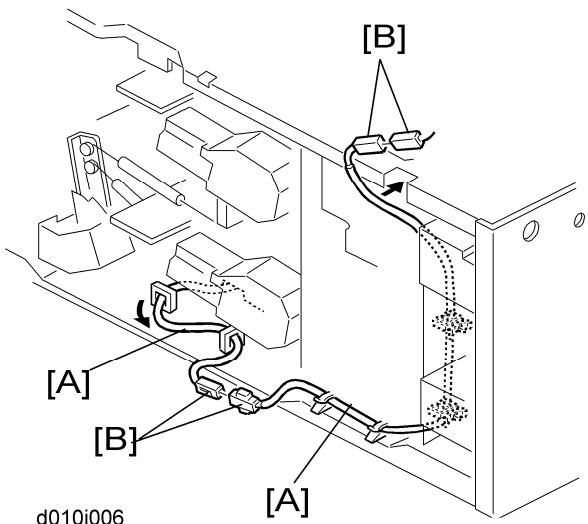


4. Slide out the two paper trays from the optional paper tray unit.
5. Pass the connector [A] through the opening [B].
6. Install the tray heater assembly [C] (\wedge x 1).



d017i005

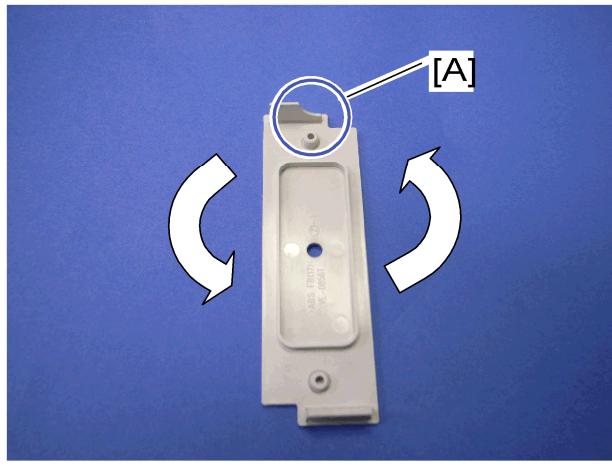
7. Remove the heater harness cover [A] (rivet screw x 1).



d010i006

8. Clamp the cables [A], as shown.
9. Join the connectors [B].
10. Reinstall the cable guide.
11. Reinstall the rear cover for the optional paper tray unit.

Heaters



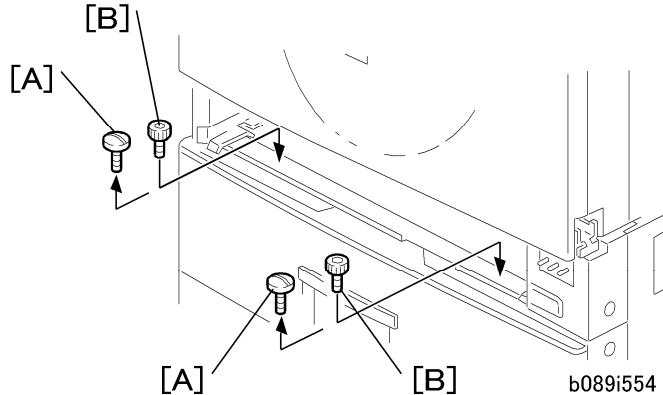
d010i310

12. Turn the heater harness cover upside down and reinstall it in the rear cover of the main machine.

★ Important

- Make sure that cutout [A] is directed downward. Otherwise, the rear cover of the main machine pinches the heater harness and breaks it.

13. Reinstall the two paper trays into the optional paper tray unit.



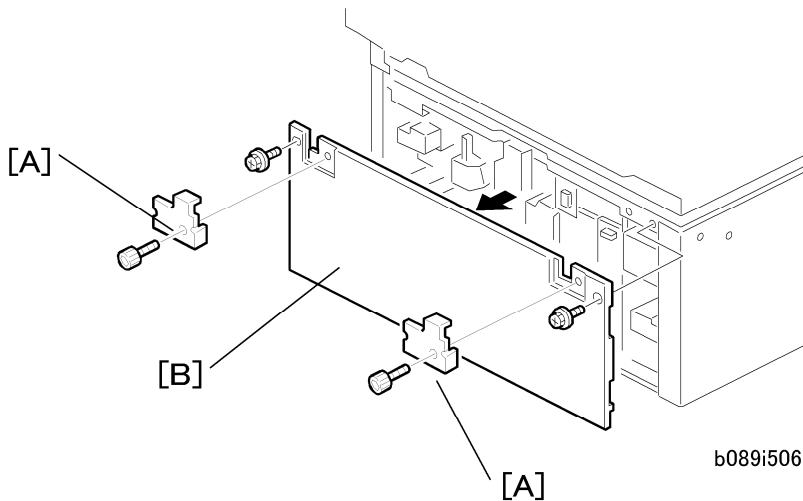
b089i554

14. Remove the 2nd paper tray of the copier.
15. Remove two screws [A] and install the screws [B] which were removed in step 11.
16. Reinstall the 2nd paper tray of the copier.

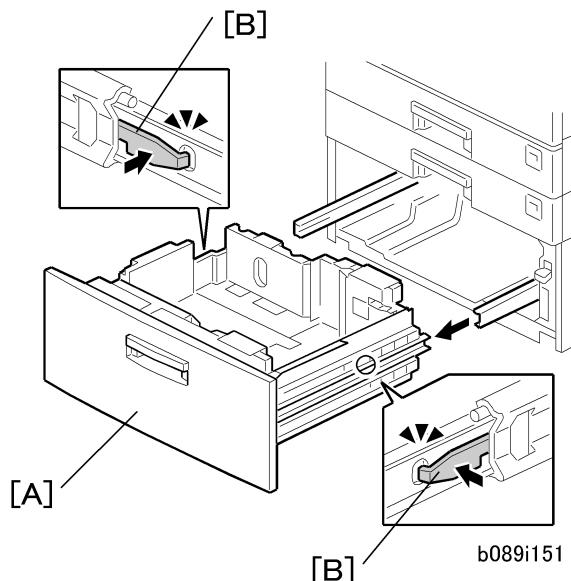
1.17.4 TRAY HEATER (OPTIONAL LCT)

CAUTION

- Disconnect the copier power cord before you start this procedure.

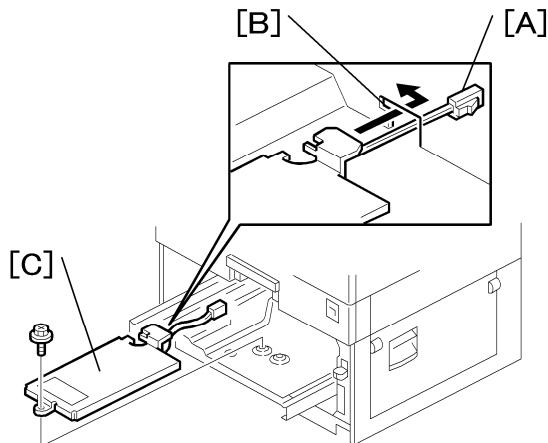


- Remove two joint brackets [A] (\wedge x 1 each).
- Remove the rear cover for the LCT [B] (\wedge x 2).



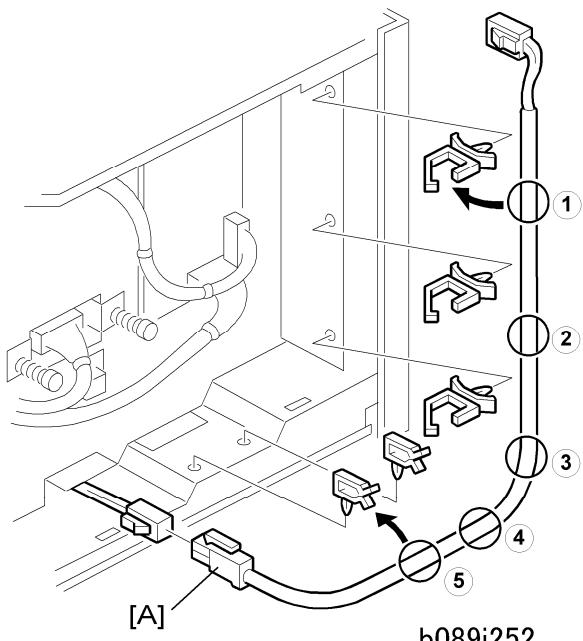
- Slide out the paper tray [A].
- Push the stopper [B] on both slide rails and remove the paper tray.

Heaters



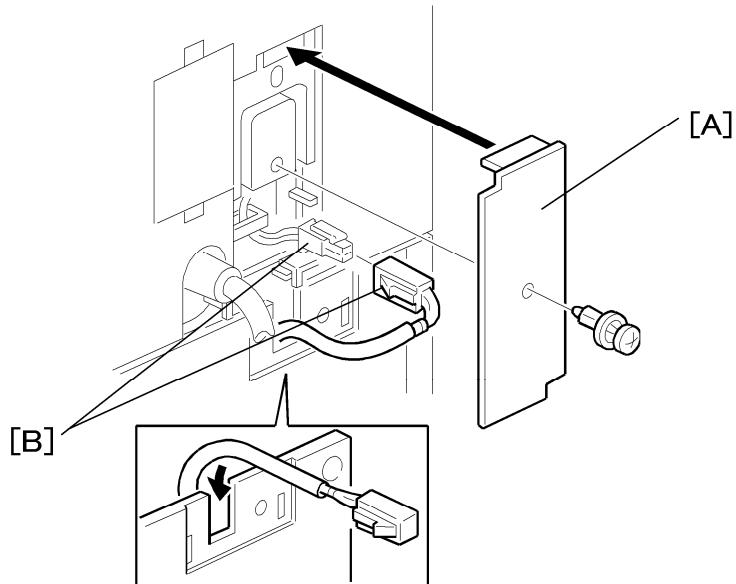
b089i507

5. Pass the connector [A] through the opening [B].
6. Install the tray heater [C] (\wedge x 1).



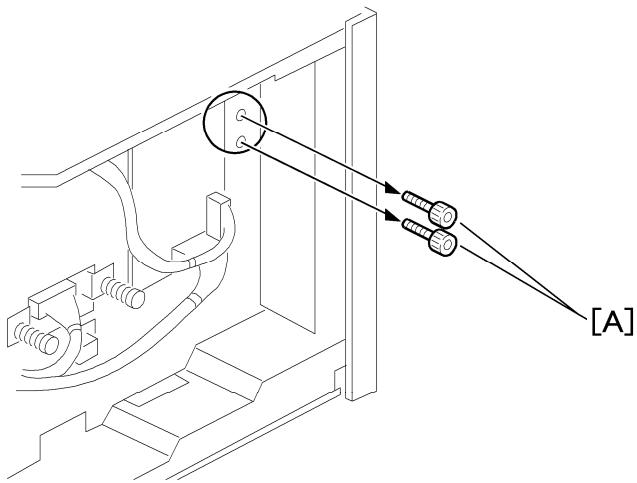
b089i252

7. Install five clamps (\wedge x5).
8. Connect the cable tray heater cable [A].



b089i253

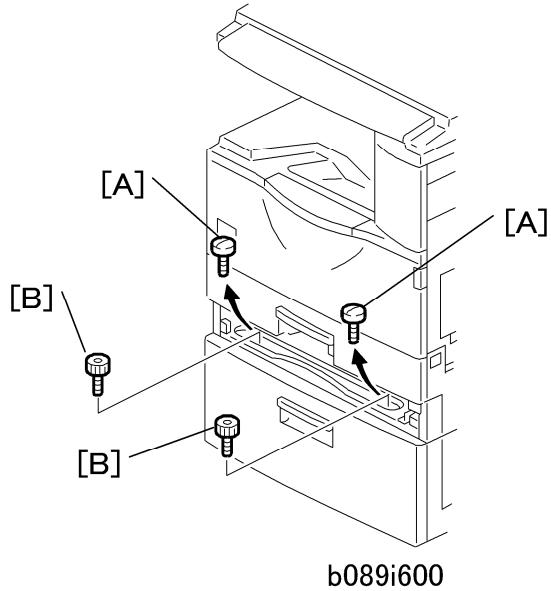
9. Route the cable and clamp it.
10. Remove the connector cover of the copier [A].
11. Join the connectors [B].
12. Reinstall the connector cover of the copier.



b089i601

13. Remove two screws [A] from the rear side of the LCT.
14. Reinstall the rear cover of the LCT.
15. Reinstall the paper tray.

Heaters



16. Remove the 2nd paper tray of the copier.
17. Remove two screws [A] and install the screws [B] which were removed in step 13.
18. Reinstall the 2nd paper tray of the copier.

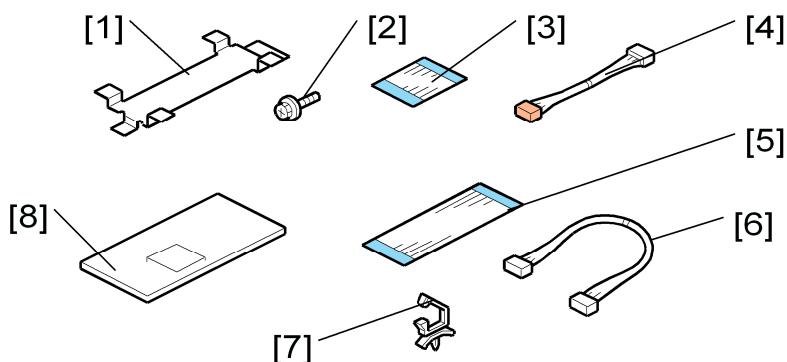
Copy Data Security Unit (B829)

1.18 COPY DATA SECURITY UNIT (B829)

1.18.1 ACCESSORIES

Check the accessories and their quantities against the following list:

| No. | Description | Quantity |
|-----|--|----------|
| 1 | Bracket (Not used for the B205 series copiers) | 1 |
| 2 | Screws | 4 |
| 3 | FFC (Short) (Not used) | 1 |
| 4 | Harness (Not used) | 1 |
| 5 | FFC (Long) | 1 |
| 6 | Connection Cable | 1 |
| 7 | Harness Clamp | 1 |
| 8 | ICIB | 1 |



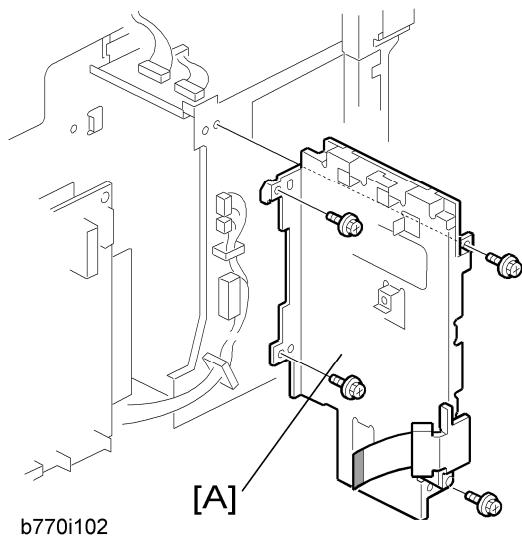
1.18.2 INSTALLATION PROCEDURE

⚠ CAUTION

- Turn off the main power switch and disconnect the copier power cord before you start this procedure.
1. Remove these parts: (see Controller Board in Replacement and Adjustment)
 - Controller board plastic cover (x1).

Copy Data Security Unit (B829)

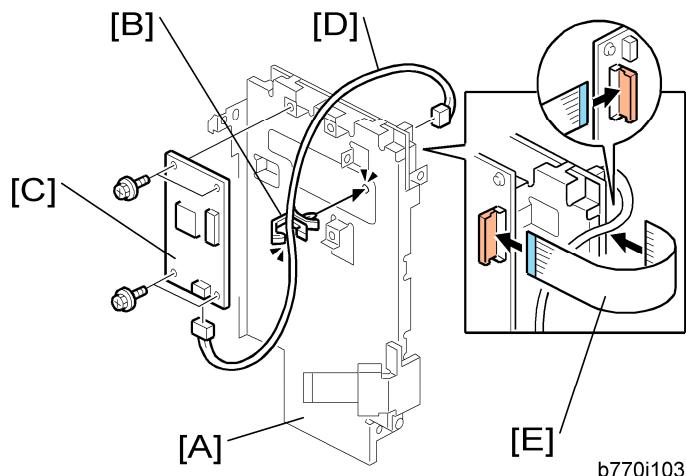
- FCU faceplate (✉ x3)
 - Controller board unit (✉ x3)
2. Remove these parts: (see section 3.10.4)
- Paper tray unit connector cover (✉ x1)
 - Disconnect the paper tray unit or LCT (if it is installed) (✉ x1)
 - Rear cover (✉ x1).
3. Pull the controller board partially out of the left slot to disconnect it from the IPU.



4. Remove the IPU [A] from the main machine.

Note

- The board for this option is installed on the back of the IPU board.



5. Attach the harness clamp [B].
6. Attach the ICIB [C] (✉ x4)

Copy Data Security Unit (B829)

7. Connect the cable [D] between the ICIB [C] and the IPU Board [A].
8. Connect the flat film connector [E] to the ICIB and IPU boards.
9. Reinstall the IPU board.
10. Turn on the machine.
11. Enable the Copy Data Security function:
 - [User Tools]> System Settings> Administrator Tools> Data Security for Copying

Hard Disk (D362, only for D017/D019)

1.19 HARD DISK (D362, ONLY FOR D017/D019)

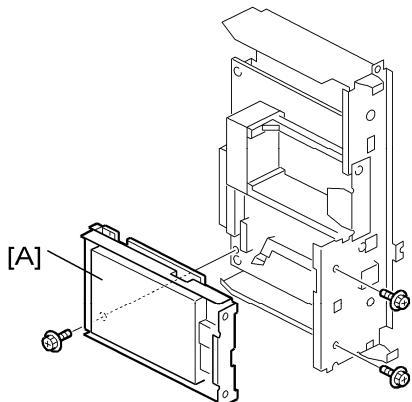
1.19.1 ACCESSORY CHECK

| No. | Description | Q'ty | For D017/D019 |
|-----|-------------------------|------|---------------|
| 1 | HDD Unit | 1 | ✓ |
| 2 | Screw | 3 | ✓ |
| 3 | Keytop: Copy | 2 | ✓ |
| 4 | Keytop: Document Server | 2 | ✓ |
| 5 | Knob Screw | 3 | --- |

✓ = Necessary, --- = Not necessary

1.19.2 INSTALLATION

1. Remove the plastic application cover (☞ x1).
2. Remove the controller board. (See 'Controller Board'.)



d017-965

3. Attach the HDD unit [A] to the controller board bracket (☞ x2, ☞x3).
4. Reinstall the controller board with the HDD.

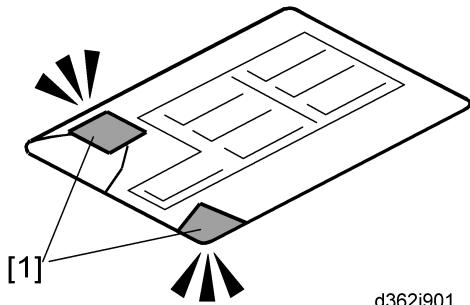
After Installing the HDD

1. Do **SP5832-001** to format the hard disk.
2. Do **SP5853-001** to copy the preset stamp data from the firmware to the hard disk.
3. Do **SP5846-040** to copy the address book to the hard disk from the controller board.
4. Do **SP5846-041** to let the user get access to the address book.
5. Turn the main power switch off/on.

1.20 HDD ENCRYPTION UNIT

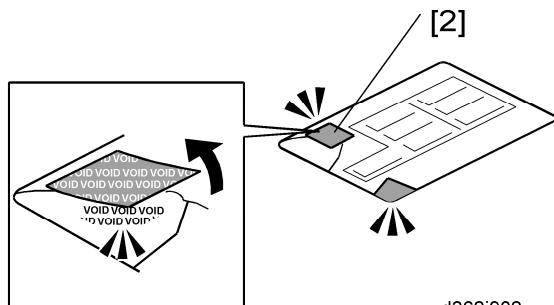
1.20.1 INSTALLATION

Seal Check and Removal



d362i901

1. Check the box seals [1] on each corner of the box.
 - Make sure that a tape is attached to each corner.
 - The surfaces of the tapes must be blank. If you see “VOID” on the tapes, do not install the components in the box.
2. If the surfaces of the tapes do not show “VOID”, remove them from the corners of the box.



d362i902

3. When you remove each seal, the “VOID” marks [2] can be seen. In this condition, they cannot be reattached to the box.

Installation Procedure

1. Make sure that the following settings are not at the factory default settings:
 - Supervisor login password
 - Administrator login name
 - Administrator login password

★ Important

 - These settings must be set up by the customer before the encryption option can be installed.

HDD Encryption Unit

2. Confirm that "Admin. Authentication" is on:

[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Admin. Authentication"> "On"

If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.

3. Confirm that "Administrator Tools" is selected and enabled:

[User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings



- "Available Settings" is not displayed until "Admin. Authentication" is switch on.

If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.

4. Remove the plastic application cover [A] (x 1).

5. Insert the SD card in SD card [B] Slot 2 (lower).



- The encryption SD card must be installed in Slot 2 (lower).

6. Turn on the main power switch.

7. Enter the SP mode.

8. Select SP5878-002 (Option Setup – Encryption Option), and then touch [Execute].

9. Turn off the main power switch.

10. Remove the SD card.

11. Attach the slot cover [A] (x 1).

12. Switch the machine on.

13. Login to User Tools as the Administrator.

14. Go to [User Tools] [System Settings] [Administration Tools] [Machine Data Encryption Settings] [Encrypt]

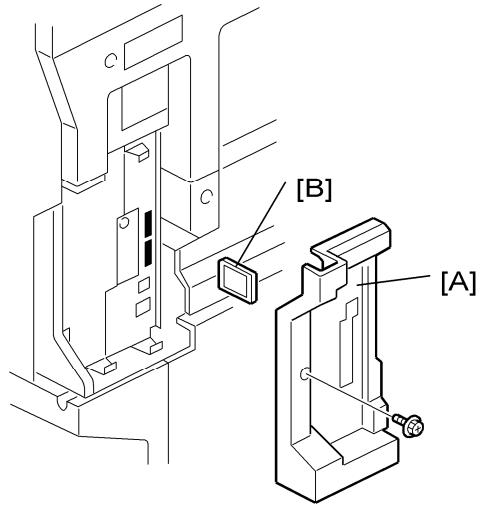
Depending on the customers needs, choose one from the following three choices: [All Data] , [File System Data Only], or [Format All Data].

15. From the window that will appear, print out the Data Encryption key by pressing the "Start" key.

16. Confirm that the Data Encryption key has been printed correctly. After confirming that the Data Encryption Key has correctly printed, press OK.

17. A new window will appear informing of the changed settings. Press EXIT to continue.

18. Reboot the machine.



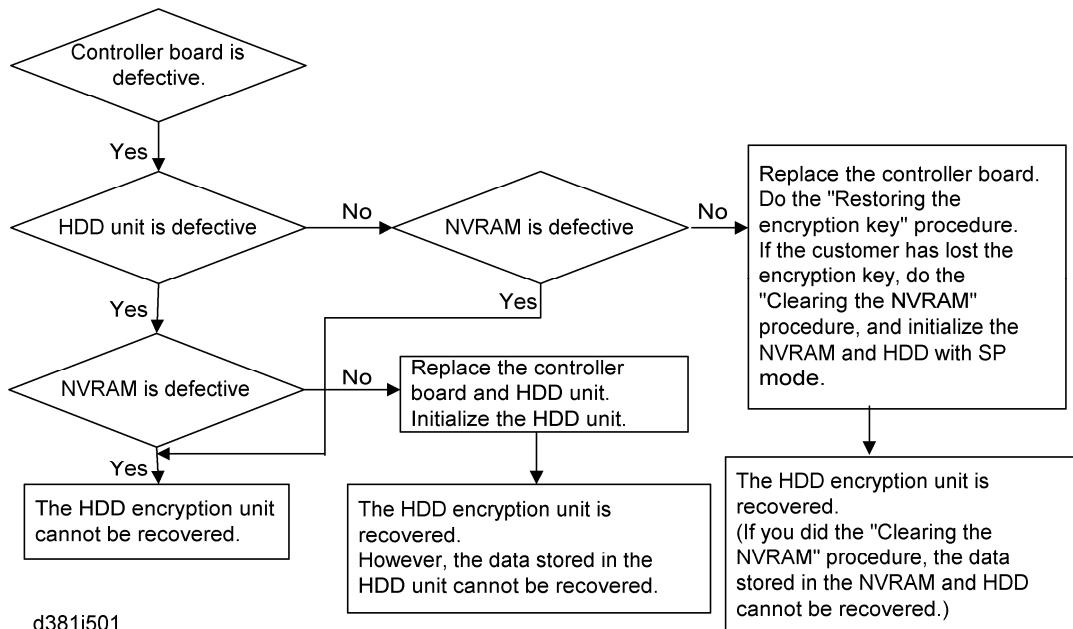
d017i502

 Note

- First reboot time may be significantly longer.

19. Store the Encryption Key Printout in a secure location.

1.20.2 RECOVERY FROM A DEVICE PROBLEM



d381i501

Restoring the encryption key

When replacing the controller board for a model in which the HDD encryption unit has been installed, updating the encryption key is required.

1. Prepare an SD card which is initialized.
2. Make the "restore_key" folder in the SD card.
3. Make an "nvramp_key.txt" file in the "restore_key" folder in the SD card.
4. Ask an administrator to input the encryption key (this has been printed out earlier by the user) into the "nvramp_key.txt" file.
5. Remove only the HDD unit ( HDD Unit).
6. Turn on the main power switch.
7. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
8. Turn off the main power switch.
9. Insert the SD card that contains the encryption key into slot 2.
10. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
11. Turn off the main power switch after the machine has returned to normal status.

HDD Encryption Unit

12. Remove the SD card from slot 2.
13. Reinstall the HDD unit.

Clearing the NVRAM

When replacing the controller board for a model in which the HDD encryption unit has been installed and a customer has lost the encryption key, clearing the NVRAM is required to recover the HDD encryption unit.

1. Prepare an SD card which is initialized.
2. Make the "restore_key" folder in the SD card.
3. Make an "nvram_key.txt" file in the "restore_key" folder in the SD card.
4. Input "nvclear" into the "nvram_key.txt" file.
5. Turn on the main power switch.
6. Confirm that the prompt on the LCD tells you to install the SD card (storing the encryption key) in the machine.
7. Turn off the main power switch.
8. Insert the SD card that contains "nvclear" into slot 2.
9. Turn on the main power switch, and the machine automatically restores the encryption key in the flash memory on the controller board.
10. Turn off the main power switch after the machine has returned to normal status.
11. Remove the SD card from slot 2.
12. Turn on the main power switch.
13. Initialize the NVRAM (SP5801-001) and HDD unit (SP5832-001) with SP mode.
14. The user must enable the HDD encryption unit with a user tool.

1.20.3 MORE ABOUT HDD ENCRYPTION UNIT (D377)

Overview

The HDD Encryption unit encodes user data and machine settings to prevent this data from being stolen if somebody steals the hard disk. To activate this unit, an administrator must enable the unit with the user mode after installation by a customer engineer. Also, if "Administrator Authentication Management" is not turned on, this function is not displayed in the menu on the LCD.

Encrypted Data

The data to be encrypted are shown below:

| |
|----------------------|
| User Data in the HDD |
|----------------------|

HDD Encryption Unit

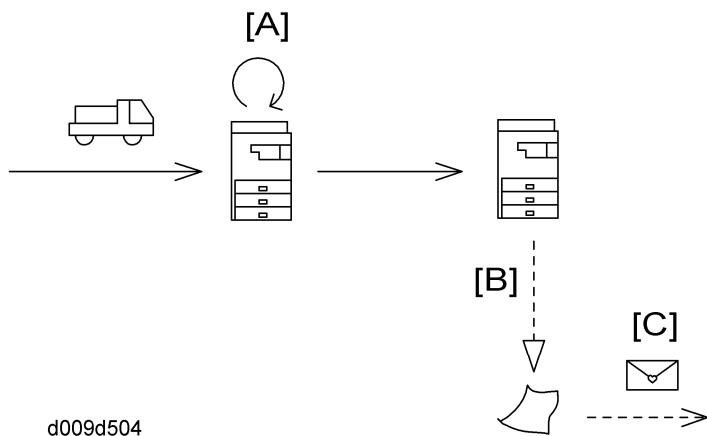
| | |
|---------------------------------------|--|
| ▪ Address book data* ² | ▪ Security log data* ² |
| ▪ User authentication data | ▪ Network I/F setting data* ¹ |
| ▪ Stored document data | ▪ User mode setting data* ² |
| ▪ Temporary data on the HDD | |
| Machine Data in the NVRAM | |
| ▪ Machine settings data* ¹ | |

Installation

At installation, an administrator can choose one of three settings to determine what happens to the data that is already in the NVRAM and HDD unit.

1. "File System Data Only" encrypts the items indicated with *1 and *2 in the table above and deletes other data.
2. "Format All Data" encrypts the item indicated with *1 in the table above and deletes other data.
3. "All Data" encrypts all data in the table above.

Procedure Flow



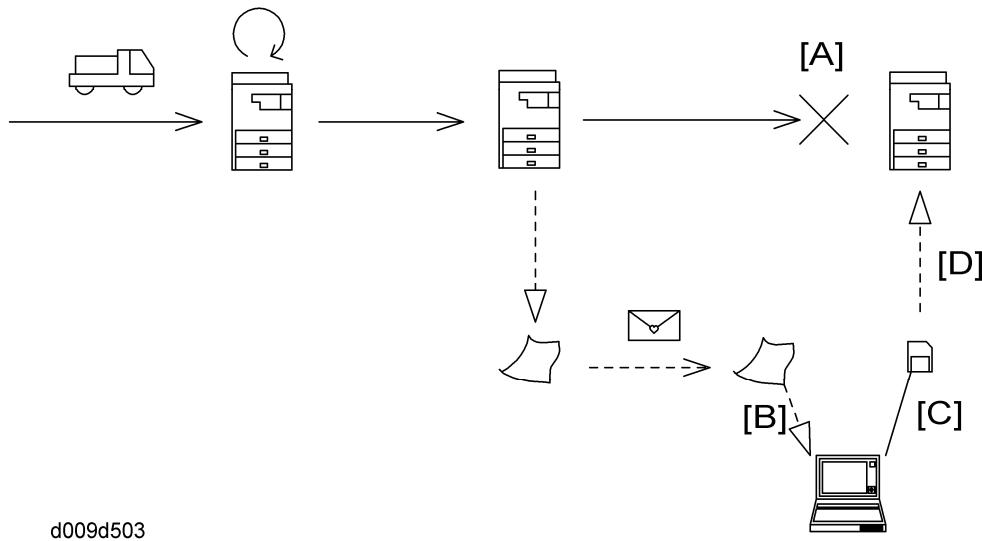
[A]: The CE (customer engineer) installs the unit [A], then an administrator uses the activating function. The administrator prints out the encryption key [B]. The administrator keeps the encryption key information [C] in a safe place.

Encryption Key

After this unit is installed and activated, an encryption key is printed out, and stored in a flash memory chip on the controller board. The encryption key is also copied to each device (NVRAM, HDD) to be encoded by this unit. The printed encryption key must be safeguarded by the administrator. The customer engineer must not see or ask for the key.

HDD Encryption Unit

Encryption Key Restoration



If the controller board becomes defective [A] and needs to be replaced, "Encryption key restoring" is required in order to use the data on the NVRAM and HDD.

- This is because this encryption function works properly only when the keys in the controller board, NVRAM and HDD match.
- SC858, 859 or 878 occurs if there is a problem with restoring or updating the encryption key. (For details of how to update the encryption key, refer to the Operating Instructions.)
- The customer engineer then asks an administrator to input the encryption key [B] into an SD card [C].
- Encryption key restoration is completed [D] after installation (by the CE) and activation by the administrator.

⇒1.21 DATA OVERWRITE SECURITY UNIT (D362-11)

1.21.1 ACCESSORY CHECK

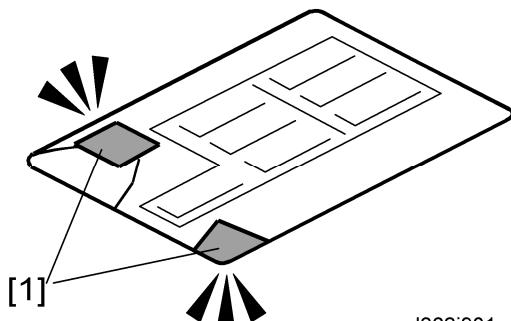
Check the accessories and their quantities against the table below.

| Description | Q'ty |
|------------------------------------|------|
| 1. Data Overwrite Security SD Card | 1 |
| 2. Operating Instructions CD-ROM | 1 |
| 3. Comments Sheet (17 languages) | 2 |

1.21.2 BEFORE YOU BEGIN

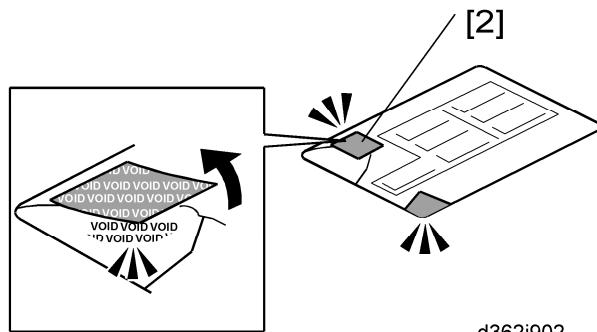
1. Confirm that the Data Overwrite Security unit SD card is the correct type for the machine. The correct type for this machine is "**Type I**".
 2. Make sure that the following features have been set up:
 - Supervisor login password
 - Administrator login name
 - Administrator login password
 3. Confirm that "Admin. Authentication" is on:
 [User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Admin. Authentication"> "On"
 If this setting is "Off" tell the customer that this setting must be "On" before you can do the installation procedure.
 4. Confirm that "Administrator Tools" is selected and enabled:
 [User Tools]> "System Settings"> "Administrator Tools"> "Administrator Authentication Management"> "Available Settings"
 If this setting is not selected tell the customer that this setting must be selected before you can do the installation procedure.
-  **Note**
- "Available Settings" is not displayed until Step 2 has been done.

⇒ 1.21.3 SEAL CHECK AND REMOVAL



d362i901

1. Check the box seals [1] on each corner of the box.
 - Make sure that a tape is attached to each corner.
 - The surfaces of the tapes must be blank. If you see "VOID" on the tapes, do not install the components in the box.
2. If the surfaces of the tapes do not show "VOID", remove them from the corners of the box.

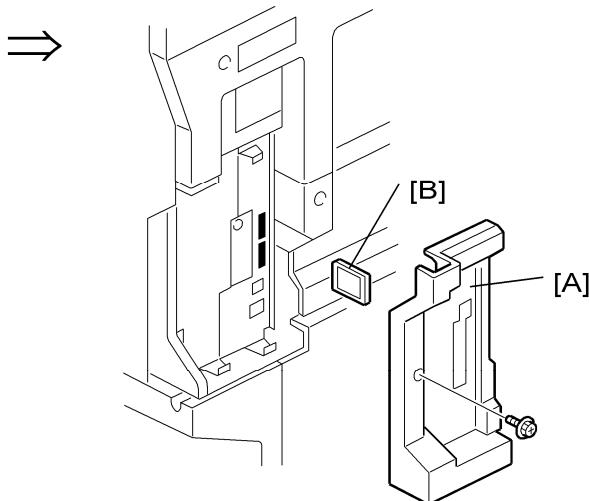


d362i902

3. When you remove each seal, the "VOID" marks [2] can be seen. In this condition, they cannot be reattached to the box.

1.21.4 DOS INSTALLATION

1. Switch OFF the machine.
2. Disconnect the network cable.
3. Turn the main power switch ON.
4. Turn the operation switch and main power switch OFF.



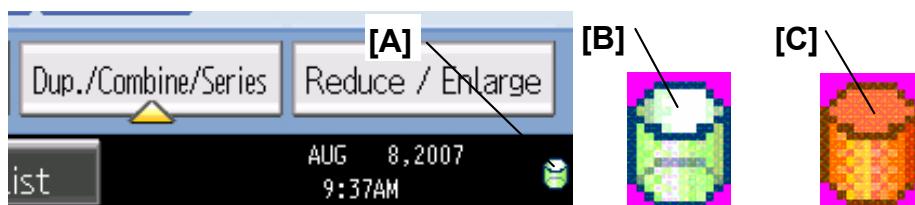
5. Remove the plastic application cover [A] (x1).
6. Insert the SD card [B] in SD Slot 1 (upper).
7. Reconnect the network cable, if the network is connected to the copier.
8. Turn the main power switch ON.
9. Do SP5878-1 (Option Setup – Data Overwrite Security) and touch [EXECUTE].
10. Go out of the SP mode, turn the operation switch off, then turn the main power switch OFF.
11. Turn the machine power ON.
12. Make sure the ROM number and firmware version in area [a] of the diagnostic report are the same as those in area [b].
 - [a]: “ROM Number/Firmware Version” – “HDD Format Option”
 - [b]: “Loading Program” - “GW5a_zoffym”

| | | |
|----------------------------|--|---|
| Diagnostic Report: | “ROM No. / Firmware Version” [a] | “Loading Program” [b] |
| DataOverwriteSecurity Unit | HDD Format Option: D3775912A / 1.01m | GW5a_zoffym: D3775912A / 1.01m |

13. Push [User Tools] and select System Settings> Administrator Tools> Auto Erase Memory Setting> On.



14. Exit from User Tools mode.



15. Check the display and make sure that the overwrite erase icon [A] is displayed.
16. Make a Sample Copy.
17. Check the overwrite erase icon.
 - The icon [B] changes to [C] when job data is stored in the hard disk.
 - The icon goes back to its usual shape [B] after this function has completed a data overwrite operation to the hard disk.
18. Do SP5990-005 (SP print mode - Diagnostic Report).
19. Exit SP mode.
20. Remove the Document Server and Scanner key-tops, and replace them with the blank key-tops that are supplied with the kit.

1.22 BROWSER UNIT TYPE D (D377)

1.22.1 ACCESSORIES

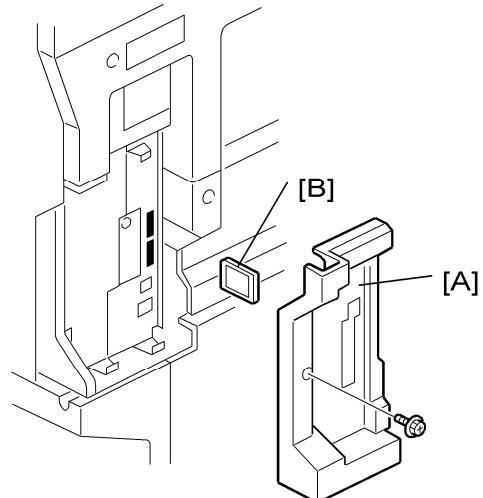
Check the accessories and their quantities against the table below.

| Description | Qt'y |
|------------------------------|------|
| 1. Browser Unit D377 SD Card | 1 |

1.22.2 INSTALLATION

This option requires a HDD unit.

1. Switch the machine off.
2. Remove the plastic application cover [A] (x1).
3. Insert the browser SD card [B] into SD card Slot 1 (upper).
4. Turn the machine on.
5. Push [User Tools]> [Login/Logout].
6. Login with the administrator user name and password.
7. Touch "Extended Feature Settings" twice.
8. Touch "SD Card" then touch the "Browser" line.
9. Under "Install to:" touch "Machine HDD"> "Next".
10. When you see "Ready to Install", check the information on the screen to confirm your previous selection.
11. Touch "OK". You will see "Installing..." then "Completed".
12. Touch "Exit" twice to return to the copy screen.
13. Remove the SD card from the SD card slot.



d017i502

File Format Converter Type E (D377)

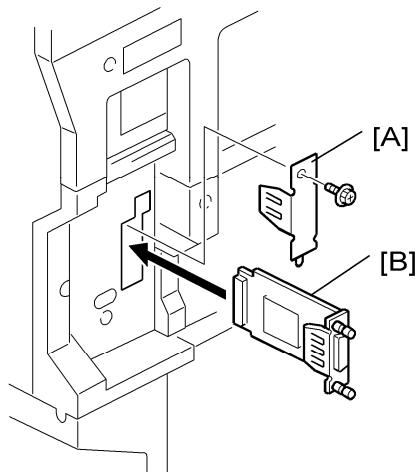
1.23 FILE FORMAT CONVERTER TYPE E (D377)

1.23.1 ACCESSORY CHECK

Check the accessories and their quantities against this list:

| | Description | Q'ty |
|----|---|------|
| 1. | File Format Converter (MLB: Media Link Board) | 1 |

1.23.2 INSTALLATION



d017i503

1. Switch the machine off.
2. Remove the plastic application cover (扳手 x1).
3. Remove the board slot cover [A] (扳手 x2).
4. Touch a metal surface to discharge any static electricity from your hands.
5. Set the interface board [B] in the open slot.
6. Confirm that the board is inserted completely, then fasten it (扳手 x 2).
7. Turn the machine power on.
8. Enter the SP mode and do SP5990 to print an SMC Report.
9. Read the report and confirm that the interface board is installed correctly.

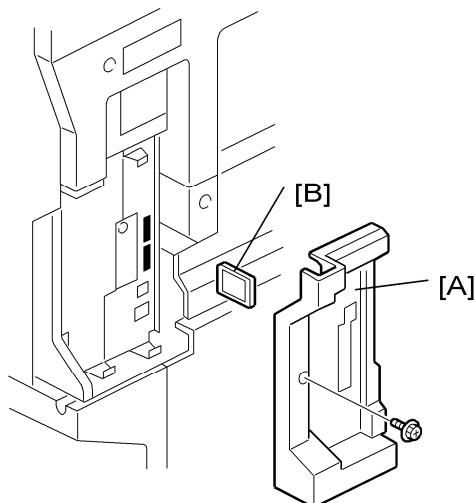
1.24 VM CARD TYPE E (D377)

1.24.1 ACCESSORIES

Check the accessories and their quantities against the table below.

| Description | Q'ty |
|---------------|------|
| 1. VM SD Card | 1 |
| 2. Decal | 1 |

1.24.2 INSTALLATION



d017i502

1. Switch the machine off.
2. Remove the plastic application cover (撬 x1).
3. Remove the SD card slot cover [A] (撬 x1).
4. Insert the SD card [B] into SD Slot 2 (lower).
 - This SD card must be inserted into Slot 2, the lower slot.

Important

- This SD card must be inserted into Slot 2, the lower slot.

PREVENTIVE MAINTENANCE

2. PREVENTIVE MAINTENANCE

2.1 PM TABLE

 Note

- The amounts mentioned as the PM interval indicate the number of prints.
- After carrying out PM, clear the maintenance counter (SP7-804).

Symbol key: C: Clean, R: Replace, L: Lubricate, I: Inspect

| | EM | 120K | 240K | 360K | NOTE |
|-----------------------------|----|------|------|------|---|
| SCANNER/LASER OPTICS | | | | | |
| Reflector | | C | C | C | Optics cloth |
| 1st Mirror | C | C | C | C | Optics cloth |
| 2nd Mirror | C | C | C | C | Optics cloth |
| 3rd Mirror | C | C | C | C | Optics cloth |
| Scanner Guide Rails | | C | C | C | Do not use alcohol. |
| Platen Sheet Cover | C | I | I | I | Replace the platen sheet, if necessary. Dry cloth or alcohol |
| Exposure Glass | | C | C | C | Dry cloth or alcohol |
| Toner Shield Glass | | C | C | C | Optics cloth |
| APS Sensor | | C | C | C | Dry cloth or blower brush |
| | | | | | |

| | EM | 120K | 240K | 360K | NOTE |
|------------------------|----|------|------|------|------|
| AROUND THE DRUM | | | | | |
| Transfer/Separation | | R | R | R | |

PM Table

| | EM | 120K | 240K | 360K | NOTE |
|-----------|----|------|------|------|---|
| Unit | | | | | |
| ID Sensor | | C | C | C | Perform the ID sensor initial setting (SP2-935) after cleaning (blower brush) |

| | EM | 60K | 120K | 180K | NOTE |
|-----------------|----|-----|------|------|--|
| PCU | | | | | |
| Drum | | R | R | R | Do SP2801. This initializes the developer and resets the TD and ID sensor outputs to their defaults. It also resets the PCU counter. |
| Charge Roller | | R | R | R | |
| Cleaning Roller | | R | R | R | |
| Cleaning Blade | | R | R | R | |
| Pick-off Pawls | | R | R | R | |
| Developer | | R | R | R | |

| | EM | 120K | 240K | 360K | NOTE |
|---------------------------|----|------|------|------|---------------------|
| PAPER FEED | | | | | |
| Registration Rollers | C | C | C | C | Clean with water |
| Paper Feed Roller | C | R | R | R | Clean with water |
| Friction Pad | C | R | R | R | Dry cloth |
| Paper Feed Guides | C | C | C | C | Clean with alcohol. |
| Relay Rollers | C | C | C | C | Clean with water. |
| Bottom Plate Pad | C | C | C | C | Clean with water. |
| Registration Roller Mylar | C | C | C | C | Clean with water. |

PM Table

| | EM | 120K | 240K | 360K | NOTE | |
|---------------------|----|------|------|------|----------------------|--|
| Dust collection box | C | C | C | C | Remove, empty, clean | |

| | EM | 120K | 240K | 360K | NOTE |
|---|----|------|------|------|--|
| FUSING UNIT AND PAPER EXIT | | | | | |
| Fusing Entrance and Exit Guide Plates | | C | C | C | Clean with water or alcohol. |
| Hot Roller | | R | R | R | Clean with water or alcohol. |
| Pressure Roller | | R | R | R | |
| Fusing Thermistors | | R | R | R | |
| Cleaning Roller | | C | C | C | |
| Cleaning Roller Bushings | | C | C | C | |
| Hot Roller Strippers | | R | R | R | |
| Hot Roller and Pressure Roller Bushings | L | L | L | L | Grease Barrierta JFE5 5/2 (A0289300) |
| Paper Exit Guide Ribs | | C | C | C | Clean with water or alcohol. |
| OTHERS | | | | | |
| Main Motor Drive Gear | L | I | I | I | Silicone Grease G501 (see 'Main Motor Drive Gear') |

| | EM | 120K | 240K | 360K | NOTE |
|---|----|------|------|------|------|
| ADF (PM interval is measured in originals) | | | | | |

PM Table

| | EM | 120K | 240K | 360K | NOTE |
|--------------------|-----------|-------------|-------------|-------------|----------------------|
| Pick-up Roller | C | R | R | R | Clean with water |
| Feed Belt | C | R | R | R | Clean with water |
| Separation Roller | C | R | R | R | Clean with water |
| Stamp | | I | I | I | Replace if necessary |
| ADF Exposure Glass | C | C | C | C | Clean with alcohol |
| White Plate | C | C | C | C | Clean with alcohol |
| Platen Sheet | C | C | C | C | Clean with alcohol |

| | EM | 120K | 240K | 360K | NOTE |
|------------------------|-----------|-------------|-------------|-------------|----------------------|
| PAPER TRAY UNIT | | | | | |
| Paper Feed Roller | C | R | R | R | Clean with water |
| Friction Pad | C | R | R | R | Dry cloth |
| Paper Feed Guides | C | C | C | C | Clean with alcohol. |
| Relay Rollers | C | C | C | C | Clean with water. |
| Bottom Plate Pad | C | C | C | C | Clean with water. |
| Relay Clutch | | I | I | I | Replace if necessary |
| Paper Feed Clutch | | I | I | I | Replace if necessary |

| | EM | 120K | 240K | 360K | NOTE |
|-------------------|-----------|-------------|-------------|-------------|-------------|
| LCT | | | | | |
| Paper Feed Roller | | R | R | R | |
| Pick-up Roller | | R | R | R | |
| Separation Roller | | R | R | R | |

PM Table

| | EM | 120K | 240K | 360K | NOTE |
|-------------------|----|------|------|------|----------------------|
| Transport Rollers | | C | C | C | Clean with water |
| Bottom Plate Pad | | C | C | C | Clean with water |
| Relay Clutch | | I | I | I | Replace if necessary |
| Paper Feed Clutch | | I | I | I | Replace if necessary |

| | EM | 120K | 240K | 360K | NOTE |
|-----------------------------|----|------|------|------|------------------------------|
| 1,000-sheet Finisher | | | | | |
| Rollers | C | | | | Clean with water or alcohol. |
| Brush Roller | I | I | I | I | Replace if necessary. |
| Discharge Brush | C | C | C | C | Clean with a dry cloth |
| Sensors | C | | | | Blower brush |
| Jogger Fences | I | I | I | I | Replace if necessary. |

| | EM | 120K | 240K | 360K | NOTE |
|-------------------------------------|----|------|------|------|----------------|
| 1,000-sheet Booklet Finisher | | | | | |
| Rollers | C | | | | Damp cloth |
| Discharge Brush | C | | | | Dry cloth |
| Sensors | C | | | | Blower brush |
| Punch Kit | | | | | |
| Punch Chads | C | | | | Discard chads. |

| | EM | 120K | 240K | 360K | NOTE |
|---------------------------|----|------|------|------|------|
| 500-sheet Finisher | | | | | |

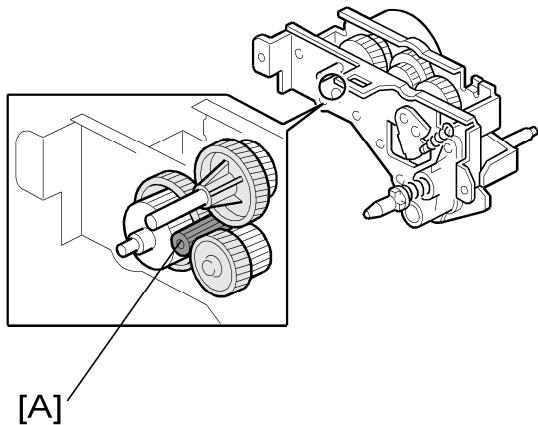
PM Table

| | EM | 120K | 240K | 360K | NOTE |
|-----------------|----|------|------|------|--------------|
| Rollers | C | | | | Damp cloth |
| Discharge Brush | C | | | | Dry cloth |
| Sensors | C | | | | Blower brush |

| | EM | 150K | 300K | 450K | NOTE |
|------------------------|----|------|------|------|-------------------|
| 1-bin tray unit | | | | | |
| Rollers | C | | | | Dry or damp cloth |
| Copy Tray | C | | | | Dry or damp cloth |
| Sensors | C | | | | Blower brush |

Main Motor Drive Gear

2.2 MAIN MOTOR DRIVE GEAR



Preventive
Maintenance

At every EM lubricate the main motor drive gear [A] with silicone grease G501.

REPLACEMENT AND ADJUSTMENT

3. REPLACEMENT AND ADJUSTMENT

3.1 SPECIAL TOOLS AND LUBRICANTS

3.1.1 SPECIAL TOOLS

| No. | Part No. | Description | Q'ty | Availability |
|-----|----------|---------------------------------------|------|------------------|
| 1 | A0069104 | Scanner Positioning Pins (4 pins/set) | 1 | Common – R-C3 |
| 2 | A2929500 | Test Chart S5S (10 pcs/set) | 1 | Common - General |
| 3 | VSSM9000 | Digital Multimeter FLUKE 87 | 1 | Common - General |
| 4 | A2309003 | Adjustment Cam – Laser Unit | 1 | Common – R-C3 |
| 5 | A2679002 | Positioning Pin – Laser Unit | 1 | Common – R-C3 |
| 6 | B6455010 | SD-Card | 1 | Common - General |
| 7 | B6456800 | USB Reader/Writer | 1 | Common - General |
| 8 | G0219350 | Loop-back Connector | 1 | Common - General |

3.1.2 LUBRICANTS

| No. | Part No. | Description | Q'ty | Availability |
|-----|----------|------------------------|------|------------------|
| 1 | A2579300 | Grease Barrierta S552R | 1 | Common - General |
| 2 | 52039502 | Silicone Grease G-501 | 1 | Common - General |

General Cautions

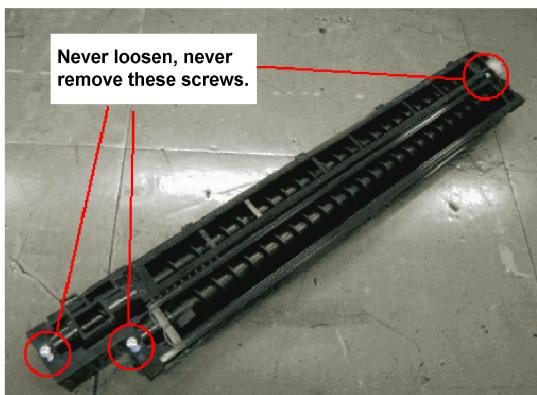
3.2 GENERAL CAUTIONS

3.2.1 PCU (PHOTOCOCONDUCTOR UNIT)

The PCU consists of the OPC drum, development unit, charge roller, and cleaning unit.

Follow the cautions below when handling a PCU.

- Never touch the drum surface with bare hands. When the drum surface is touched or becomes dirty, wipe it with a dry cloth or clean it with wet cotton. Wipe with a dry cloth after cleaning with the cotton.
- Never used alcohol to clean the drum; alcohol dissolves the drum surface.
- Store the PCU in a cool, dry place away from heat.
- Never expose the drum to corrosive gases such as ammonia gas.
- Never shake the used PCU. Doing so may cause toner and/or developer to spill out.
- Dispose of used PCUs in accordance with local regulations.
- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration below.



d017r901

3.2.2 TRANSFER ROLLER UNIT

- Never touch the transfer roller surface with bare hands.
- Take care not to scratch the transfer roller as the surface is easily damaged.

3.2.3 SCANNER UNIT

- Clean the exposure glass with alcohol or with glass cleaner to reduce the amount of static electricity on the surface of the glass.
- Use a blower brush or a cotton pad with water to clean the mirrors and lens.
- Do not bend or crease the exposure lamp flat cable.

General Cautions

- Do not disassemble the lens unit. Doing so will throw the lens and the copy image out of focus.
- Do not turn any of the CCD positioning screws. Doing so will throw the CCD out of position.

3.2.4 LASER UNIT

- Do not loosen the screws that secure the LD drive board to the laser diode casing. Doing so will throw the LD unit out of adjustment.
- Do not adjust the variable resistors on the LD unit, as they are adjusted in the factory.
- The polygon mirror and F-theta mirror are very sensitive to dust.
- Do not touch the glass surface of the polygon mirror motor unit with bare hands.

Replacement
and
Adjustment

3.2.5 FUSING UNIT

- After installing the fusing thermistor, make sure that it is in contact with the hot roller and that the hot roller can rotate freely.
- Be careful not to damage the edges of the hot roller strippers or their tension springs.
- Do not touch the fusing lamp and rollers with bare hands.
- Make sure that the fusing lamp is positioned correctly and that it does not touch the inner surface of the hot roller.

3.2.6 PAPER FEED

- Do not touch the surface of the paper feed roller.
- To avoid paper misfeeds, the side fences and end fences of the paper tray must be positioned correctly to align with the actual paper size.

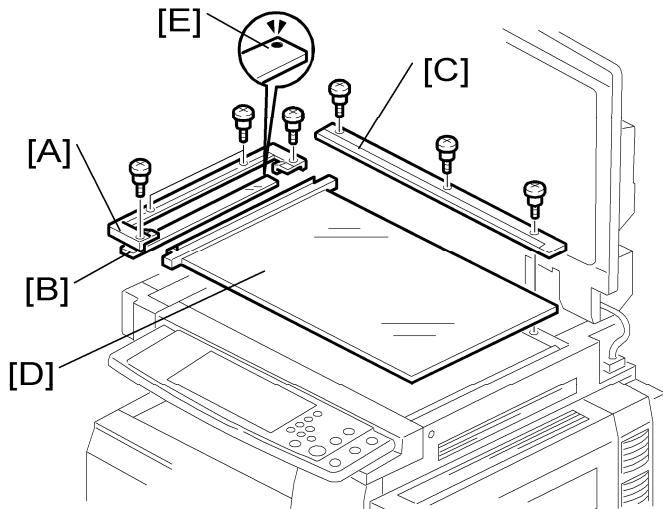
3.2.7 OTHERS

- The toner bottle should be replaced while the main switch is on.
- If the optional tray, drum, and optics anti-condensation heaters have been installed, keep the copier power cord plugged in, even when the copier main switch is turned off. This keeps the heaters energized.

Scanner Unit

3.3 SCANNER UNIT

3.3.1 EXPOSURE GLASS

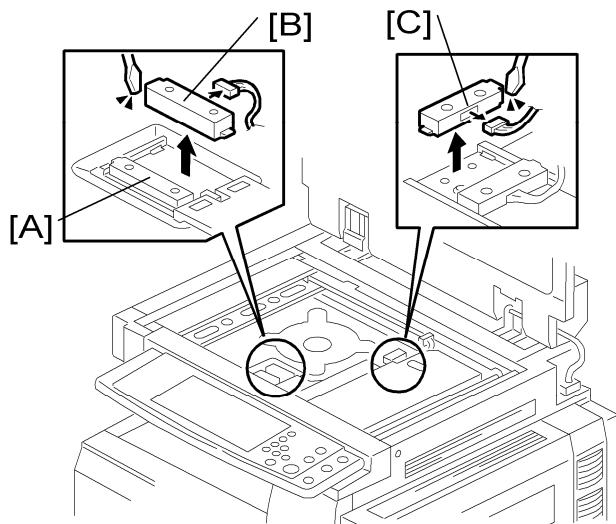


1. Glass cover [A] ($\frac{7}{8} \times 4$)
2. ARDF exposure glass [B]
3. Rear scale [C] ($\frac{7}{8} \times 3$)
4. Exposure glass with left scale [D]

↓ Note

- Position the white marker [E] at the rear-left corner and the blue marker at the front-left corner when you reattach the ARDF exposure glass.

3.3.2 ORIGINAL LENGTH/WIDTH SENSORS

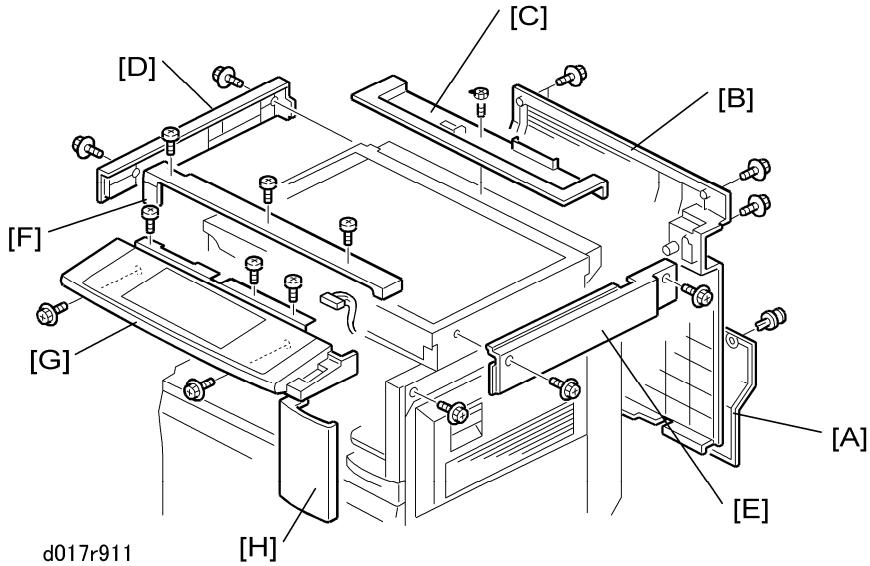


Scanner Unit

1. Exposure glass with left scale (► Scanner Unit)
2. Original length sensor bracket [A] (☞ x 1, ↗ x1)
3. Original length sensors [B] (snap, ↗ x 1 each)
4. The number of the original length sensors depends on the model; 3 for EU, 2 for others.
5. Original width sensors [C] (snap, ↗ x 1, ↗ x1 each)

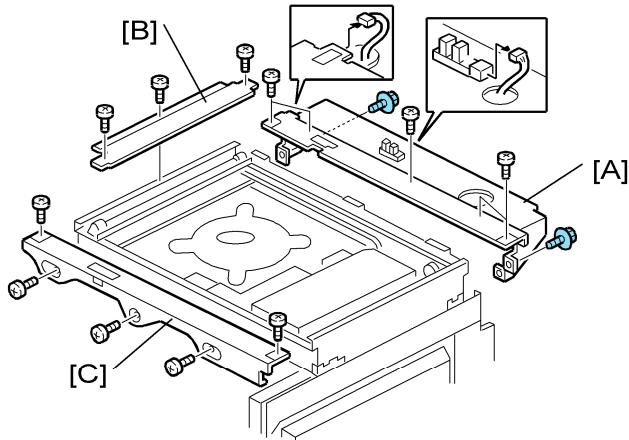
3.3.3 EXPOSURE LAMP

Replacement
and
Adjustment



1. Remove:
 - [A] Harness cover (☞ x1)
 - [B] Rear cover (☞ x4)
 - [C] Scanner rear cover (☞ x1)
 - [D] Scanner left cover (☞ x2)
 - [E] Scanner right cover (☞ x2)
 - [F] Scanner front cover (☞ x3)
 - [G] Operation panel (☞ x5, ↗ x1)
 - [H] Support cover (Tab x1)

Scanner Unit



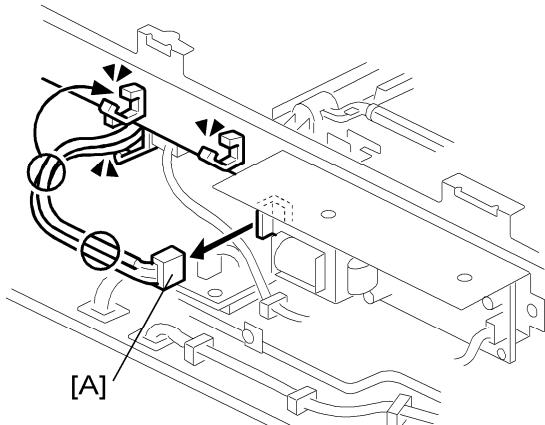
d017r915

2. Remove:

[A] Rear stay (\wedge x7, \square x2)

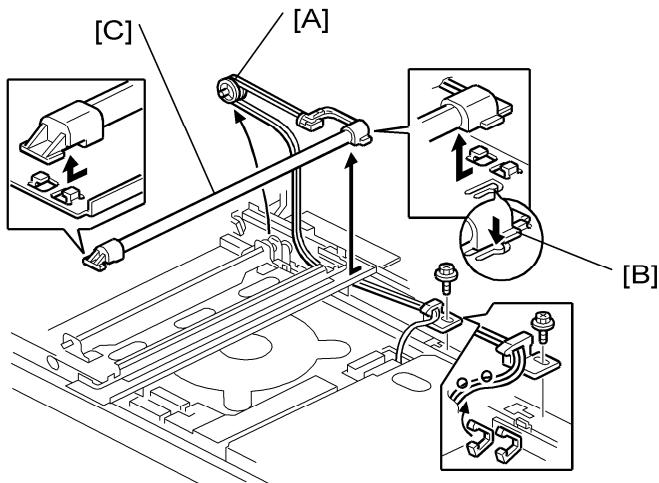
[B] Left stay (\wedge x3)

[C] Front stay (\wedge x5)



b230r161

3. Disconnect the connector [A] (\wedge x2, \square 1).

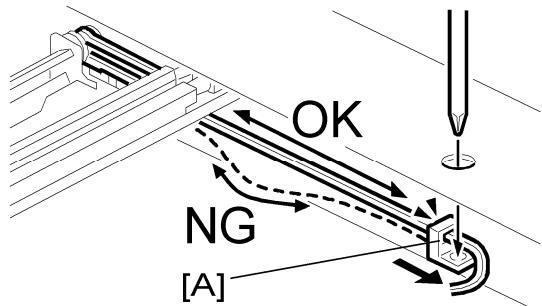


b230r162

4. Remove the pulley [A].
5. Hold down the snap [B]
6. Remove the exposure lamp [C] (x2, x1, x1)

Replacement
and
Adjustment

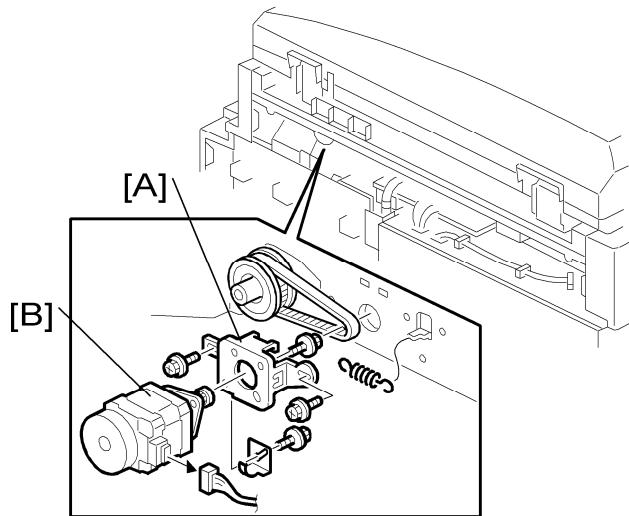
Reassembling



1. Run the cable so that there is no slack.
2. Slide clamp [A] to adjust the cable slack.

Scanner Unit

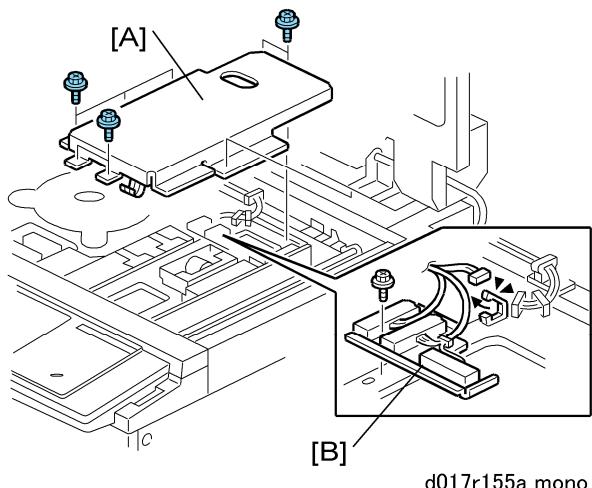
3.3.4 SCANNER MOTOR



1. Rear cover (➡ Rear Cover)
2. Scanner motor assembly [A] (⚡ x 2, ⚡ x 1, spring x 1)
3. Scanner motor [B] (⚡ x 2)

3.3.5 SENSOR BOARD UNIT (SBU)

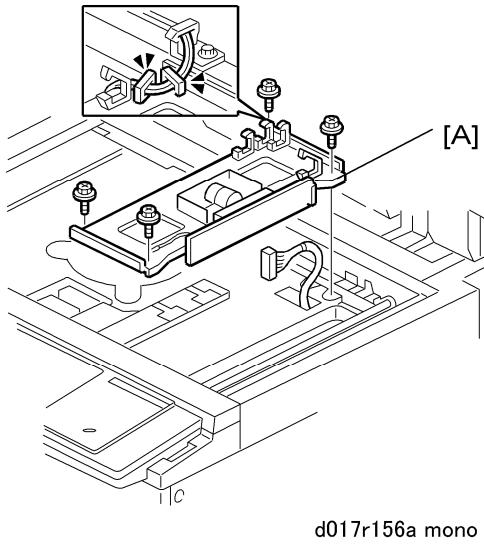
Monochrome Scanner Unit



d017r155a mono

1. Remove:
 - Exposure glass (➡ Exposure glass)
 - [A] SBU cover (⚡ x3)
 - [B] Original length sensor bracket (⚡ x1, ⚡ x1)

Scanner Unit

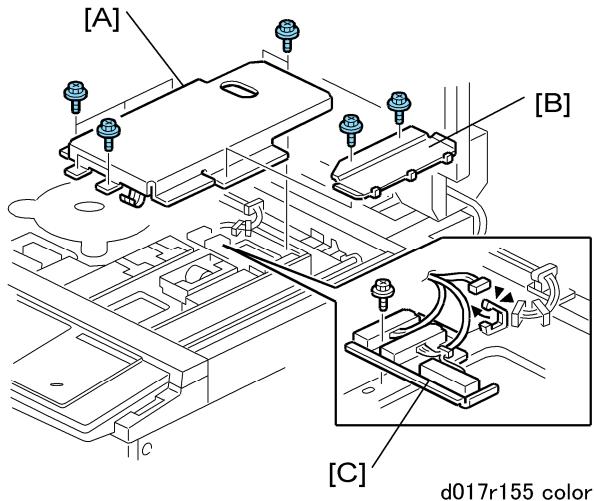


Replacement
and
Adjustment

1. Remove:

[A] Sensor board unit (x3, x3, x1)

Color Scanner Unit



1. Remove:

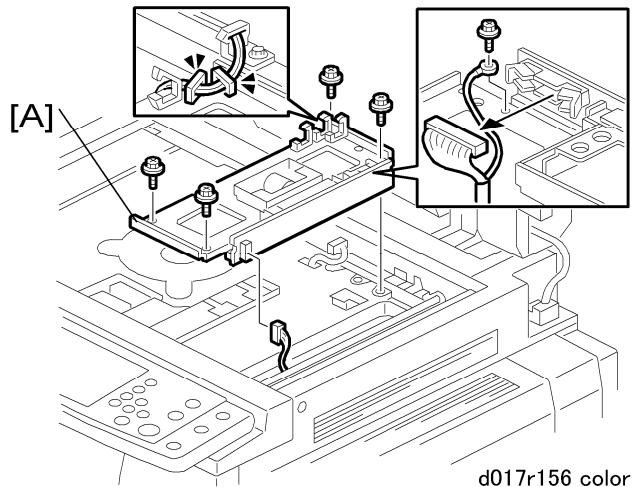
- Exposure glass (

[A] SBU cover (x3)

[B] Cover (x2)

[C] Original length sensor bracket (x1, x1)

Scanner Unit



1. Remove:

[A] Sensor board unit (x 4, x 1, x 2)

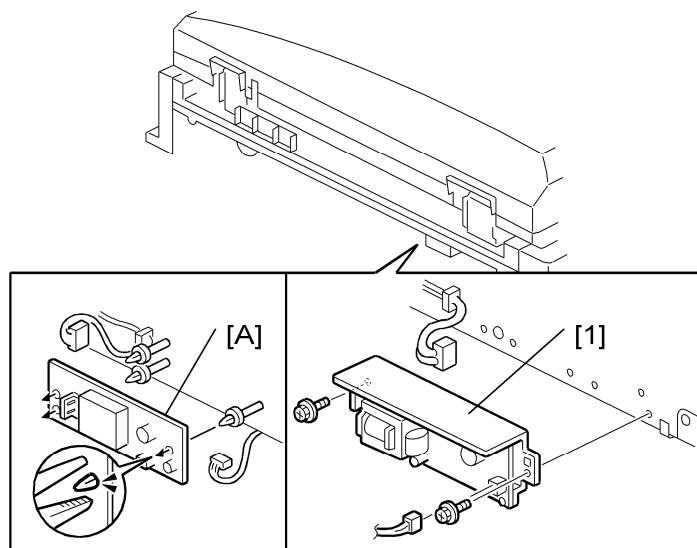
When reassembling

Adjust the following SP modes after you replace the sensor board unit:

- SP4-008 (Sub Scan Mag)
- SP4-010 (Sub Mag Reg.)
- SP4-011 (Main Scan Reg)
- SP4-688 (DF: Density Adjustment). This SP code adjusts the density level if the ID of outputs made in the DF and Platen mode is different.

For more details, see Image Adjustment: Scanning.

3.3.6 EXPOSURE LAMP STABILIZER



Scanner Unit

1. Remove:

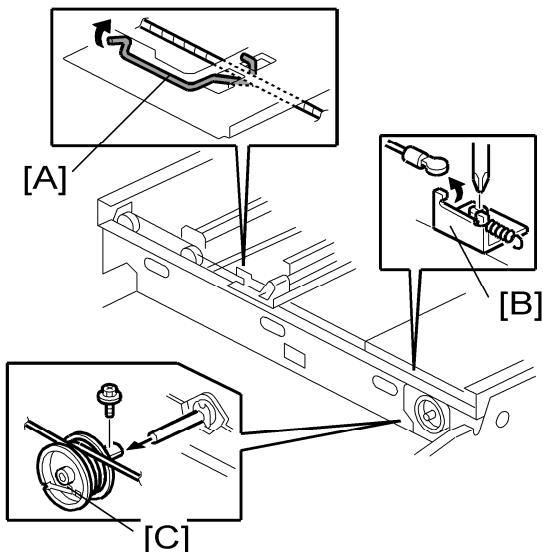
- Rear cover (☞Rear Cover)

Exposure lamp stabilizer [A] (Standoff x1, ☞x 2) (Monochrome Scanner Unit)

-or-

Exposure lamp stabilizer [1] (☞x 2, ☞x 2) (Color Scanner Unit)

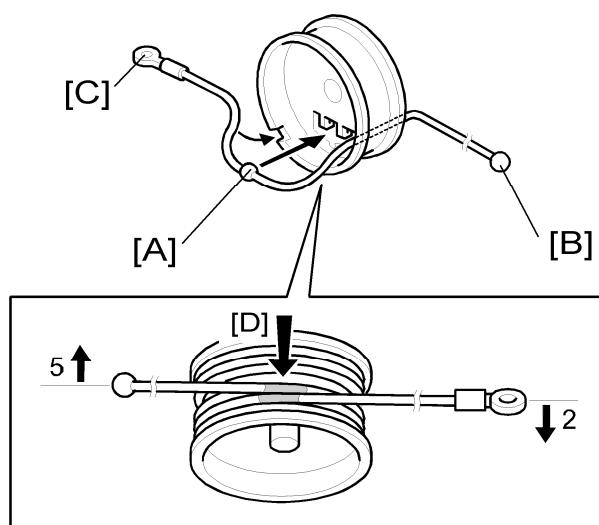
3.3.7 FRONT SCANNER WIRE



Replacement
and
Adjustment

1. Exposure glass (☞ Exposure Glass)
2. Front frame (☞ Exposure Lamp)
3. Front scanner wire clamp [A]
4. Front scanner wire bracket [B] (☞ x 1)
5. Front scanner wire and scanner drive pulley [C] (☞ x 1)

Reinstalling the Front Scanner Wire

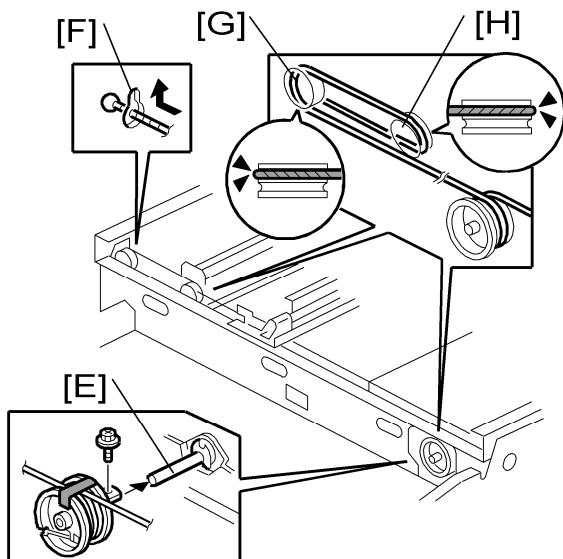


Scanner Unit

1. Position the center ball [A] in the middle of the forked holder.
2. Pass the right end (with the ball) [B] through the square hole. Pass the left end (with the ring) [C] through the notch.
3. Wind the right end counterclockwise (shown from the machine's front) five times. Wind the left end clockwise twice.

 Note

- The two red marks [D] come together when you have done this. Stick the wire to the pulley with tape. This lets you easily handle the assembly at the time of installation.

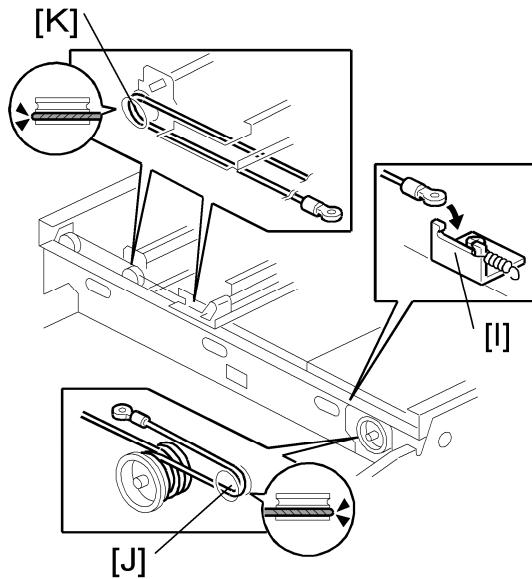


4. Install the drive pulley on the shaft [E].

 Note

- Do not attach the pulley to the shaft with the screw at this time.
5. Insert the left end into the slit [F]. The end should go via the rear track of the left pulley [G] and the rear track of the movable pulley [H].

Scanner Unit

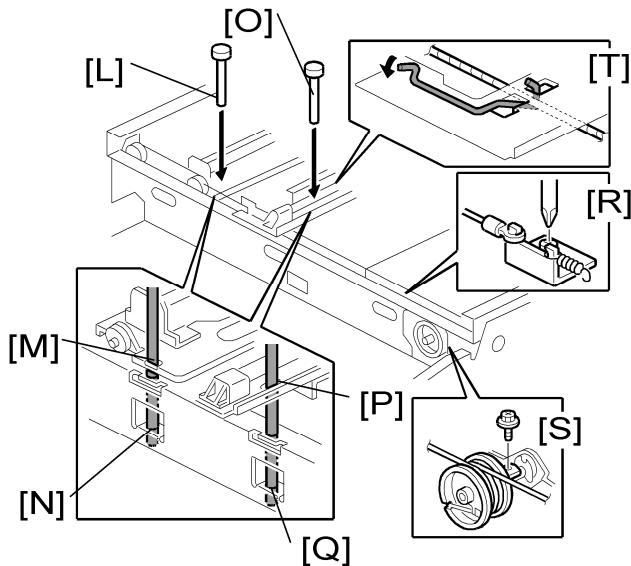


Replacement
and
Adjustment

6. Hook the right end onto the front scanner wire bracket [I]. The end should go via the front track of the right pulley [J] and the front track of the movable pulley [K].

↓ Note

- Do not attach the scanner wire bracket with the screw at this time.



7. Remove the tape from the drive pulley.
8. Insert a scanner-positioning pin [L] through the 2nd carriage hole [M] and the left holes [N] in the front rail. Insert another scanner positioning pin [O] through the 1st carriage hole [P] and the right holes in the front rail [Q].
9. Insert two more scanner positioning pins through the holes in the rear rail.
10. Screw the drive pulley to the shaft [R].

Scanner Unit

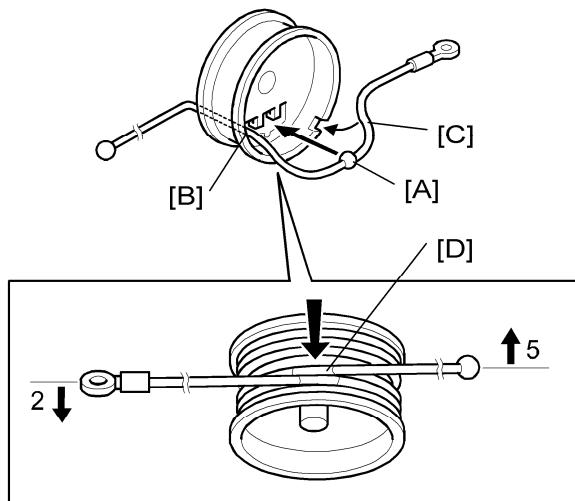
11. Screw the scanner wire bracket to the front rail [S].
12. Install the scanner wire clamp [T].
13. Pull out the positioning pins.

 Note

- Make sure the 1st and 2nd carriages move smoothly after you remove the positioning pins. Do steps 8 through 13 again if they do not.

3.3.8 REAR SCANNER WIRE

Reinstalling the Rear Scanner Wire



d017r164a

1. Position the center ball [A] in the middle of the forked holder.
2. Pass the left end (with the ball) [B] through the drive pulley notch.
3. Pass the right end (with the ring) [C] through the drive pulley notch.
4. Wind the left end [B] clockwise (from the machine front) five times.
5. Wind the right end [C] counterclockwise twice.

 Note

- The two red marks [D] come together after winding.. Attach the wire to the pulley with tape. This lets you easily handle the assembly at installation.

6. Install the drive pulley on the shaft.

 Note

- Do not attach the pulley on the shaft with the screw at this time.

7. Install the wire.

 Note

- The winding of the wire on the three pulleys at the rear of the scanner should be the same as the winding on the three pulleys at the front. This must show

as a mirror image.

- At the front of the machine, the side of the drive pulley with the two windings must face the front of the machine.
- At the rear of the machine, it must face the rear.

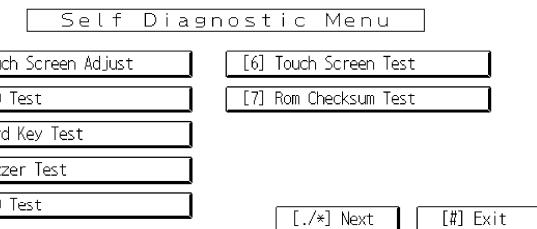
3.3.9 TOUCH PANEL POSITION ADJUSTMENT

The touch panel must be recalibrated if it is not functioning correctly or after replacing these items:

- Operation panel
- Controller board

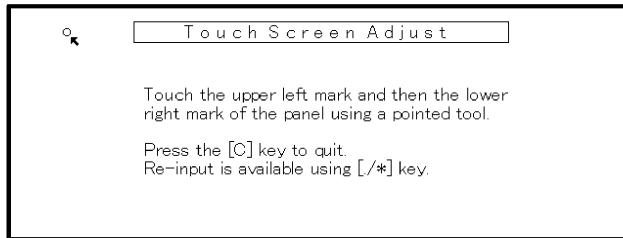
Do not use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.

1. Press [Clear], press [1] [9] [9] [3], press  5 times to open the Self-Diagnostics menu.



b178r548a

2. On the touch screen press Touch Screen Adjust (or press [1]).
3. Use a pointed (not sharp) tool to press the upper left mark .



b178r549

4. Press the lower right mark when  shows.
5. Touch a few spots on the touch panel to make sure that the marker + shows exactly where the screen is touched.
6. Press Cancel. Then start from Step 2 again if the + mark does not show where the screen is touched.
7. Press [#] OK on the screen (or press [#]) when you are finished.
8. Touch [#] Exit on the screen to close the Self-Diagnostic menu. Save the calibration settings.

Laser Unit

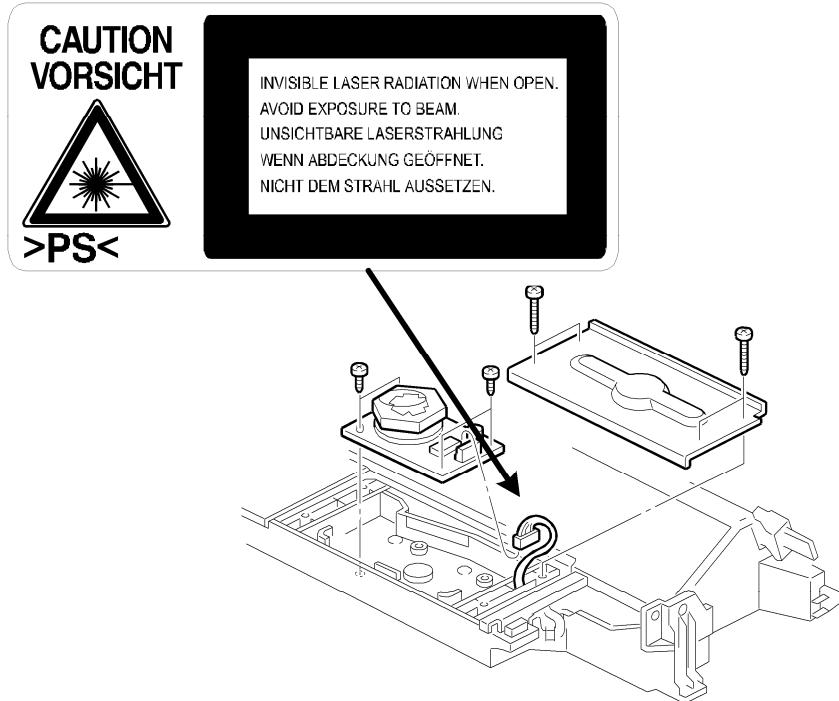
3.4 LASER UNIT

⚠ WARNING

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. Laser beams can seriously damage your eyes.

3.4.1 CAUTION DECAL LOCATIONS

The caution decal is located in the laser section as shown below.

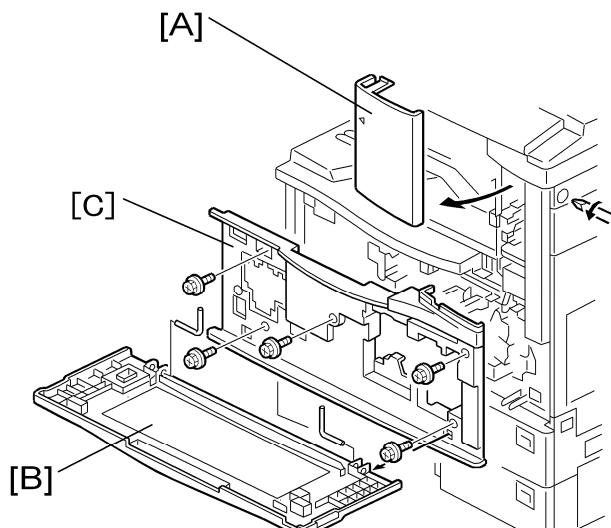


3.4.2 LASER UNIT

⚠ WARNING

- Turn off the main power switch and disconnect the power cord before you start this procedure in this section. Laser beams can seriously damage your eyes.

Laser Unit



b205r902

Replacement
and
Adjustment

1. Remove:

- 500-Sheet finisher
- Bridge unit
- Optional shift tray (or 1-Bin tray)

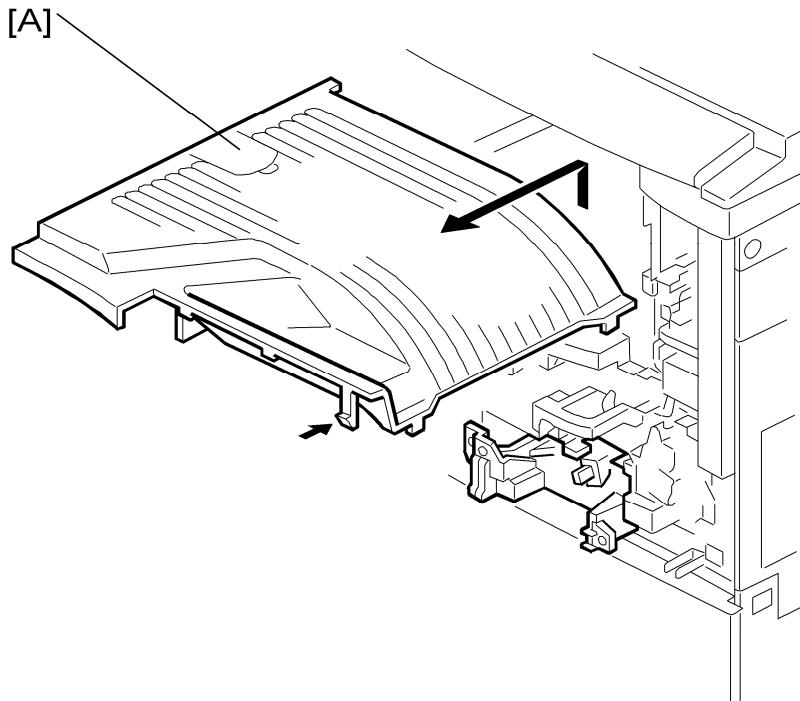
2. Remove:

[A] Upper front cover (☞ x1, Hook x1)

[B] Front cover (Pins x2)

[C] Inner cover (☞ x5)

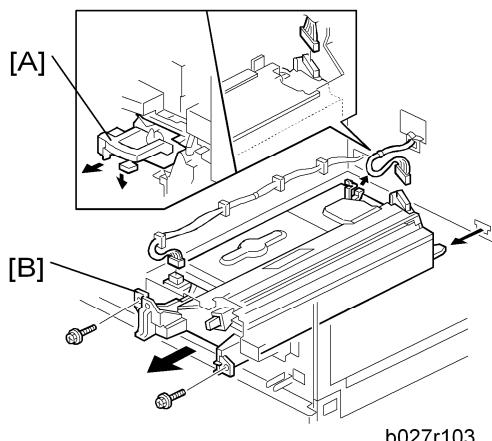
Laser Unit



b205r903

3. Remove:

[A] Copy tray (Hook x1)



b027r103

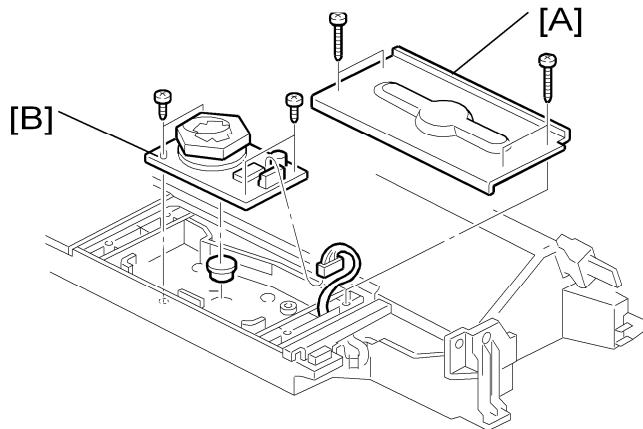
1. Remove:

[A] Toner bottle

[B] Laser unit (x2, x2)

3.4.3 POLYGON MIRROR MOTOR

1. Remove the laser unit (see 'Laser Unit').



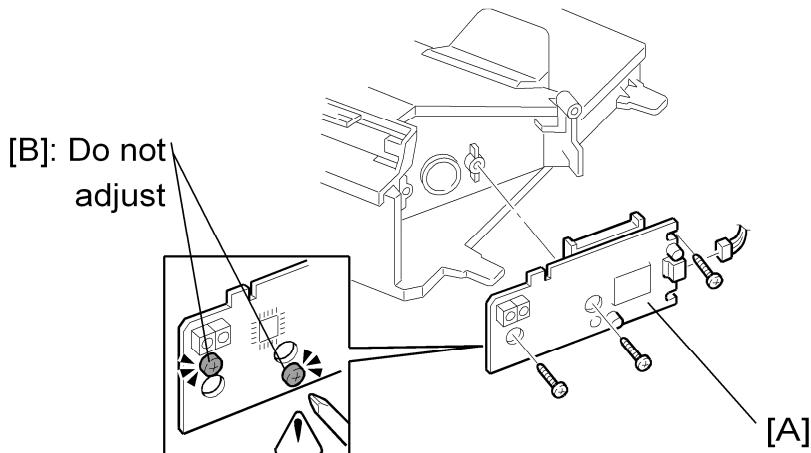
2. Remove the heat sink [A] (\wedge x4).
3. Replace the polygon mirror motor [B] (\wedge x4, \square x1).

Note

- When you install the new polygon mirror motor, do not touch the surface of the mirror with bare hands.

3.4.4 LD UNIT

1. Remove the laser unit (see 'Laser Unit').



2. Replace the LD unit [A] (\wedge x3, \square x1).

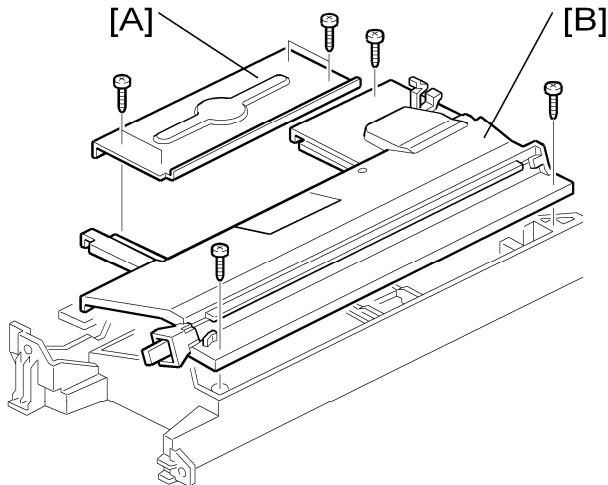
Note

- Do not remove the screws [B].
- Do not touch any variable resistors on the LD unit.

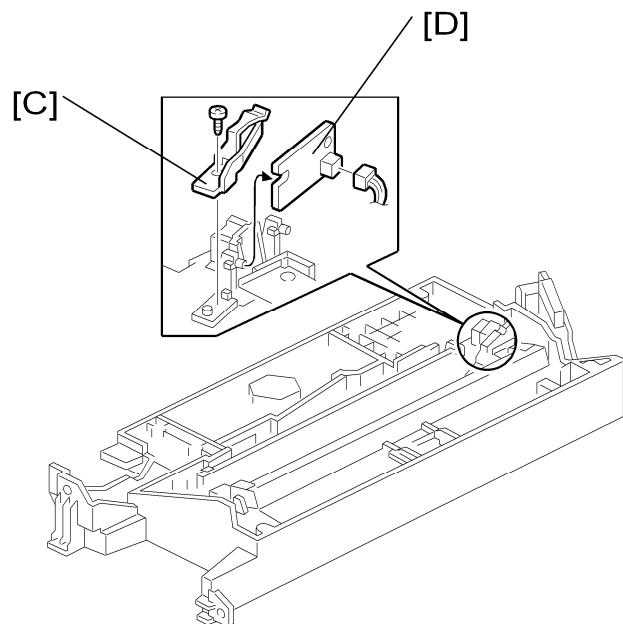
Laser Unit

3.4.5 LASER SYNCHRONIZATION DETECTOR

1. Remove the laser unit (see 'Laser Unit').



2. Remove the heat sink [A] (\wedge x4).
3. Remove the laser unit cover [B] (\wedge x3).

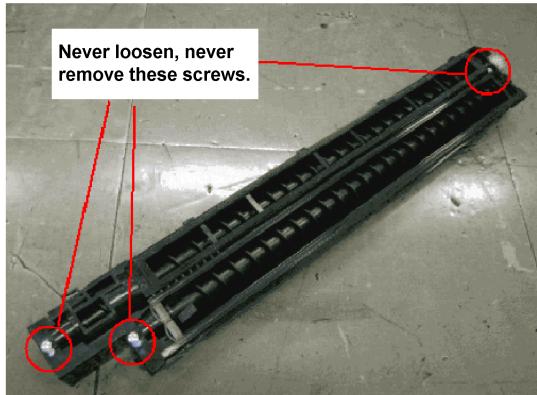


4. Remove the bracket [C] (\wedge x1).
5. Replace the laser synchronization detector [D] (\wedge x1).

3.5 PHOTOCONDUCTOR UNIT (PCU)

CAUTION

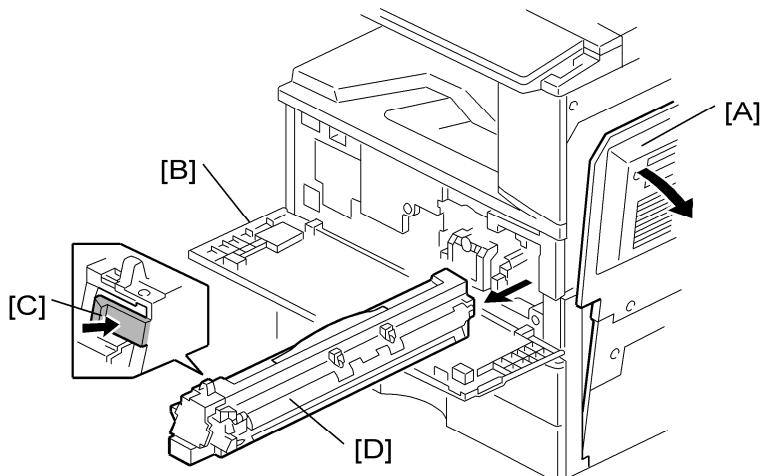
- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section. To prevent toner leakage, never loosen or remove the screws shown in the illustration below.



d017r901

Replacement
and
Adjustment

3.5.1 PCU REMOVAL



d017i920

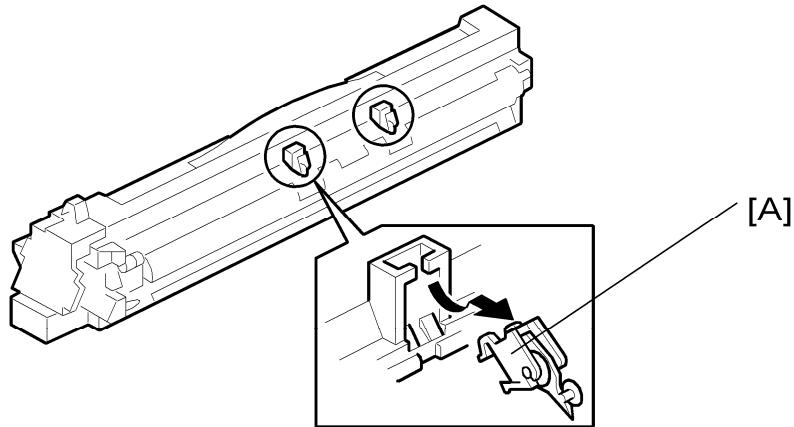
1. Open the right cover [A] and front cover [B].
2. Pull the PCU [C] out a small distance while you push the release lever [D], then remove the PCU.

Note

- Do not touch the drum surface with bare hands.

Photoconductor Unit (PCU)

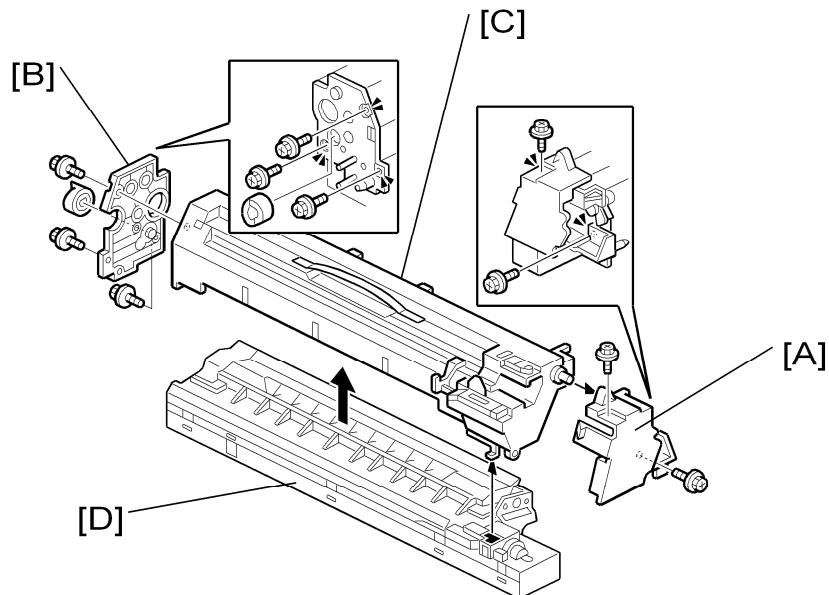
3.5.2 PICK-OFF PAWLS



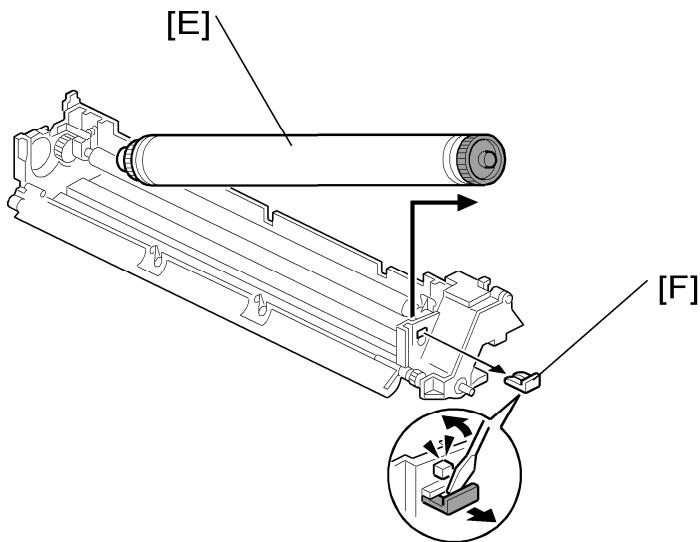
1. Remove the PCU. (See 'PCU Removal'.)
2. Hold the pawl [A] by its sides, pull it down and slowly twist it away from the PCU.

3.5.3 OPC DRUM

1. Remove the PCU. (See 'PCU Removal'.)



2. Front cover [A] ($\wedge \times 2$)
3. Rear cover [B] ($\wedge \times 3$, Coupling x1)
4. Top part [C]
5. Bottom part [D]

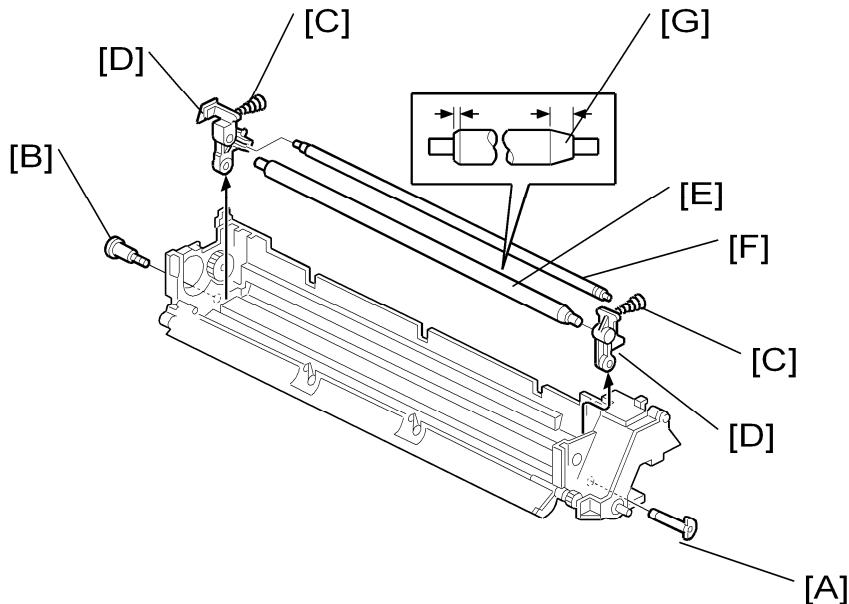


6. Drum [E] (White clip x1 [F])

Replacement
and
Adjustment

3.5.4 CHARGE ROLLER, CLEANING ROLLER

1. Remove the PCU. (See 'PCU Removal'.)
2. Remove the OPC drum. (See 'OPC Drum'.)



3. Front stud [A]
4. Rear shoulder screw [B] (x1)
5. Release the front and rear springs [C].
6. Remove the roller assembly [D] (Springs x2, Arms x2, Rollers x2)
7. Charge roller [E]

Photoconductor Unit (PCU)

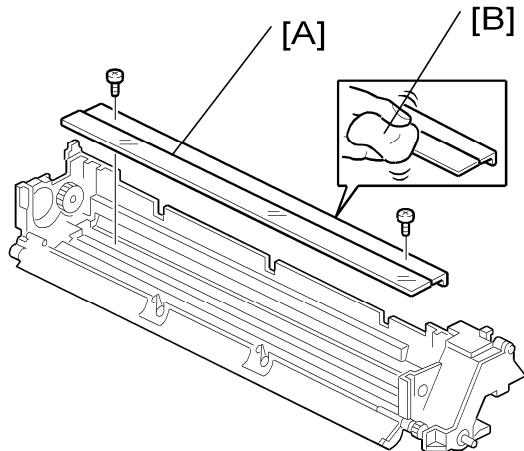
8. Cleaning roller [F]

Re-installation: Charge Roller

- Put the end of the charge roller with the wide bevel [G] at the front of the PCU.
- The ends of the cleaning roller [F] are the same (put either end at the front).
- Make sure that the front stud of the roller assembly is put in the correct position.
- Install the front stud before you tighten the rear shoulder screw. Make sure that the head of the stud is put in the correct position.

3.5.5 CLEANING BLADE

1. Remove the PCU. (See 'PCU Removal'.)
2. Remove the OPC drum. (See 'OPC Drum'.)
3. Remove the charge roller and cleaning roller. (See 'Charge Roller, Cleaning Roller').



4. Cleaning blade [A] (x2)

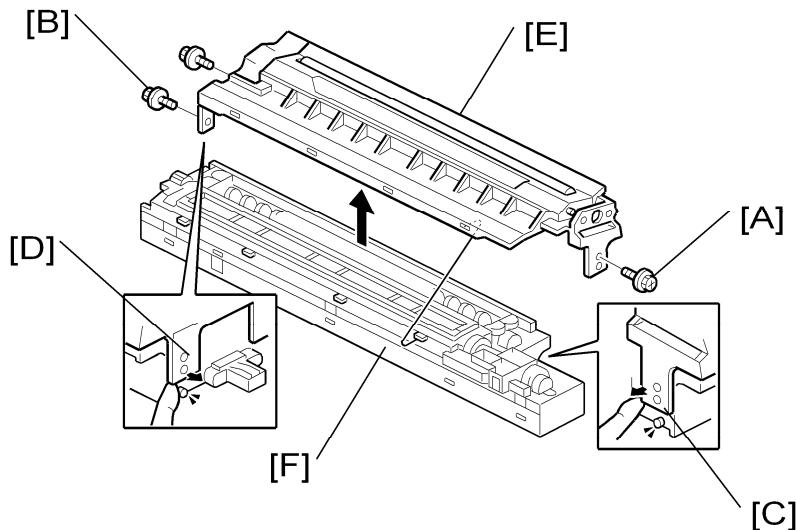
Reinstallation: Cleaning Blade

- To prevent damage to the new cleaning blade and OPC drum, apply some toner to the edge of the new blade [B].
- Install the new blade. Remove some toner from the edge of the old blade with your finger, and apply it evenly along the full length of the new blade.

3.5.6 DEVELOPER

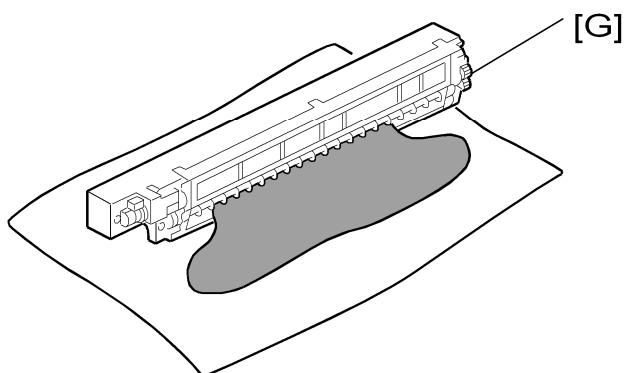
1. Spread the vinyl sheet provided with the developer kit on a flat surface.
2. Separate the top and bottom parts of the PCU. (See 'Charge Roller, Cleaning Roller').
3. Set the bottom on the vinyl sheet.

Photoconductor Unit (PCU)



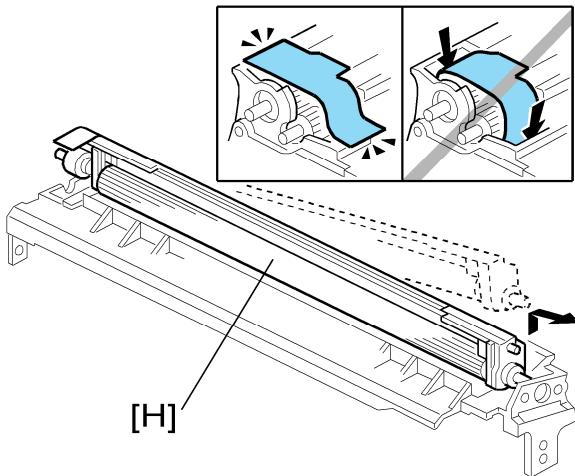
Replacement
and
Adjustment

4. Remove the front screw [A] (\wedge x1)
5. Remove the rear screws [B] (\wedge x2).
6. Release the front tab [C].
7. Release the rear tab [D].
8. Separate the top [E] and bottom [F] of the development unit.



9. Turn the gears [G] to remove the developer from the bottom half.

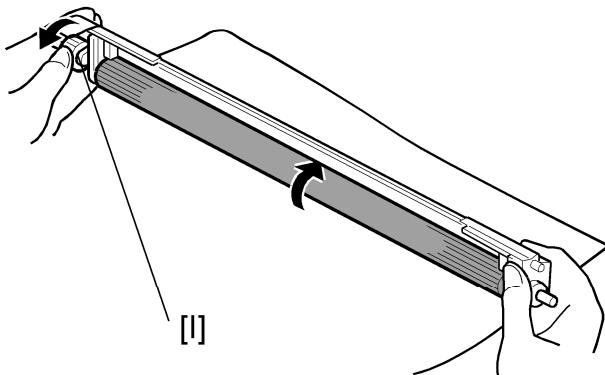
Photoconductor Unit (PCU)



10. Remove the development roller [H] from the development unit.

★ Important

- At reinstallation, make sure that the mylar is positioned as shown.



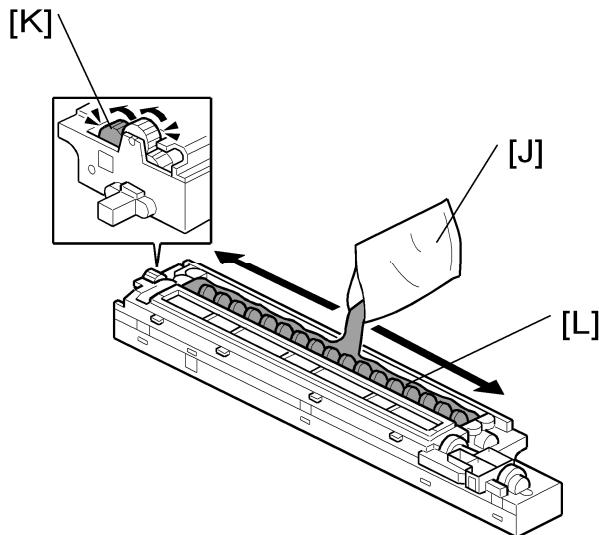
11. Turn the development roller gear [I] to remove toner from around the development roller.

12. Assemble the development unit.

★ Important

- Dispose of the used developer according to the local laws and regulations regarding the disposal of such items.

Photoconductor Unit (PCU)



Replacement
and
Adjustment

13. Open the developer pack [J]
14. While turning the black gear [K], slowly move the pack left and right and pour half of the developer over the auger [L].
15. Continue to rotate the black gear until the developer is level.
16. While continuing to turn the black gear, slowly move the pack left and right and pour the remaining half of the developer over the auger until the developer is level.

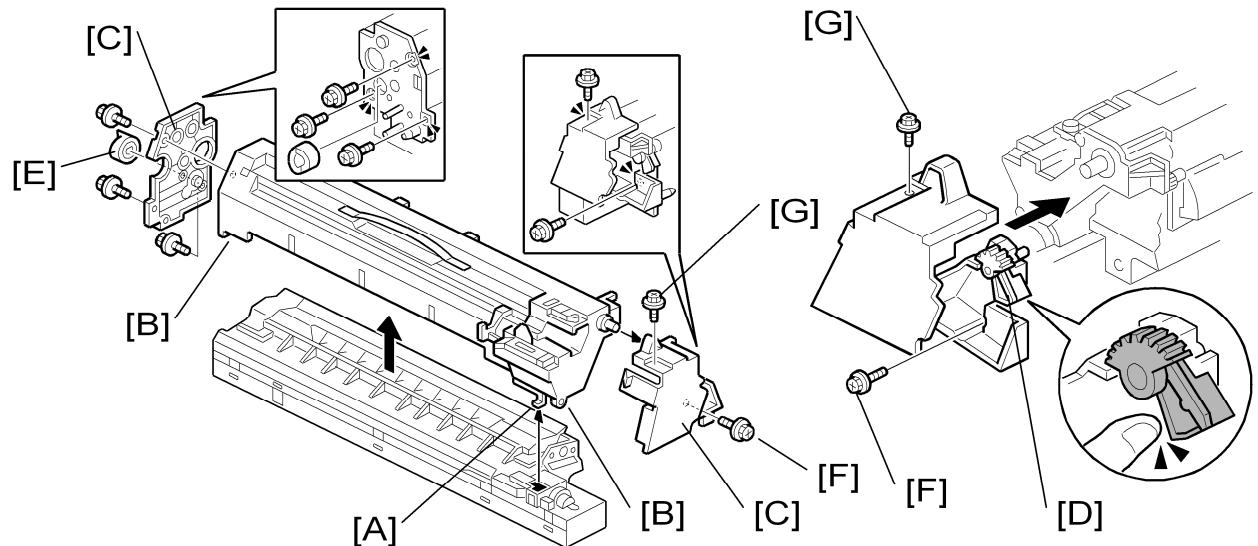
★ Important

- Be careful. Do not spill developer on the gears or sponges.
- If you accidentally spill developer on the gears or sponges, remove it with a magnet or the tip of a magnetized screwdriver.

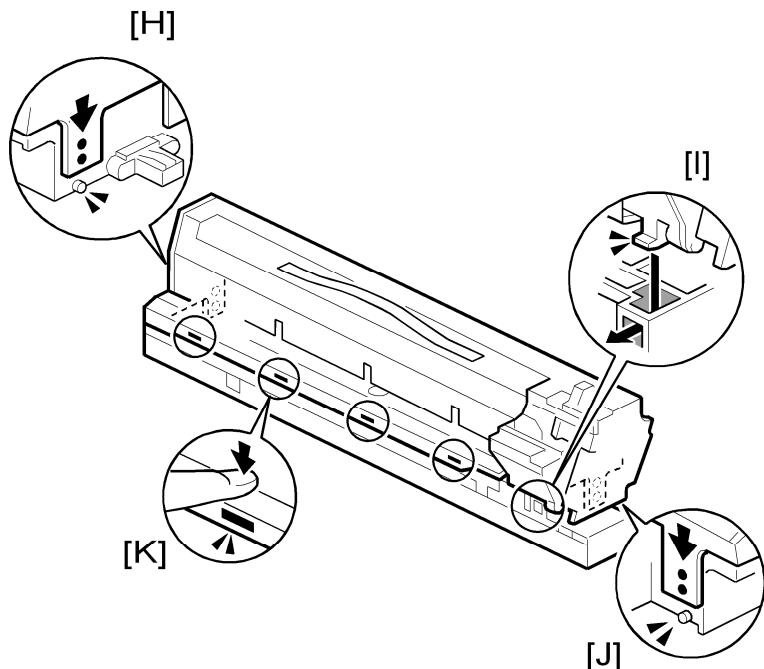
Photoconductor Unit (PCU)

PCU Reassembly

Reassemble the PCU in this order:



1. Connect the pawl [A]
2. Frame pawls [B], front and rear
3. Set the rear cover and front cover [C]
 - Never touch the lever [D] until after the top screw has been fastened.
4. Screws (x3), coupling x1 [E]
 - Never press down on the top of the PCU when you reattach the rear or front cover.
5. Lower screw (x1) [F]
 - Always install the lower screw first to maintain the correct gap between the rollers.
6. Top screw (x1) [G]
 - Lift and lower the lever [D] to make sure that the shutter opens fully and operates smoothly.



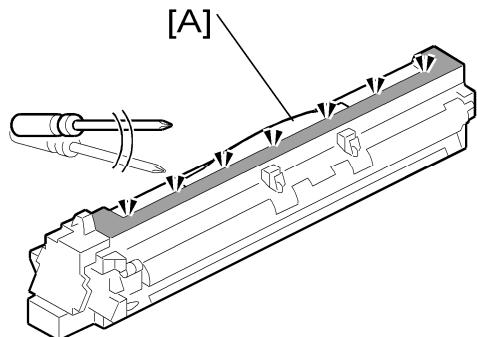
7. Make sure that all of the holes and tabs on are engaged at [H], [I], [J], and [K]. Then push down to lock the tabs on the front and rear end of the PCU.
8. Make sure that the holes for the screws on the front and rear end of the PCU are aligned correctly. If the holes are not aligned correctly, make sure that the tabs at the front, rear, and left side of the PCU are engaged correctly.

3.5.7 AFTER REPLACEMENT OF PCU COMPONENTS

Do this procedure after you replace the PCU components and developer.

1. Assemble the PCU and install it in the machine.
2. Turn the machine on.
3. If you replaced developer, go into the SP mode and do SP2801 (Developer Initialization).
4. Make 5 sample copies.
5. Check the copies.
 - If the copies are clean (no black dots), the replacement is completed.
-or-
 - If you see black dots of toner that fell on the copies, go to the next step.
6. Remove the PCU from the machine.

Photoconductor Unit (PCU)



7. Lightly tap the top of the PCU [A] with a screwdriver at 8 locations. These locations must be at equal intervals. Tap 2 or 3 times at each location, to make the toner fall into the development section.
8. Install the PCU in the machine.
9. Turn the machine on, and close the front door. After the machine turns the development roller for 10 seconds, go to the next step.
10. Open and close the door two more times. The total rotation time is 30 seconds.
11. If you replaced PCU components:
 - If A4/8½" x11" paper is installed, make 4 copies or prints.
 - If A3/11" x 17" paper is installed, make 2 copies or prints.
 - To make solid black prints, use SP2902 Pattern #8.
 - This step is not necessary if only the developer was replaced.

Note

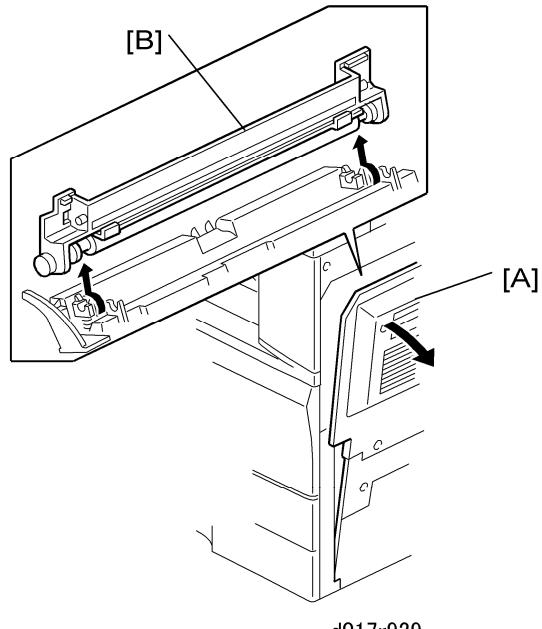
▪ This step is not necessary if only the developer was replaced.

3.6 TRANSFER UNIT

⚠ CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.6.1 TRANSFER ROLLER UNIT



Replacement
and
Adjustment

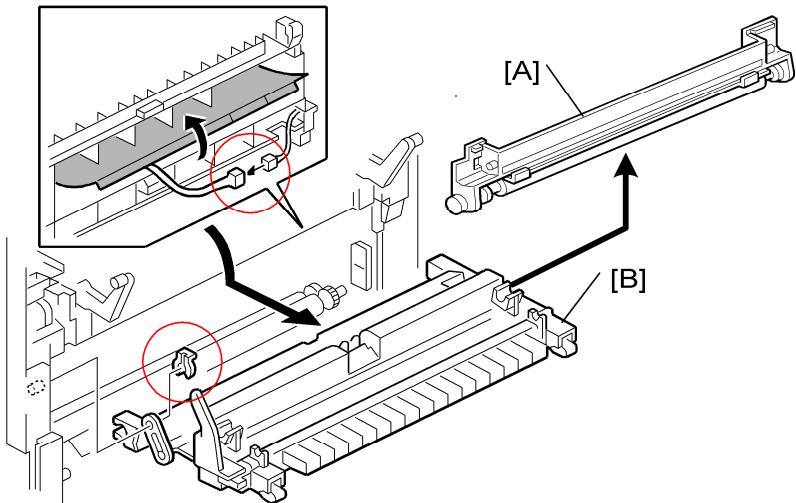
1. Open the right cover [A].
2. Remove the transfer roller unit [B] (Hook x1).

↓ Note

- Do not touch the transfer roller surface.

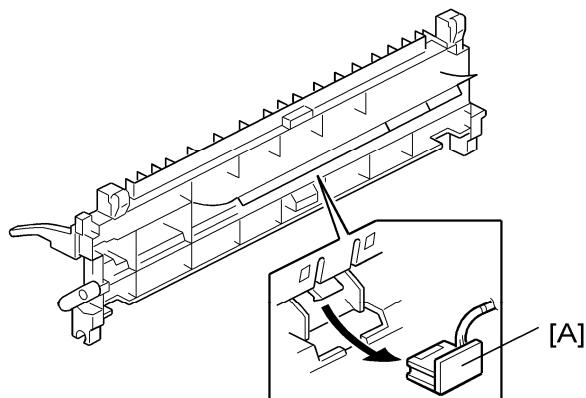
Transfer Unit

3.6.2 IMAGE DENSITY SENSOR



d071r930

1. Open the right cover.
2. Remove:
 - [A] Transfer roller
 - [B] Roller guide (x1, x1)



d017r931

3. Remove:
 - [A] Image density sensor (x1).
4. Initialize the new sensor with SP2935.

3.7 FUSING/EXIT

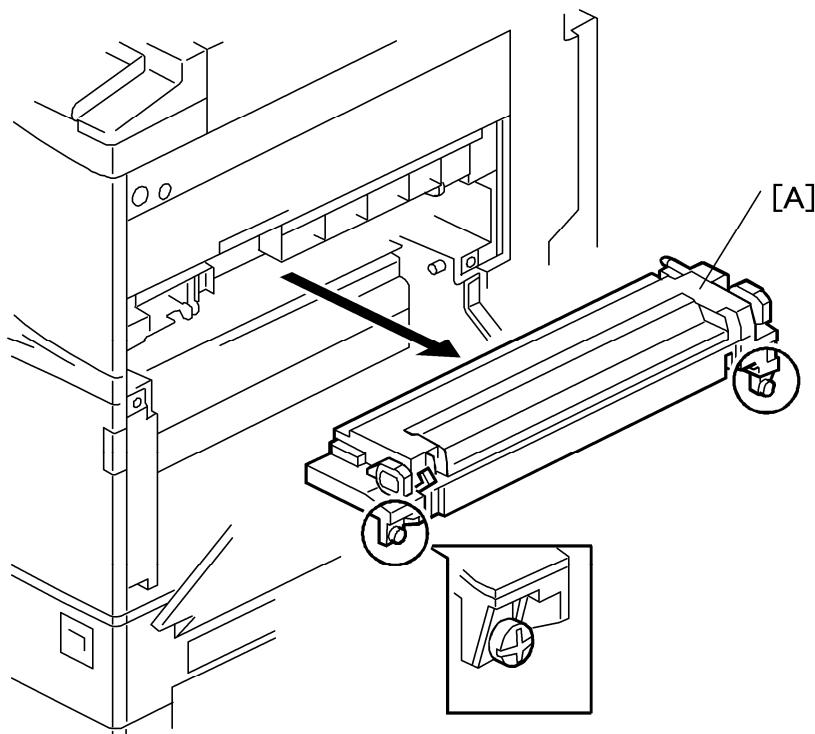
⚠ CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.7.1 FUSING UNIT

⚠ CAUTION

- Allow time for the unit to cool before doing the following procedure.



Replacement
and
Adjustment

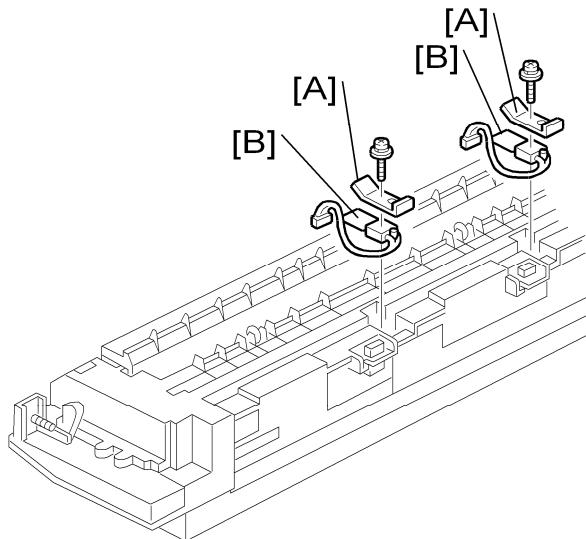
b205r932

1. Release the duplex unit, if it has been installed, and open the right cover.
2. Remove the fusing unit [A] (x2).

Fusing/Exit

3.7.2 THERMISTORS

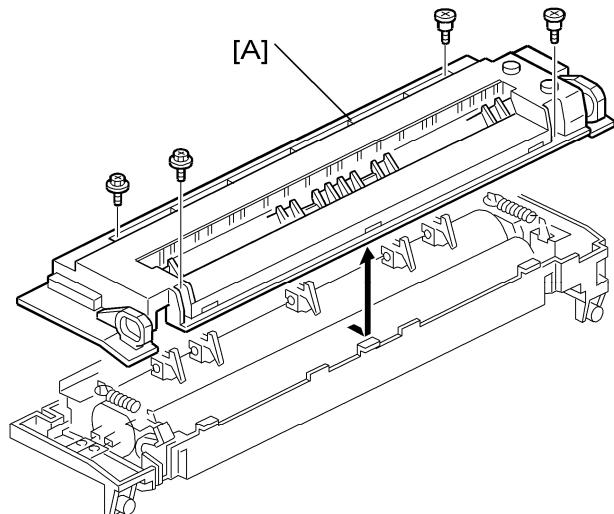
1. Remove the fusing unit. (See 'Fusing Unit'.)



2. Remove the plates [A] (x1 each).
3. Replace the thermistors [B] (x1).

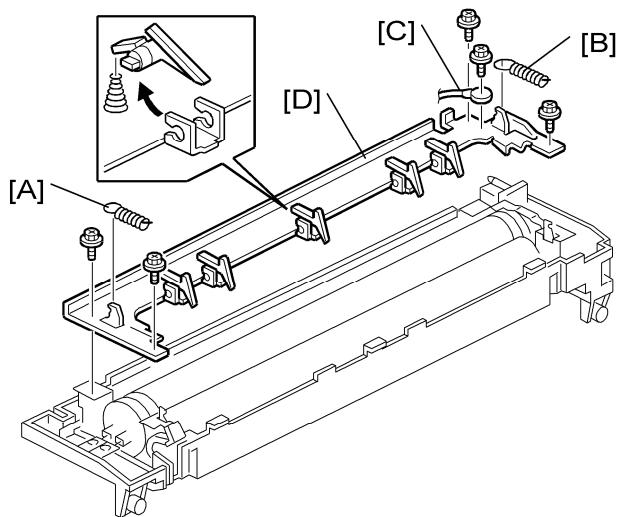
3.7.3 THERMOSTATS

1. Remove the fusing unit. (See 'Fusing Unit'.)



d017r503

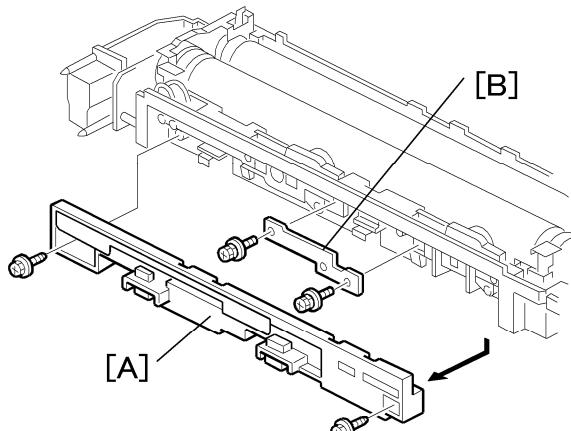
2. Remove the fusing upper cover [A] (x4).



d017r504

3. Remove:

- [A] Pressure spring
- [B] Pressure spring
- [C] Ground wire ($\frac{1}{8}$ x1)
- [D] Hot roller stripper bracket ($\frac{1}{8}$ x4).

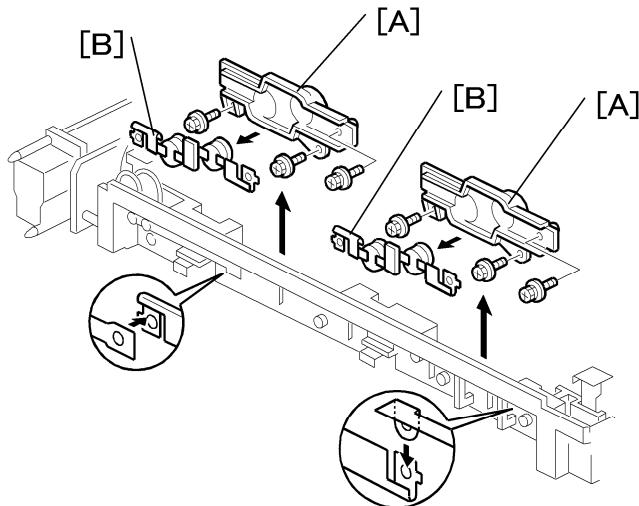


b205r936

4. Remove:

- [A] Thermostat cover (Tap $\frac{1}{8}$ x2).
- [B] Plate ($\frac{1}{8}$ x2 , spring washers).

Fusing/Exit



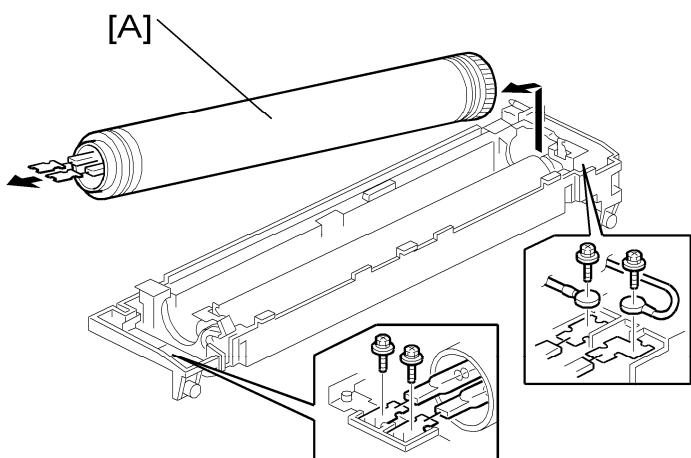
b205r937

5. Remove:

- [A] Thermostat holders x2 ($\times 3$ each.).
- [B] Thermostats x4

3.7.4 HOT ROLLER AND FUSING LAMPS

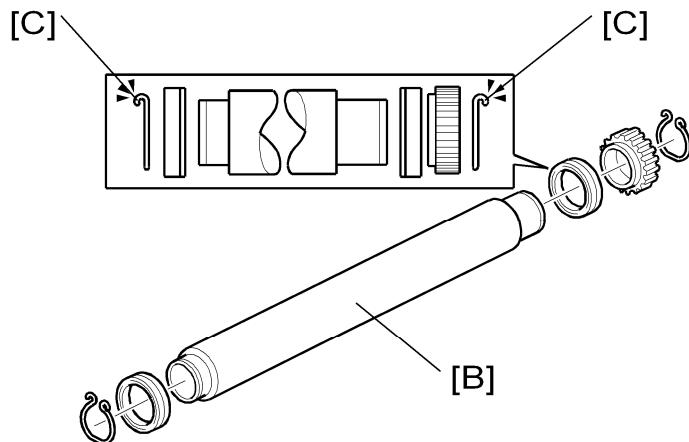
1. Remove the fusing unit. (See 'Fusing Unit'.)
2. Remove these parts: (see 'Thermostats').
 - Fusing upper cover.
 - Pressure springs.
 - Hot roller stripper bracket.



3. Remove the fusing lamps ($\times 4$) and hot roller assembly [A].

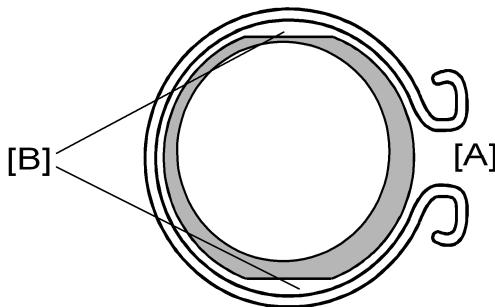
Note

- Do not touch the surface of the fusing lamp with bare hands.

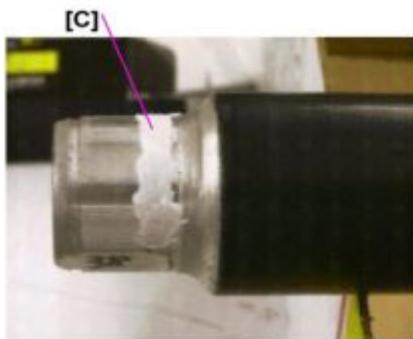


4. Replace the hot roller [B] (C-rings x2, Gear x1, Bushings x2).
 - When you reattach the C-rings, the flat sides must face the bearing/roller. (The little hooks [C] must face away from the bearing/roller).

Reinstallation

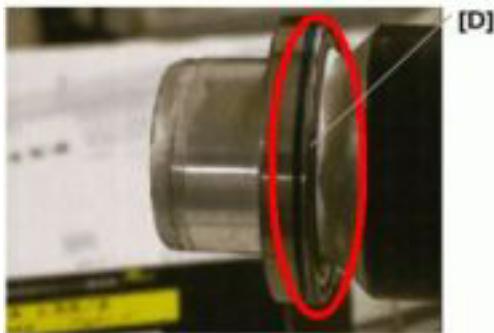


1. At the rear (gear-side), attach the C-ring so that the opening [A] is 90 degrees from the D-cut sections [B] of the fusing roller.



2. Apply enough grease at [C] so the metal surface is not visible.

Fusing/Exit



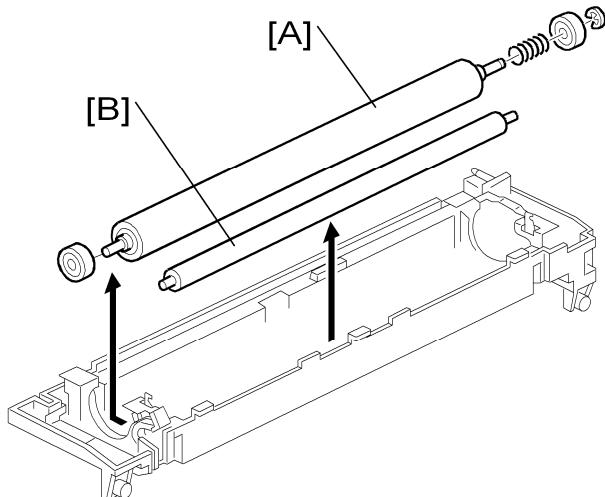
3. The grease should be visible after reattaching the bushing [D].

Important

- Before you install the new hot roller, peel off 3 cm (1 inch) from both ends of the protective sheet on the new roller.
- Do not touch the surface of the rollers.
- When reinstalling the fusing lamp, secure the front screws first.
- Be careful not to damage the surface of the hot roller.

3.7.5 PRESSURE ROLLER/CLEANING ROLLER

1. Remove the fusing lamp and hot roller assembly. (See 'Hot Roller and Fusing Lamp'.)

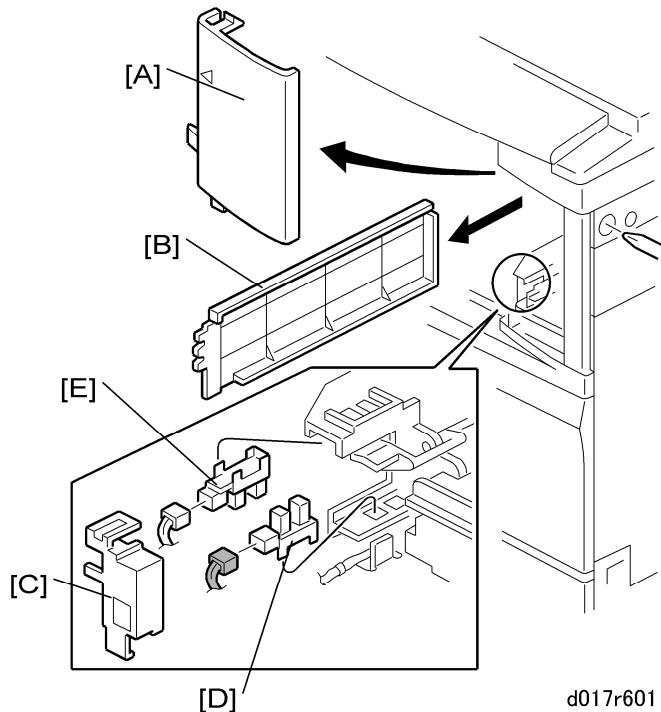


2. Replace the pressure roller [A] (C x1, Bushings x2, Spring x1).
3. Replace the cleaning roller [B].

Note

- Apply grease (Barrierta) to the inner surface of the bushing for the pressure roller.
- Do not touch the surface of the rollers.

3.7.6 PAPER EXIT SENSOR/PAPER OVERFLOW SENSOR



Replacement
and
Adjustment

d017r601

1. Remove the front upper cover [A] (\wedge x1, Peg x1).
2. Remove the exit cover [B].

Note

- If the optional one-bin tray unit and/or interchange unit have been installed, remove them.

3. Remove the cover [C].
4. Replace the exit sensor [D] (\square x1).
5. Replace the overflow sensor [E] (\square x1).

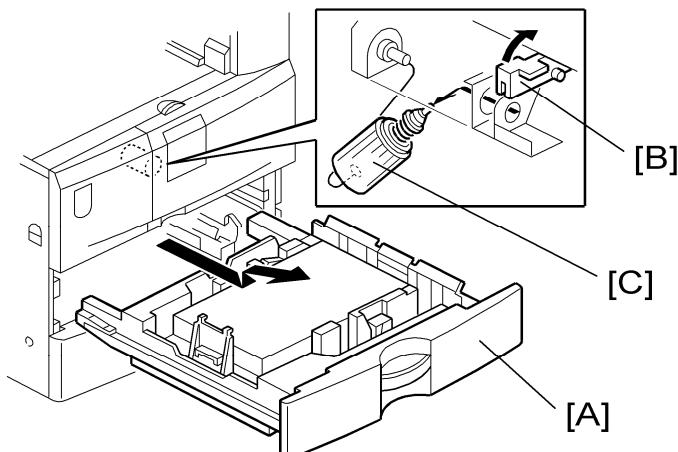
Paper Feed

3.8 PAPER FEED

CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.8.1 FEED ROLLER: TRAY 1



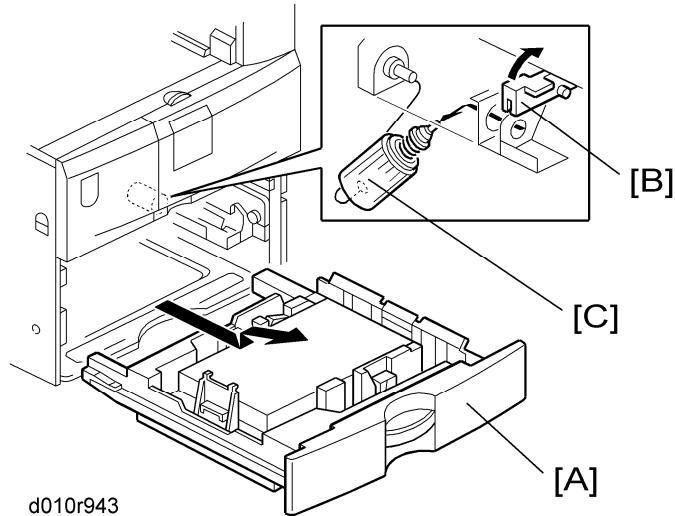
d010r942

1. Pull out the paper tray 1 [A].
2. Pull up the stopper [B].
3. Paper feed roller [C]

 Note

- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset [B] to its former position.

3.8.2 FEED ROLLER: TRAY 2



Replacement
and
Adjustment

1. Pull out the paper tray 1 and 2 [A].

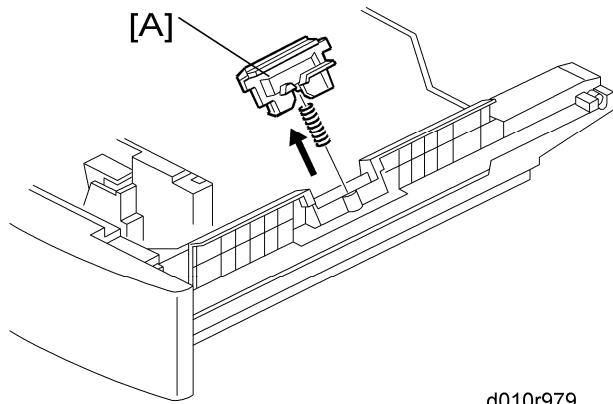
2. Pull up the stopper [B].

3. Paper feed roller [C]

Note

- Do not touch the roller surface with bare hands.
- After reinstalling the feed roller, reset the lever [B].

3.8.3 FRICTION PAD

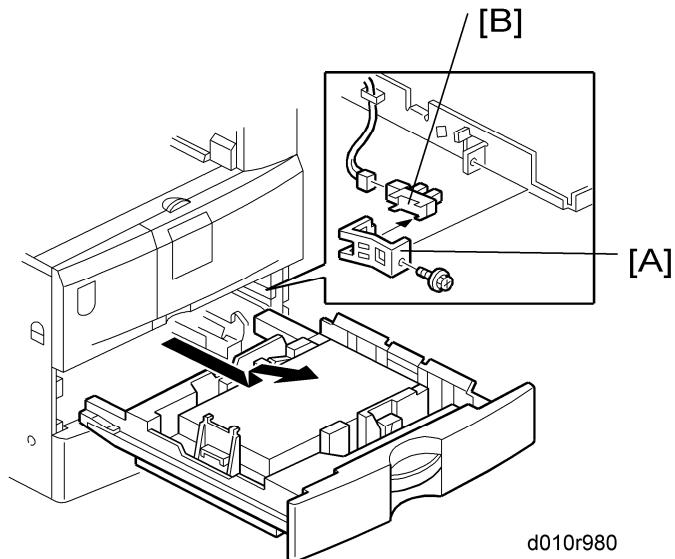


1. Pull out the paper tray.

2. Friction pad [A] (spring x 1)

Paper Feed

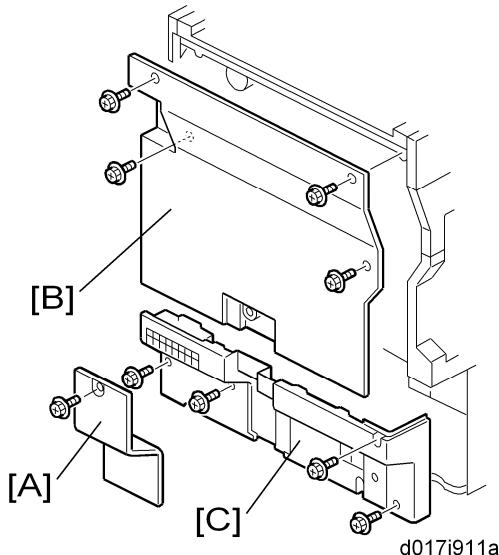
3.8.4 PAPER END SENSOR



1. Paper cassette
2. Bracket [A] (\wedge x 1, \square x 1)
3. Paper end sensor [B] (Hook x1)

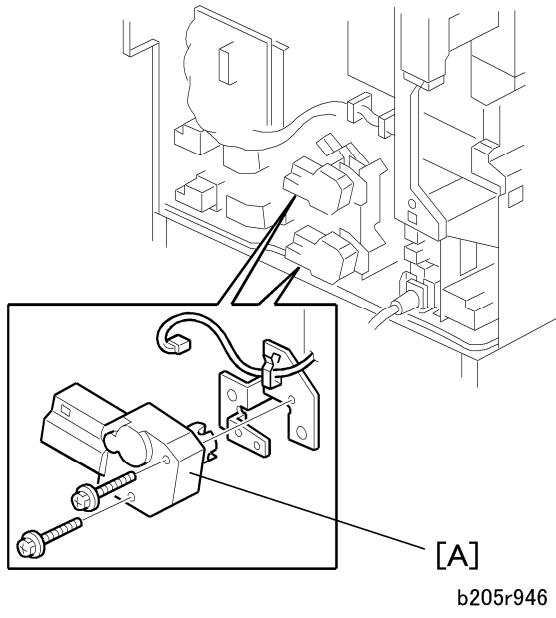
3.8.5 PAPER TRAY LIFT MOTORS

1. Remove the paper tray.



2. Remove:
 - [A] Connector cover (\wedge x1) and disconnect the cable.
 - [B] Rear cover (\wedge x4).
 - [C] Lower rear cover (\wedge x4).

Paper Feed



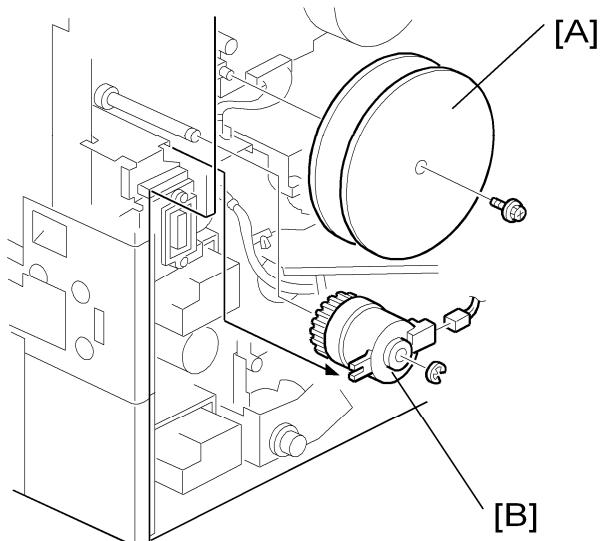
b205r946

3. Replace the paper lift motors [A] (x2 each, x1 each).

Replacement
and
Adjustment

3.8.6 REGISTRATION CLUTCH

1. Remove the connector cover and the rear cover. (See 'Paper Tray Lift Motors'.)
2. Remove the duplex connector cover and lower rear cover. (See 'Paper Tray Lift Motors'.)



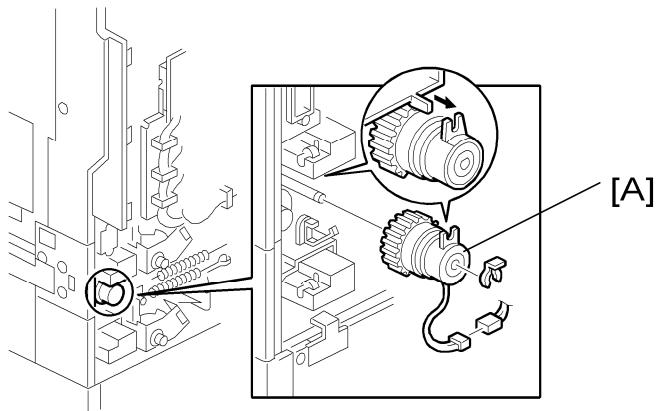
3. Remove the fly wheels [A] (x1).
4. Remove the registration clutch [B] (x1, x1).

Paper Feed

3.8.7 PAPER FEED CLUTCHES

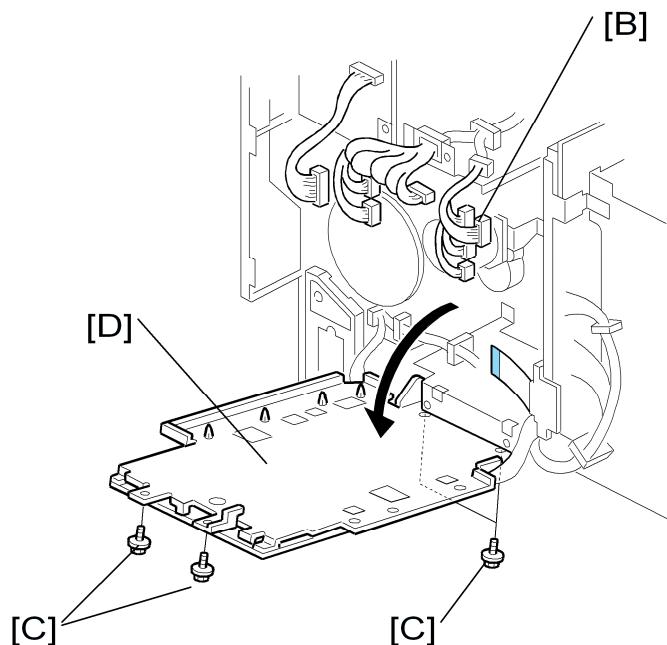
Lower Paper Feed Clutch

1. Remove the rear cover.
2. Remove the lower rear cover.

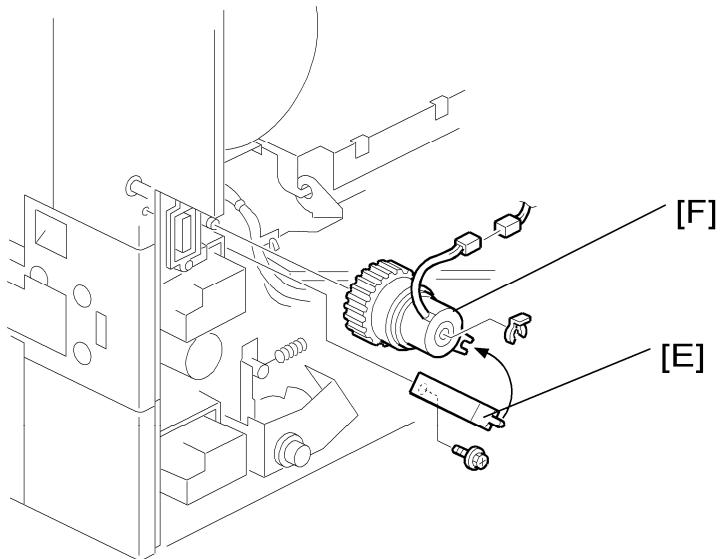


3. Replace the lower paper feed clutch [A] (\odot x 1, \square x 1).

Upper Paper Feed Clutch



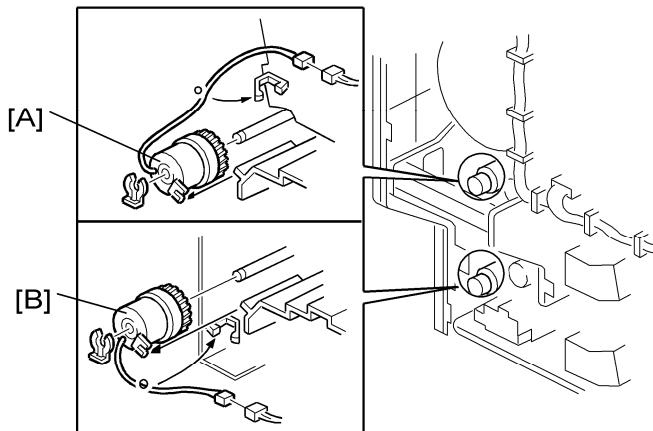
1. Disconnect the connectors [B] for the BCU board as shown (\square x15).
2. Remove 4 screws [C] securing the BCU board bracket then swing down the BCU board bracket [D].



3. Remove the bracket [E] (x1).
4. Replace the upper paper feed clutch [F] (x 1, x 1).

3.8.8 RELAY CLUTCHES

1. Remove:
 - Rear connector cover (x1)
 - Rear cover (x4)
 - Lower rear cover (x4)

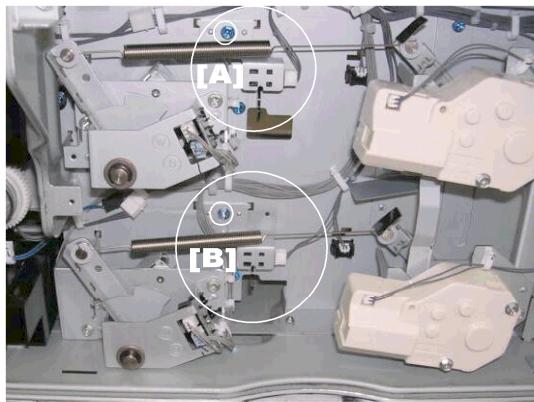


d017r950

1. Remove:
 - [A] Upper relay clutch (x1, x1, x1)
 - [B] Lower relay clutch (x1, x1, x1)

Paper Feed

3.8.9 UPPER/LOWER PAPER SIZE SENSORS

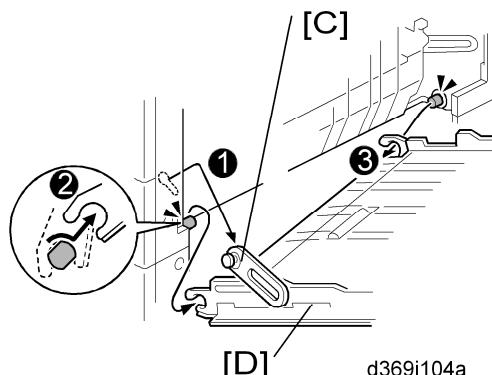
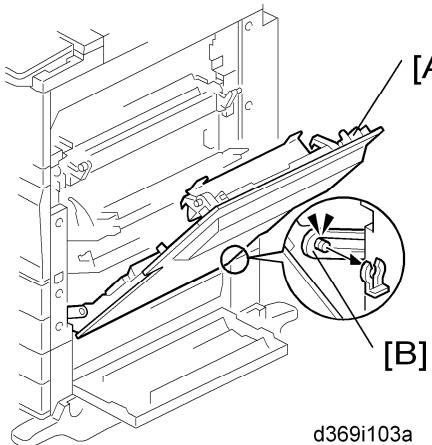


d017r952

1. Pull out the paper tray 1 and/or 2.
2. Remove:
 - Relay connector cover (⚡ x1, ⚡ x1)
 - Rear upper cover (⚡ x4)
 - Rear lower cover (⚡ x4)
3. Remove:
 - [A] Tray 1 paper size sensor bracket (⚡ x 1)
 - Tray paper size sensor (⚡ x 1, Pawls x4)
 - or-
 - [B] Tray 1 paper size sensor bracket (⚡ x 1)
 - Tray paper size sensor (⚡ x 1, Pawls x4)

3.8.10 REGISTRATION SENSOR

1. Open the right cover of the optional paper tray unit or LCT.

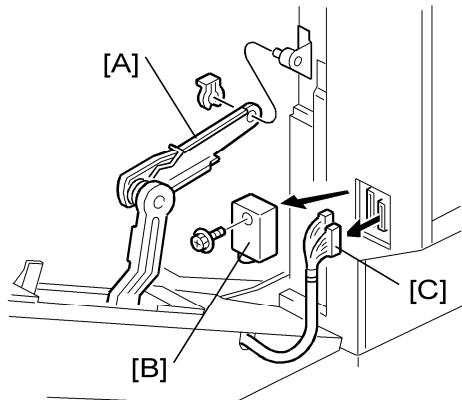


1. Open the right cover [A].

Paper Feed

2. Release the rear link [B] from the right cover (Ø x 1).
3. Release the front link [C] from the mainframe.
4. Remove the right cover [D].

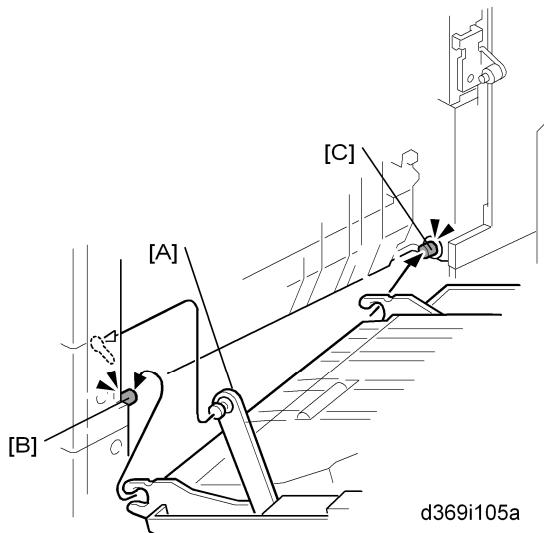
If the duplex unit is installed:



Replacement
and
Adjustment

d369i106a

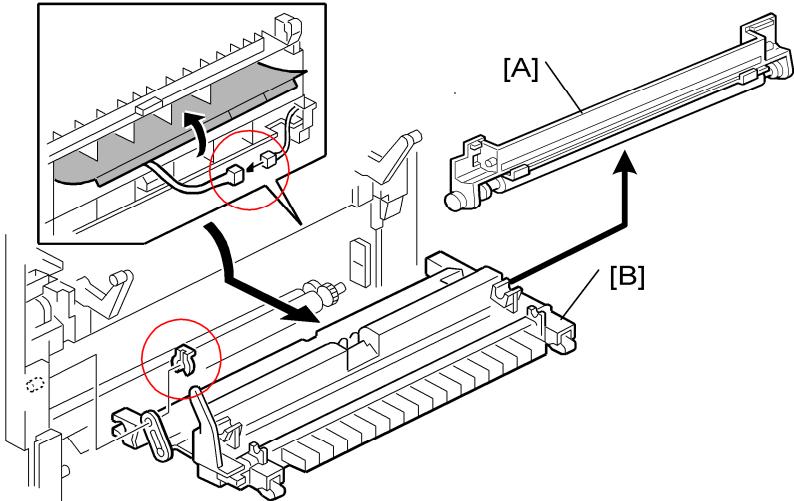
1. Disconnect the right hinge [A] (Ø x1)
2. Remove the connector cap [B] (掣 x1).
3. Disconnect the duplex unit harness [C] (□ x1).



d369i105a

4. Disconnect the arm [A], then disconnect the snap hinges [B] and [C].

Paper Feed

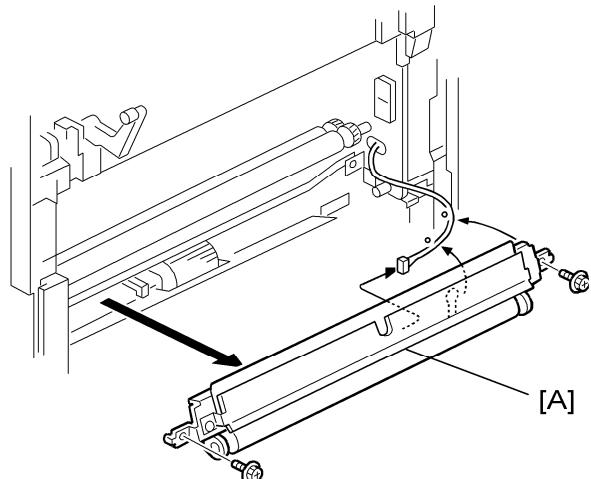


d071r930

5. Remove:

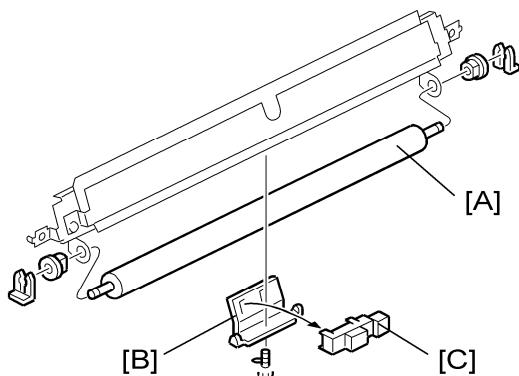
[A] Transfer roller

[B] Transfer roller guide (x1, x1)



d017r957

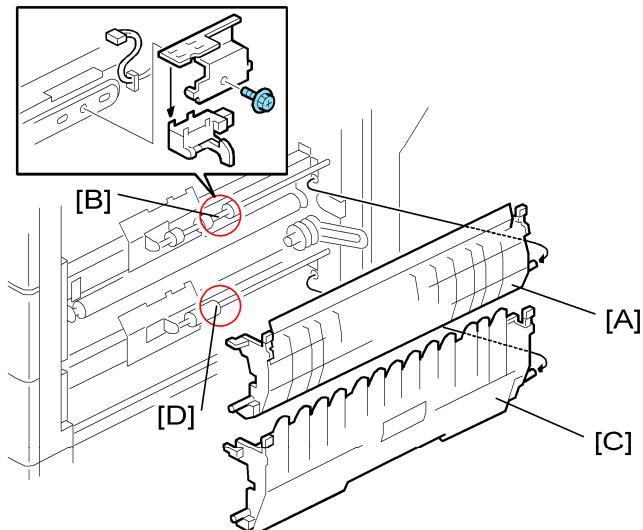
1. Remove the guide plate [A] (x2, x2, x1)



d017r957a

1. Remove:
 - [A] Registration roller (Ø x2, Bushings x2)
 - [B] Registration sensor bracket (x1)
 - [C] Registration sensor (Pawls x4)

3.8.11 UPPER, LOWER RELAY SENSORS



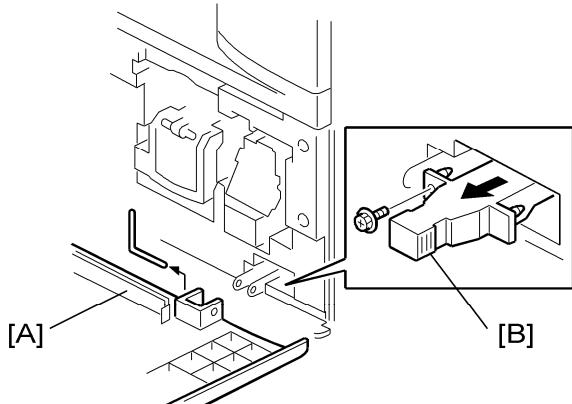
d017r958

1. Remove:
 - Right cover
 - or-
 - Duplex unit if it is installed (See the previous section)
2. Remove:
 - [A] Upper cover
 - [B] Upper relay sensor (Bracket x1, Pawls x4)

Paper Feed

- [C] Lower cover
- [D] Lower relay sensor (Bracket ⚡x1, ↗x1, Pawls x4)

3.8.12 DUST COLLECTION BIN



d017r158

1. Remove:
 - [A] Front door (L-brackets x2)
 - [B] Dust collection bin (⚡ x1)
2. Tap the dust collection bin above a sheet of paper, to remove the paper dust.
3. Use a dry cloth to clean the inside of the dust collection bin.

3.9 PCBs AND OTHER ITEMS

CAUTION

- Turn off the main power switch and disconnect the power cord before you start any of the procedures in this section.

3.9.1 CONTROLLER BOARD

Important

- If you intend to replace the NVRAMs, upload their contents to an SD card with SP5824 before you remove them and replace them with new ones. Never remove the NVRAMs until after you have uploaded their contents.

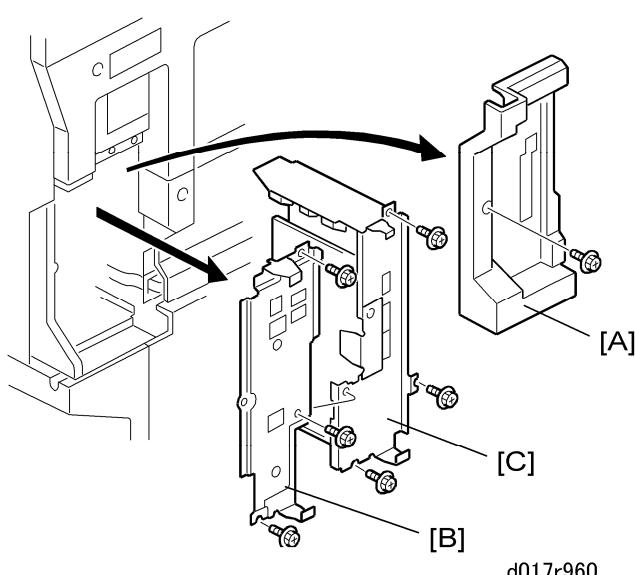
Before replacing the controller board in the model without HDD

Replacement
and
Adjustment

When you replace the controller board in a model without a HDD, address book data can be copied from an old controller board to a new controller board using an SD card.

Copy the address book data to an SD card from the flash ROM on the controller board with **SP5846-051** if possible.

Replacement Procedure



d017r960

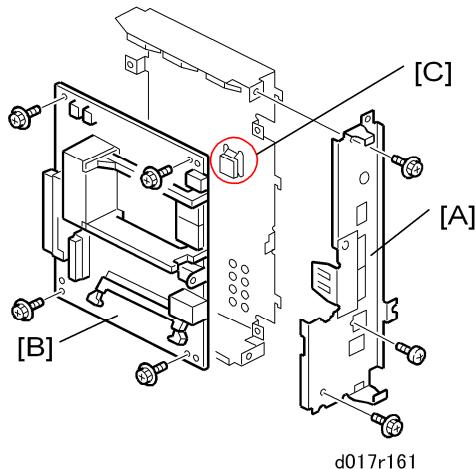
1. Remove:

- [A] Controller plastic cover (x1)
- [B] FCU faceplate (x3)
- [C] Controller board unit (x3)

Important

PCBs and Other Items

- Before touching the controller board, always touch a metal surface to discharge any static that has accumulated on your hands.

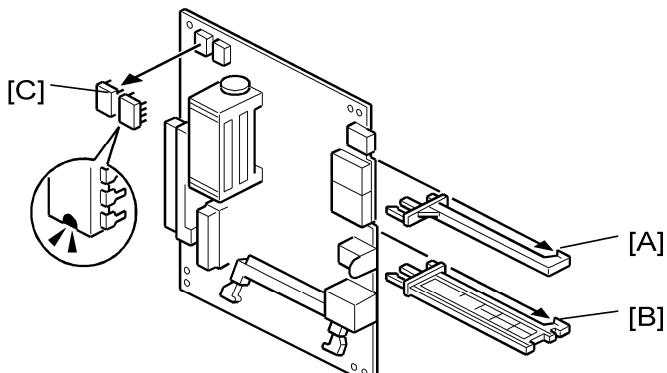


2. Remove:

- [A] Faceplate (x3)
- [B] Controller board (x4)

Important

- Make sure that the thermal conductive sheet [C] is attached to the bracket after replacement of this procedure.



3. Remove:

- [A] Upper brace
- [B] Lower brace
- [C] NVRAM x2

4. Remove the NVRAMs from the old board and install them on the new board.

Important

- The NVRAM chips must always be replaced as a pair.

5. If you have replaced the controller board, set the DIP switches on the new controller board to the same settings as the old board.

After installing the controller board

1. For a model without a HDD, do **SP5846-052** to copy back the address book to the flash ROM on the controller board from the SD card to which you have already copied the address book data if possible.
2. For a model in which the HDD encryption unit has been installed, restoring the encryption key is required. Refer to "Recovery from a Device Problem" in the installation procedure for "HDD Encryption Unit".
3. Turn the main power switch off/on.

3.9.2 NVRAM

1. Do SP5990 001 to print the SMC report.
2. Turn off the main switch.
3. Remove the controller board cover (☞ x1).
4. Put the SD card in SD card slot C3.
5. Turn on the main switch.
6. Do SP5824.
7. Touch "Execute" to start to upload the NVRAM data.
8. Turn off the main switch and remove the SD card.
9. Remove the controller board (☞ x1). (See 'Controller Board')
10. Remove the NVRAM (x2) and replace them with the new chips. (See 'Controller Board')

 **Note**

- Both NVRAM chips must be replaced.
11. Install the controller board.
 12. Put the SD card with the NVRAM data in SD card slot C3.
 13. Turn on the machine.
 14. Do SP5801 to initialize the new NVRAM.
 15. To download the NVRAM data from the SD card in C3, do SP5825.
 16. Touch "Execute" to start to download the NVRAM data.
 17. Turn off the main switch and remove the SD card.
 18. Turn on the machine.
 19. Do SP5990 001 to print another SMC report.
 20. Compare this new SMC report with the report you printed in Step 1. If any of the SP settings are different, input the SP settings of the first report.

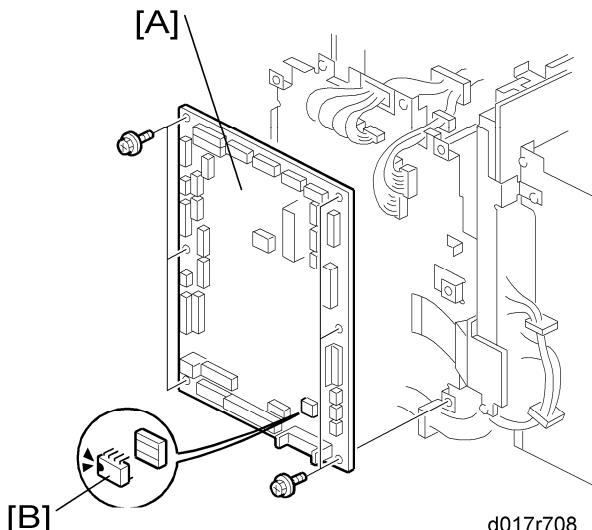
PCBs and Other Items

21. Do SP5907 and input the brand and model name of the machine for Windows Plug & Play capability.

 Note

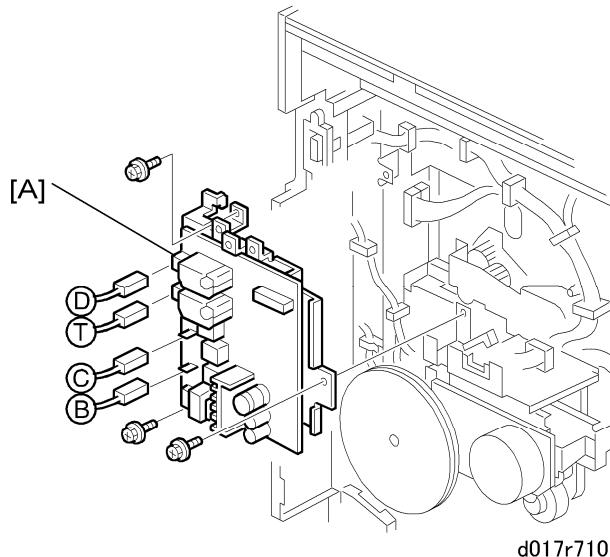
- If the HDD encryption unit has been installed, the HDD encryption unit and encrypted data cannot be recovered. For details, refer to "Recovery from a Device Problem" in the installation procedure of the HDD Encryption Unit.

3.9.3 BCU BOARD



1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
2. Remove the BCU board [A] ( x All,  x6).
3. Remove the NVRAM [B] from the old board and install it on the new board.
4. Set the DIP switches on the new BCU board to the same settings as the old board.

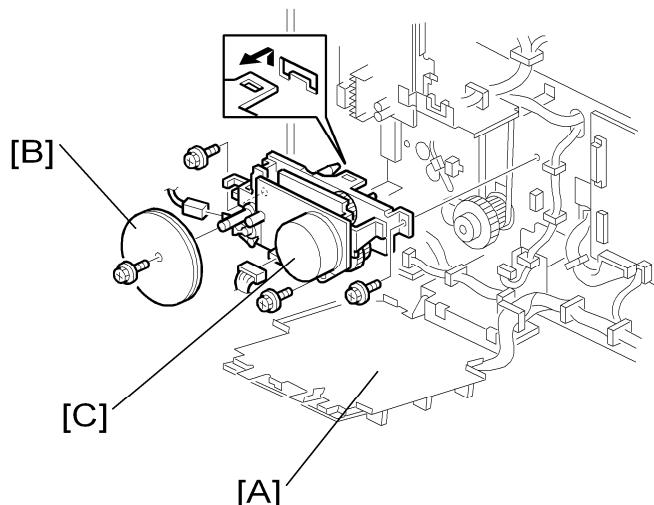
3.9.4 POWER PACK



Replacement
and
Adjustment

1. Remove the rear cover.
2. Swing down the BCU board bracket. (See 'Paper Feed Clutches'.)
3. Remove the power pack [A] (x 4, x3).

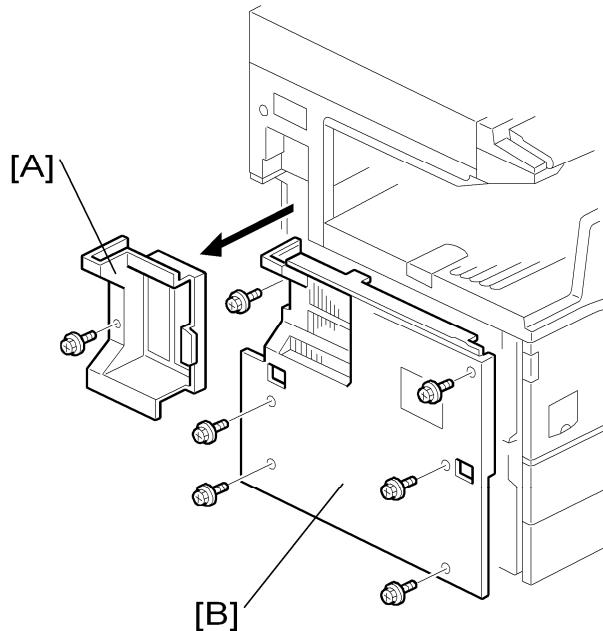
3.9.5 MAIN MOTOR



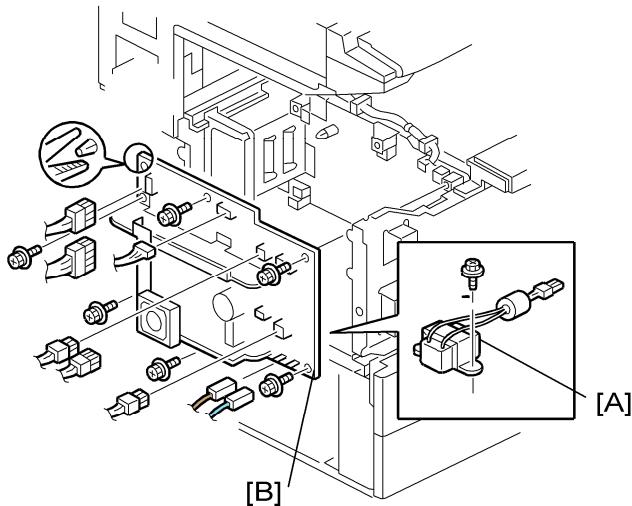
1. Remove the rear cover. (See 'Paper Tray Lift Motors'.)
2. Swing down the BCU board bracket [A]. (See 'Paper Feed Clutches'.)
3. Remove the flywheels [B] (x1).
4. Replace the main motor [C] (x2, x3).

PCBs and Other Items

3.9.6 PSU



1. Remove the optional finisher if it has been installed.
2. Remove the application cover [A] (\wedge x1).
3. Remove the left cover [B] (\wedge x6).

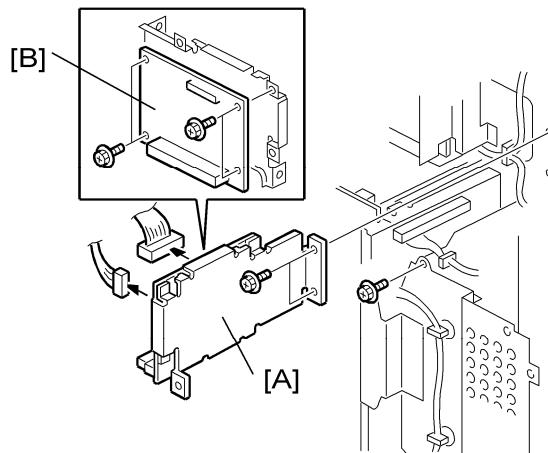


d017r702

4. Remove:
 - [A] Transformer (\wedge x1) (For the 220 V machine only)
 - [B] PSU (\square x all, \wedge x6, Standoff x1).

3.9.7 SIO

Monochrome Scanner Unit (D017/D019)



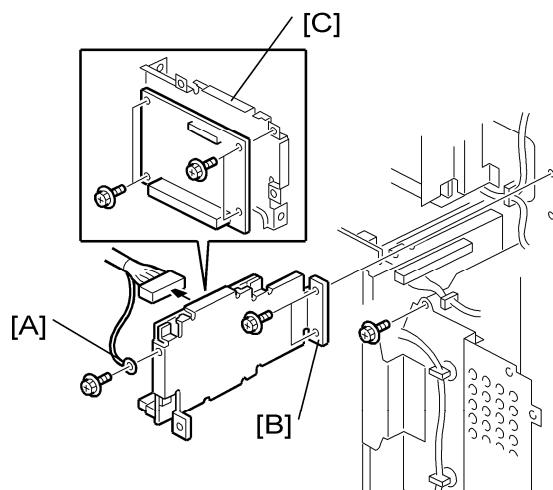
d017r159a

Replacement
and
Adjustment

1. Remove:

- Rear cover
- [A] SIO bracket (Screw x3, Connector x2)
- [B] SIO board (Screw x4)

Color Scanner Unit (D018/D020)



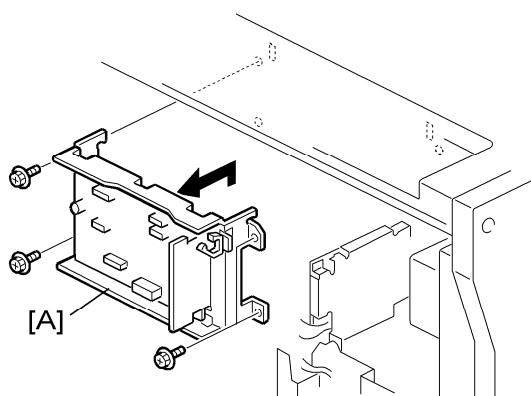
d017r159b

1. Remove:

- Rear cover
- [A] Ground wire, connector (Screw x1, Connector x1)
- [B] SIO bracket (Screw x3)
- [C] SIO board (Screw x4)

PCBs and Other Items

3.9.8 SIU



d017r160a

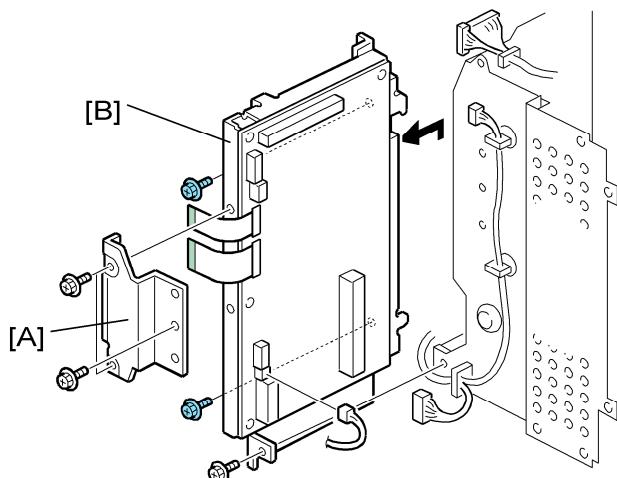
1. Remove:

- Rear cover
- [A] SIU assembly (\wedge x4, \square x7)

3.9.9 IPU

1. Remove:

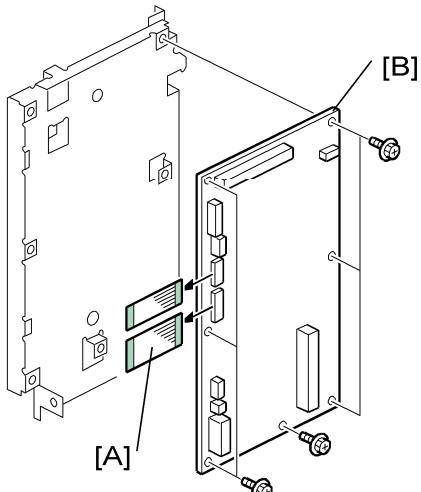
- Rear cover
- Controller unit
- SIO



d017r159

2. Remove:

- [A] FFC cover (\wedge x2)
- [B] IPU (\wedge x3, \square x4, FFC x2)



d017r160

3. Remove:

- [A] FFC x2
- [B] IPU (7 x7)

3.9.10 HDD

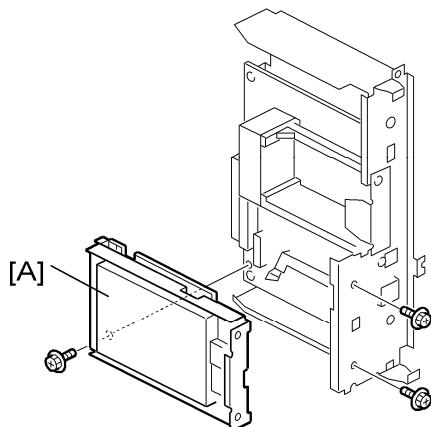
1. Before you replace the HDD:

- Insert an SD card in SD card slot 2 (lower slot).
- Go into the SP mode.
- Do SP5846 51 to upload the address book data to the SD card.

★ Important

- If the HDD is damaged, you may not be able to retrieve this data from the HDD.

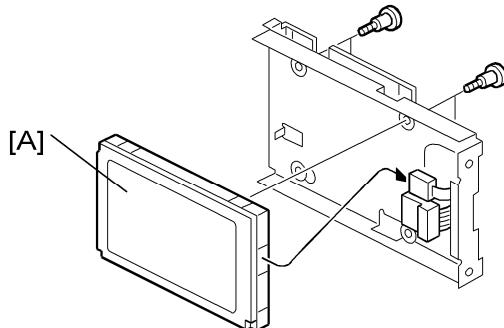
2. Remove the controller board. (See 'Controller Board'.)



d017r965

PCBs and Other Items

3. Remove the HDD and bracket [A] (Phillips x1)



d017r965a

4. Remove the old HDD [A] from its bracket (Phillips x4,  x2).
5. Install the new HDD unit.
6. Cycle the machine power off/on.
7. Format the HDD with SP5832-1.
8. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
9. Do SP5846-52 to restore the address book data to the HDD.

After HDD Replacement:

- Never remove a used HDD unit from the work site (even if it is suspected of being damaged) without the consent of the client.
- The HDD must remain with the customer for disposal or safe keeping.
- The HDD may contain proprietary or classified (Confidential, Secret) information. Specifically, the HDD contains document server documents and data stored in temporary files created automatically during copy job sorting and jam recovery. Such data is stored on the HDD in a special format, so it cannot normally be read but it can possibly be recovered with illegal methods.
- If the customer is using the Data Overwrite Security feature, the DOS function must be set up again after replacing the HDD unit.
- If the customer is using the HDD Encryption Unit, the encryption key must be restored after replacing the HDD unit. For details, see the installation procedure for the HDD Encryption Unit.

3.10 COPY ADJUSTMENTS: PRINTING/SCANNING

You must do these adjustment(s) after replacing any of the following parts:

- Scanner Wire
- Lens Block/SBU Assembly
- Scanner Drive Motor
- Polygon Mirror Motor
- Paper Side Fence
- Memory All Clear

For more details about accessing SP modes, see Service Tables.

3.10.1 PRINTING



- Make sure the paper is installed correctly in each paper tray before you start these adjustments.
- Use the Trimming Area Pattern (SP2-902, No.10) to print the test pattern for the following procedures.
- Set SP 2-902 to 0 again after completing these printing adjustments.

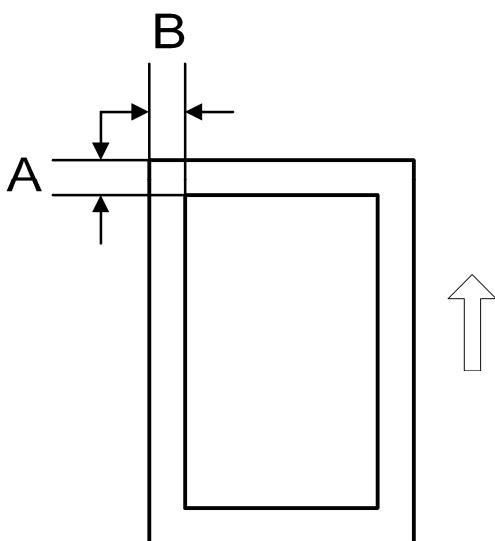
Registration - Leading Edge/Side-to-Side

1. Check the leading edge registration for each paper feed station, and adjust them using SP1-001.
2. Check the side-to-side registration for each paper feed station, and adjust them using SP1-002.

| Tray | SP mode | Specification |
|---------------------------|-----------|----------------|
| Any paper tray | SP1-001-1 | 3 ± 2 mm |
| By-pass feed | SP1-001-2 | |
| Duplex | SP1-001-3 | |
| 1st paper feed | SP1-002-1 | 2 ± 1.5 mm |
| 2nd paper feed | SP1-002-2 | |
| 3rd paper feed (Optional) | SP1-002-3 | |

Copy Adjustments: Printing/Scanning

| Tray | SP mode | Specification |
|--------------------------------------|-----------|---------------|
| PFU tray 1), or LCT | | |
| 4th paper feed (Optional PFU tray 2) | SP1-002-4 | |
| By-pass feed | SP1-002-5 | |
| Duplex, side 2 | SP1-002-6 | |



A: Leading Edge Registration

B: Side-to-side Registration

Blank Margin

 Note

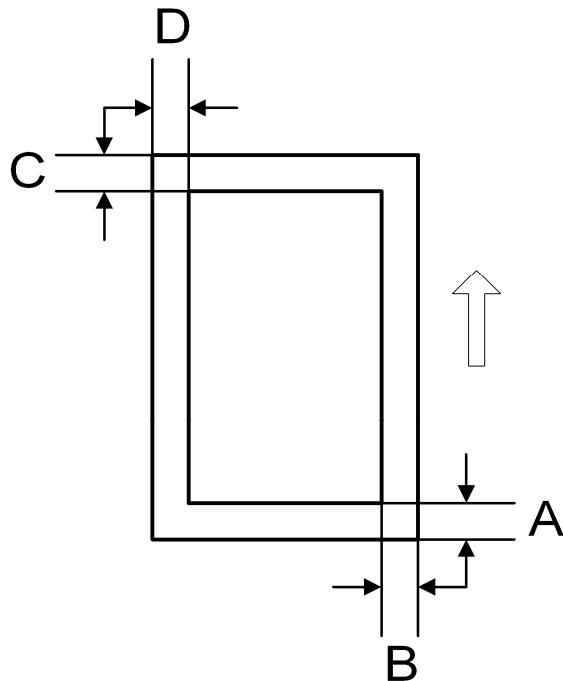
- If the leading edge/side-to-side registration cannot be adjusted within the specifications, adjust the leading/left side edge blank margin.
- Check the trailing edge and right side edge blank margins, and adjust them using the following SP modes.

| | SP mode | Specification |
|---------------|---------------|----------------|
| Trailing edge | SP2-101-2/3/4 | 3 ± 2 mm |
| Right edge | SP2-101-6 | 2 +2.5/-1.5 mm |

Copy Adjustments: Printing/Scanning

| | SP mode | Specification |
|---------------------------------------|-----------|------------------|
| Leading edge | SP2-101-1 | 3 ± 2 mm |
| Left edge | SP2-101-5 | 2 ± 1.5 mm |
| Trailing edge (duplex copy, 2nd side) | SP2-101-7 | 2 ± 2 mm |
| Left edge (duplex copy, 2nd side) | SP2-101-8 | 2 ± 1.5 mm |
| Right edge (duplex copy, 2nd side) | SP2-101-9 | $2 +2.5/-1.5$ mm |

Replacement
and
Adjustment



A: Trailing Edge Blank Margin

B: Right Edge Blank Margin

C: Leading Edge Blank Margin

D: Left Edge Blank Margin

Main Scan Magnification

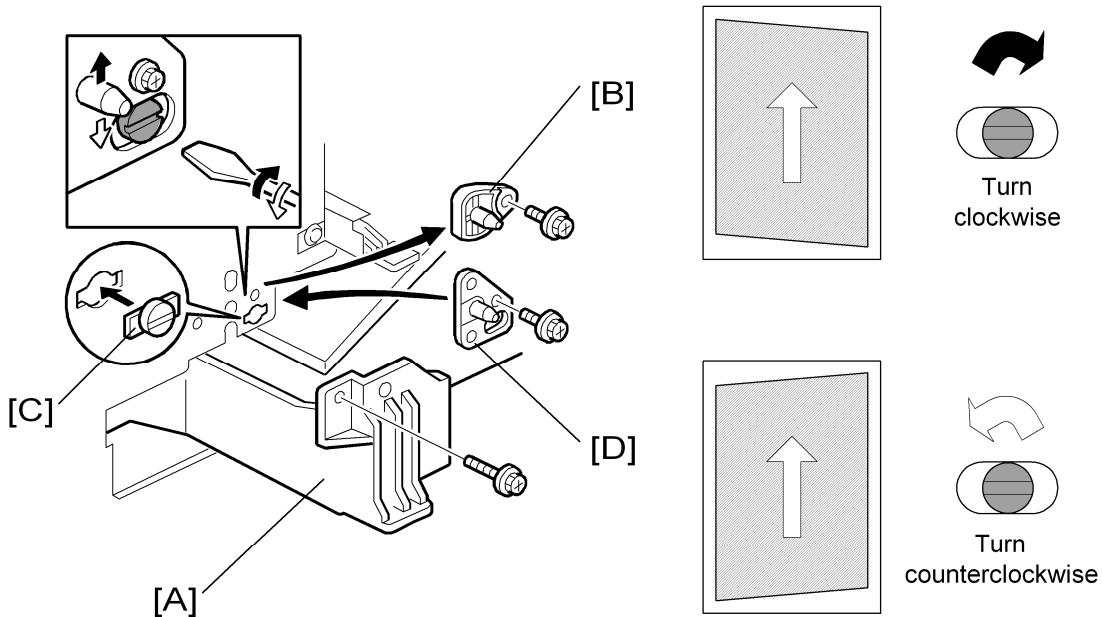
1. Print the single-dot grid pattern (SP2-902, no.5).

Copy Adjustments: Printing/Scanning

2. Check the magnification, and adjust the magnification using SP2-909 if necessary. The specification is $\pm 1\%$.

Parallelogram Image Adjustment

Do the following procedure if a parallelogram is printed while adjusting the printing registration or the printing margin using a trimming area pattern.



Note

- The following procedure should be done after adjusting the side-to-side registration for each paper tray station.
1. Check whether the trimming area pattern (SP2-902, No.10) is printed as a parallelogram, as shown. If it is, do the following.
 2. Remove the laser unit [A] (see 'Laser Unit').
 3. Remove the bracket [B] ($\wedge \times 2$).
 4. Install the adjusting cam [C] (P/N: A2309003).
 5. Secure the adjustment bracket [D] (P/N A2679002) using the screw which was used for bracket [B]. However, do not tighten the screws at this time.
 6. Adjusts the laser unit position by turning the adjusting cam. (Refer to the above illustration for the relationship between the image and the cam rotation direction).
 7. Tighten the adjustment bracket.
 8. Print the trimming area pattern to check the image. If it is still unsatisfactory, repeat steps 4 to 8.

3.10.2 SCANNING

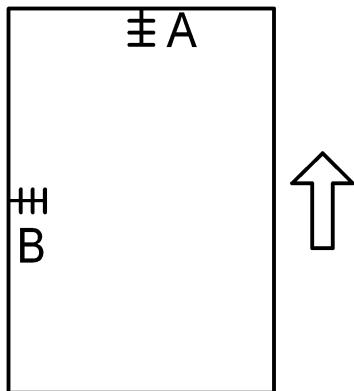
 Note

- Before doing the following scanner adjustments, perform or check the printing registration/side-to-side adjustment and the blank margin adjustment.
- Use an S5S test chart to perform the following adjustments.

Registration: Platen Mode

1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the leading edge and side-to-side registration, and adjust them using the following SP modes if necessary.

| SP mode | |
|--------------|---------|
| Leading Edge | SP4-010 |
| Side-to-side | SP4-011 |



A: Leading Edge Registration

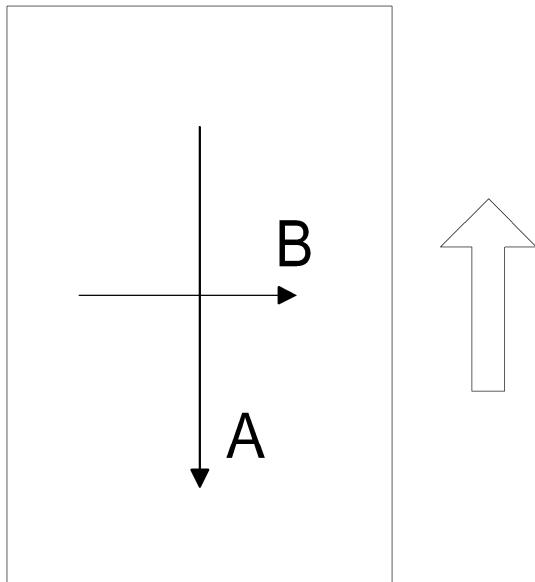
B: Side-to-side Registration

Magnification

 Note

- Use an S5S test chart to do the following adjustment.

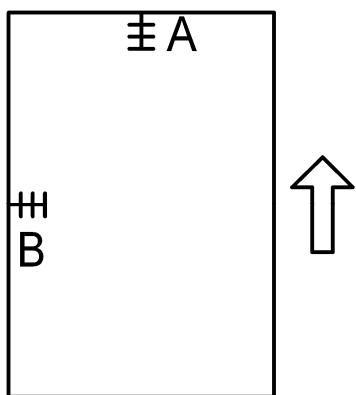
Copy Adjustments: Printing/Scanning



1. Place the test chart on the exposure glass and make a copy from one of the feed stations.
2. Check the magnification ratio. Use SP4-008 (Scanner Sub Scan Magnification) to adjust if necessary. Specification: $\pm 0.9\%$.

3.10.3 ADF IMAGE ADJUSTMENT

Registration



A: Leading Edge Registration

B: Side-to-side Registration

 **Note**

- Make a temporary test chart as shown above using A3/DLT paper.
1. Place the temporary test chart on the ADF and make a copy from one of the feed

Copy Adjustments: Printing/Scanning

stations.

2. Check the registration, and adjust using the following SP modes if necessary.

| | SP mode |
|-------------------------------------|-----------|
| Side-to-side Registration | SP6-006-1 |
| Leading Edge Registration (Simplex) | SP6-006-2 |
| Trailing Edge Blank Margin | SP6-006-3 |

Sub Scan Magnification



- Make a temporary test chart as shown above using A3/DLT paper.
1. Place the temporary test chart on the ADF and make a copy from one of the feed stations.
 2. Check the magnification, and adjust using the following SP modes if necessary. The specification is $\pm 1\%$.

| | SP mode |
|------------------------|-----------|
| Sub scan magnification | SP6-006-5 |

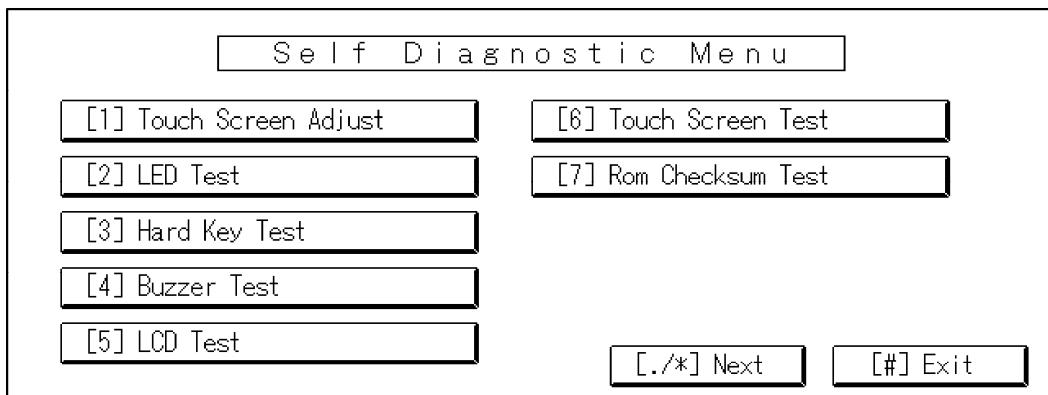
3.10.4 TOUCH SCREEN CALIBRATION

After clearing the memory, or if the touch panel detection function is not working correctly, follow this procedure to calibrate the touch screen.



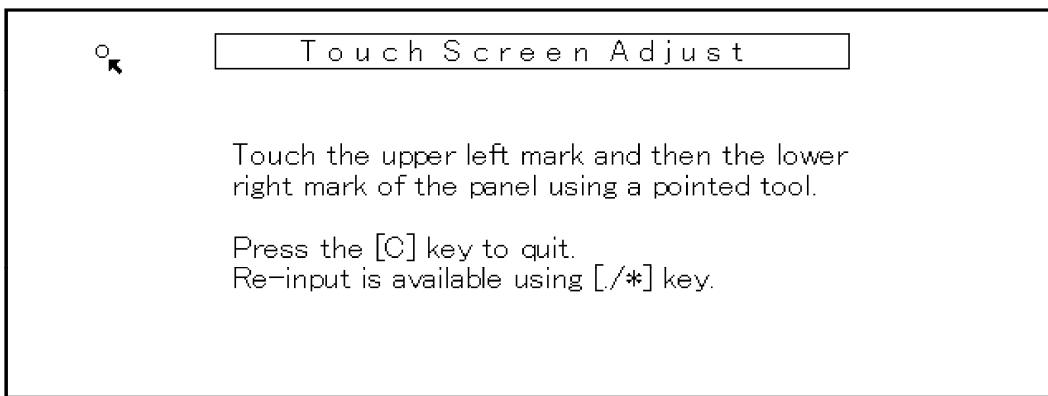
- Do not attempt to use items [2] to [9] on the Self-Diagnostic Menu. These items are for design use only.
1. Press , input 1993 at the ten-key pad, and then press 5 times to open the Self-Diagnostics menu.

Copy Adjustments: Printing/Scanning



b205r974

2. On the touch screen press "Touch Screen Adjust" (or press ① on the ten-key pad).



b205r975

3. Use a pointed (not sharp!) tool to press the mark at the upper left of the screen (↖).
4. Press the mark at the lower right of the screen (↗) after it appears.
5. Touch a few spots on the touch panel to confirm that the marker (+) appears exactly where the screen is touched.
 - If the + mark does not appear where the screen is touched, press Cancel and repeat from Step 2.
6. When you are finished, press [#] OK on the screen (or press # on the ten-key pad).
7. Touch [#] Exit on the screen to close the Self-Diagnostic menu and save the calibration settings.

TROUBLESHOOTING

4. TROUBLESHOOTING

4.1 SERVICE CALL CONDITIONS

4.1.1 SUMMARY

There are 4 levels of service call conditions.

| Level | Definition | Reset Procedure |
|-------|--|--|
| A | To prevent damage to the machine, the main machine cannot be operated until the SC has been reset by a service representative (see the note below). | Enter SP mode, go into SP5810, press [Execute], turn the main power switch off and on. |
| B | SCs that disable only the features that use the defective item. Although these SCs are not shown to the user under normal conditions, they are displayed on the operation panel only when the defective feature is selected. | Turn the operation switch or main switch off and on. |
| C | The SC history is updated. The machine can be operated as usual. | The SC will not be displayed. Only the SC history is updated. |
| D | Turning the main switch off then on resets SCs displayed on the operation panel. These are re-displayed if the error occurs again. | Turn the operation switch off and on. |

Trouble-
shooting

When a Level “D” SC code occurs

When a Level D SC occurs, a screen opens on the operation panel to tell the operator:

- An error occurred
- The job in progress will be erased
- The machine will reboot automatically after approximately 30 seconds.

The operator can wait until the machine reboots automatically or touch “Reset” on the screen to reset the machine immediately and go back to the copy screen.

Service Call Conditions

If the operator does not touch “Reset”

The next message tells the operator that the machine will reset automatically and that the previous job was lost and must be started again. After reading the message, the operator touches “Confirm” on the screen. The next screen shows the number and title of the SC code, and stops until the operator turns the machine off and on.

If the operator touches “Reset”

If the operator touches "Reset" to bypass the 30-second interval for the machine to reboot, the machine reboots immediately and the operation panel displays the copy screen.



- Do not try to use the operation panel during an automatic reboot. If the Remote Service System is in use, the SC code is sent immediately to the Service Center

4.1.2 SC CODE DESCRIPTIONS



- If a problem concerns a circuit board, disconnect and reconnect the connectors and then test the machine. Often a loose or disconnected harness is the cause of the problem. Always do this before you decide to replace the PCB.
- If a motor lock error occurs, check the mechanical load before you decide to replace the motor or sensors.
- When a Level “A” or “B” SC occurs while in an SP mode, the machine cannot display the SC number. If this occurs, check the SC number after leaving the SP mode.
- The machine reboots automatically when the machine issues a Level “D” SC code. This is done for Level “D” SC codes only.



- Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.



- The main power LED (①) lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a fax machine or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

Service Call Conditions

| | | |
|-------|---|---|
| 101-1 | D | Exposure lamp error 1 |
| | | The standard white level could not be set properly when scanning the white plate during automatic white level adjustment. |
| | | <ul style="list-style-type: none"> ▪ White plate dirty ▪ Spurious electrical noise on power supply line ▪ Exposure lamp connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer connection, loose, broken, defective ▪ Lamp stabilizer defective ▪ High voltage power supply harness loose, broken, defective ▪ SBU defective ▪ BCU defective ▪ SIO defective |

| | | |
|-------|---|---|
| 101-2 | D | Exposure lamp error 1 |
| | | The standard white level setting dropped below the specified range during scanning. |
| | | <ul style="list-style-type: none"> ▪ White plate dirty ▪ Spurious electrical noise on power supply line ▪ Exposure lamp connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer connection, loose, broken, defective ▪ Lamp stabilizer defective ▪ High voltage power supply harness loose, broken, defective ▪ SBU defective ▪ BCU defective ▪ SIO defective |

| | | |
|-----|---|--|
| 120 | D | Scanner home position error 1 |
| | | The scanner HP sensor did not turn off during scanner initialization or copying. |

Service Call Conditions

| | | | |
|-----|---|---|--|
| 121 | D | Scanner home position error 1 | |
| | | The scanner HP sensor did not turn on during scanner initialization or copying. | |
| | | <ul style="list-style-type: none"> ▪ Scanner motor harness loose, broken, defective at scanner motor or at BCU ▪ Scanner HP sensor harness, loose, broken, defective at HP sensor or at BCU ▪ Scanner motor or motor driver board defective ▪ Scanner motor drive board defective ▪ Scanner HP sensor defective ▪ BCU defective | |
| 141 | D | Black level correction error | <ul style="list-style-type: none"> ▪ Harnesses at the SBU, IPU, BCU loose, broken, defective. ▪ SBU defective ▪ IPU defective ▪ BCU defective |
| | | Black level correction could not be set properly during automatic adjustment. | |
| 142 | D | White level correction error | <ul style="list-style-type: none"> ▪ Harnesses at SBU, IPU, BCU loose, broken, defective ▪ Spurious electrical noise on power supply line ▪ White plate dirty or missing ▪ Anti-condensation heater (option) in scanner unit not operating ▪ Exposure lamp harness, loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer harness loose, broken, defective ▪ Lamp stabilizer defective ▪ SBU defective ▪ IPU defective ▪ BCU defective |
| | | White level correction could not be set properly during automatic adjustment. | |

Service Call Conditions

| | | |
|--|--|---|
| | | <ul style="list-style-type: none"> ▪ SIO Defective |
|--|--|---|

| | | |
|-----|---|---|
| 143 | C | <p>SBU auto adjust error</p> <p>The machine could not acquire the white or black peak level setting at power on.</p> |
| | | <ul style="list-style-type: none"> ▪ Exposure lamp, lamp stabilizer harness connection loose, broken, defective ▪ Exposure lamp defective ▪ Lamp stabilizer defective ▪ Spurious electrical noise on power supply line ▪ White plate dirty or missing ▪ Anti-condensation heater (option) in scanner unit not operating ▪ Harness connection at SBU, iPU, BCU, SIO, loose, broken, defective ▪ SBU defective ▪ IPU defective ▪ BCU defective ▪ SIO Defective |

Trouble-
shooting

| | | |
|-------|---|---|
| 144-1 | D | <p>SBU connection error</p> <p>Connection to the SBU could not be confirmed, possibly due to a defect in the BCU detection board</p> |
| | | <p>SBU serial communication error</p> <p>Poor SBU power supply caused by SIO, or BCU detection board defective.</p> |
| 144-3 | D | <p>SBU GASBU reset error</p> <p>SBU defective, BCU detection circuit defective.</p> |
| | | <p>SBU version error</p> <p>SBU defective, BCU detection circuit defective.</p> |
| | | <ul style="list-style-type: none"> ▪ Harness connection at IPU, BCU, SBU loose, broken, defective. ▪ Spurious electrical noise on power supply line |

Service Call Conditions

| | | |
|--|--|---|
| | | <ul style="list-style-type: none"> ▪ IPU defective ▪ BCU defective ▪ SBU defective |
|--|--|---|

| | | | |
|-----|---|---|---|
| 161 | D | IPU Error | <ul style="list-style-type: none"> ▪ Harness between SBU and IPU loose or broken ▪ IPU defective ▪ SBU defective |
| | | The self-diagnostic test detected an error at the IPU at power on, or after the machine returned from energy save mode. | |

| | | | |
|-----|---|--|--|
| 165 | B | Copy Data Security Unit error | <ul style="list-style-type: none"> ▪ Check installation of Copy Data Security (CDS) Unit ▪ CDS unit not correct type for the machine ▪ CDS unit defective |
| | | An error occurred when the machine attempted to recognize the Copy Data Security Unit board. | |

| | | | |
|-----|---|---|--|
| 202 | D | Polygon motor error 1: ON timeout | |
| | | The polygon mirror motor did not reach the targeted operating speed within 10 sec. after turning on or changing speed | |
| 203 | D | Polygon motor error 1: OFF timeout | |
| | | The polygon mirror motor did not leave READY status within 3 sec. after polygon motor switched off. | |
| 204 | D | Polygon motor error 1: XSCRDY signal error | |
| | | The XSCRDY signal remained HIGH for 200 ms while the LD unit was firing. | |
| | | <ul style="list-style-type: none"> ▪ Polygon motor/driver board harness loose or broken ▪ Polygon motor/driver board defective ▪ Laser optic unit defective ▪ IPU defective | |

Service Call Conditions

| | | | |
|-----|---|---|--|
| 220 | D | Laser synchronization detection error: LD0 | |
| | | <p>The laser synchronizing detection signal for the start position of the LD was not output for two sec. after LDB unit turned on with the polygon motor rotating normally.</p> | <ul style="list-style-type: none"> ▪ Laser synchronizing detection board harness loose or broken. ▪ Laser synchronization detection board defective ▪ LDB unit defective ▪ IPU defective |

| | | | |
|-----|---|---|--|
| 230 | D | FGATE ON error | |
| | | <p>The FGATE signal did not assert within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)</p> | <ul style="list-style-type: none"> ▪ BCU, Controller board harness loose or broken ▪ BCU defective ▪ Controller board defective |
| 231 | D | FGATE OFF error | |
| | | <p>The FGATE signal did not go off within the prescribed time. (The BCU generates the FGATE signal and sends it to the LD unit when the registration sensor switches on.)</p> | |

Trouble-
shooting

| | | | |
|-----|--|---|---|
| 240 | | LD error | |
| | | <p>The IPU detected a problem at the LD unit.</p> | <ul style="list-style-type: none"> ▪ LD unit harness broken, defective ▪ BCU harness broken defective ▪ LD unit defective ▪ BCU defective |

| | | | |
|-----|---|--|--|
| 302 | D | Charge level output error | |
| | | <p>The PWM output level was detected higher than 50% after 10 consecutive samplings.</p> | <ul style="list-style-type: none"> ▪ HVPS (High Voltage Power Supply) board harness loose, broken. ▪ PCU connection loose or |

Service Call Conditions

| | | | |
|--|--|--|--------|
| | | | broken |
|--|--|--|--------|

| | | |
|-----|---|---|
| 350 | B | ID sensor calibration – Error 1 |
| | | <p>One of the following conditions occurred when the ID sensor pattern was calibrated during printing:</p> <p>$V_{sp} > 2.5V$</p> <p>$V_{sg} < 2.5V$</p> <p>$V_{sp} = 0V$</p> <p>$V_{sg} = 0V$</p> |
| | | <ul style="list-style-type: none"> ▪ ID sensor defective or dirty ▪ ID sensor harness disconnected or connector is damaged ▪ BCU defective ▪ Scanning system or image creation system malfunction ▪ High voltage power supply board (power pack) defective |

| | | |
|-----|---|---|
| 351 | B | ID sensor calibration – Error 2 |
| | | <p>The following conditions occurred simultaneously when the ID sensor pattern was calibrated during printing:</p> <p>$V_{sg} = 5V$</p> <p>$PWM = 0$ (LED current drop)</p> |
| | | <ul style="list-style-type: none"> ▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU board defective <p>High voltage power supply board (power pack) defective</p> |

| | | | |
|-----|---|---|--|
| 353 | B | ID sensor LED current error | |
| | | <p>Error occurred during automatic adjustment of V_{sg}:</p> <ul style="list-style-type: none"> ▪ V_{sg} output did not attain 4V, even with $PWM = 1023$ (maximum current for LED) | <ul style="list-style-type: none"> ▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ IOB defective ▪ High voltage power supply board |

Service Call Conditions

| | | | |
|--|--|--|--|
| | | <ul style="list-style-type: none"> ▪ Vsg output was greater than 4V, even with PWM=1 (no current for the LED) | <ul style="list-style-type: none"> (power pack) defective ▪ Scanning system or image creation system malfunction |
|--|--|--|--|

| | | | |
|-----|---|---|---|
| 354 | B | ID sensor adjustment timeout error | |
| | | <p>Error occurred during automatic adjustment of Vsg. Vsg could not be adjusted to 4.0V ±0.2V within the prescribed time.</p> | <ul style="list-style-type: none"> ▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective |

| | | | |
|-----|---|---|---|
| 355 | C | ID sensor error | |
| | | <p>For more details about the cause of the problem, please refer to SC350 to 354 above.</p> | <ul style="list-style-type: none"> ▪ ID sensor dirty or defective ▪ ID sensor harness disconnected, or connector damaged ▪ BCU defective ▪ High voltage power supply board (power pack) defective |

| | | | |
|-----|---|---|--|
| 389 | C | TD sensor error 1 | |
| | | <p>TD sensor output was less than 0.5V, or more than 0.5V 10 times in succession. If the fax unit is installed, this SC is issued immediately. If the fax unit is not installed, this SC is issued after the prescribed number of copies has printed.</p> | |
| 390 | D | TD sensor error 2 | |
| | | <p>The TD sensor outputs less than 0.5V or more than 4.0V 10 times consecutively during copying.</p> <p>Note: If the fax option is installed, this SC is issued immediately. If the fax option is not installed, this SC is issued after the prescribed number of pages is copied.</p> | |

Service Call Conditions

| | | |
|--|--|--|
| | | <ul style="list-style-type: none"> ▪ TD sensor abnormal ▪ Poor connection of the PCU |
|--|--|--|

| | | | |
|-----|---|---|---|
| 391 | B | Development bias leak | |
| | | A development bias leak signal is detected. | <ul style="list-style-type: none"> ▪ Poor connection at the PCU bias terminal ▪ High voltage supply board defective |

| | | | |
|-----|---|---|--|
| 392 | B | TD sensor initial setting error | |
| | | Initialization of the new PCU unit failed (the drum and development roller did not start rotating). | <ul style="list-style-type: none"> ▪ The PCU toner seal was not removed ▪ ID sensor harness loose, broken ▪ TD sensor harness loose, broken ▪ ID sensor defective ▪ TD sensor defective |

| | | | |
|-----|---|---------------------------------------|----------------------------------|
| 398 | B | PCU error (South Korea only) | |
| | | Illegal PCU unit. | Install the correct type of PCU. |

| | | | |
|-----|---|---|---|
| 399 | B | Illegal toner bottle (South Korea only) | |
| | | The installed toner bottle installed is not intended for use with this machine. | Install the correct type of toner bottle. |

| | | | |
|-----|---|---|---|
| 401 | B | Transfer roller leak error 1 | |
| | | A transfer roller current leak signal was detected. (The current feedback signal for the transfer roller was not detected within the correct time.) | <ul style="list-style-type: none"> ▪ High voltage supply board set incorrectly or defective ▪ Transfer roller set incorrectly or damaged ▪ Transfer unit set incorrectly |

Service Call Conditions

| | | | |
|-----|---|---|--|
| 402 | B | Transfer roller leak error 2 | |
| | | A transfer roller current leak signal is detected. The current feedback signal for the transfer roller is not detected within the correct time. | <ul style="list-style-type: none"> ▪ Transfer roller set incorrectly or damaged ▪ High voltage supply board set incorrectly or defective |

| | | | |
|-----|---|---|--|
| 411 | B | Separation bias leak error | |
| | | A separation bias leak signal was detected. | <ul style="list-style-type: none"> ▪ High voltage supply board defective ▪ Discharge plate defective |

| | | | |
|-----|---|---|--|
| 490 | B | Toner supply motor leak error | |
| | | More than 1 ampere supplied to the toner supply motor for longer than 200 ms. | <ul style="list-style-type: none"> ▪ Toner supply motor defective |

Trouble-
shooting

| | | | |
|-----|---|--|---|
| 500 | B | Main motor lock | |
| | | The machine detected motor lock (motor is not operating correctly) | <ul style="list-style-type: none"> ▪ An obstruction has blocked operation of the main motor ▪ Main motor harness loose or broken ▪ Main motor or main motor driver board defective |

| | | | |
|-----|---|---|--|
| 501 | B | 1st paper tray lift motor malfunction | |
| 502 | B | 2nd paper tray lift motor malfunction | |
| 503 | B | 3rd paper tray lift motor malfunction (optional Paper Tray Unit) | |
| 504 | B | 4th paper tray lift motor malfunction (optional Paper Tray Unit) | |
| | | The paper lift sensor did not activate within 18 sec. after the tray lift motor | |

Service Call Conditions

| | | |
|--|--|---|
| | | switched on. |
| | | <ul style="list-style-type: none"> ▪ An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. ▪ Paper lift sensor connection loose, disconnected, or damaged ▪ Paper lift sensor defective ▪ Tray lift motor connection loose, disconnected, or damaged ▪ Tray lift motor defective |

| | | |
|-----|---|---|
| 506 | B | Paper tray motor lock (optional Paper Tray Unit) |
| | | <p>A motor lock signal is not detected for more than 1.5 s or the lock signal is not detected for more than 1.0 s during rotation.</p> <ul style="list-style-type: none"> ▪ An obstruction (jammed paper, paper scraps, etc.) has blocked the motor drive and caused an overload. ▪ Paper tray motor connection loose, disconnected, or damaged ▪ Paper tray motor defective |

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| 508 | B | <p>LCT rear fence drive error</p> <p>The return position sensor is not activated after the rear fence drive motor has been on to lower the tandem tray for 8 seconds.</p> |
| | | <ul style="list-style-type: none"> ▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence or motor ▪ Rear fence motor connection loose, disconnected, or damaged ▪ Rear fence motor defective ▪ Return position sensor connector loose, disconnected, or damaged ▪ Return position sensor defective |

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| 509 | B | <p>LCT side fence drive error</p> <p>The side fence positioning sensor is not activated for more 3 seconds when the paper stack in the left tray is moved to the right tray. The side fence close sensor is not activated for more 3 seconds after moving the paper stack to the right tray.</p> |
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Service Call Conditions

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| | | <ul style="list-style-type: none"> ▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the rear fence or motor ▪ Side fence motor disconnected or defective ▪ Side fence position sensor disconnected or defective <p>Side fence close sensor disconnected or defective</p> |
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| 510 | B | <p>LCT lower limit error</p> <p>The lower limit sensor does not activate within 8 seconds after the tray has been lowered.</p> |
| | | <ul style="list-style-type: none"> ▪ An obstruction (jammed paper, paper scraps, etc.) has jammed the tray lift motor ▪ Tray lift motor defective ▪ Poor connection of the tray lift motor ▪ Lower limit sensor disconnected or defective <p>Obstruction that causes overload on the drive mechanism.</p> |

Trouble-
shooting

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| 541 | A | Fusing thermistor open (center) | |
| | | <p>The temperature of the hot roller remained below 0°C for 5 sec at the center of the hot roller.</p> | <ul style="list-style-type: none"> ▪ Fusing thermistor out of its position because of incorrect installation ▪ Fusing thermistor disconnected or defective ▪ Power supply not within rated range (15% or more below rating) |

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| 542 | A | Fusing temperature warm-up error (center) | |
| | | <p>The fusing temperature did not reach the standby temperature within 20 sec. at the center of the hot roller after the main switch turned on.</p> | <ul style="list-style-type: none"> ▪ Fusing thermistor defective or out of position ▪ Fusing lamp disconnected ▪ Thermistor defective ▪ Fusing lamp defective |

Service Call Conditions

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| 543 | A | Fusing overheat error 1 (center) | |
| | | The fusing thermistor detected a fusing temperature over 230 °C for 5 sec. at the center of the hot roller. | <ul style="list-style-type: none"> ▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective |

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| 544 | A | Fusing overheat error 2 (center) | |
| | | <p>A fusing temperature over 250 °C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board.</p> <p>The power was interrupted for more than 0.3 sec.</p> | <ul style="list-style-type: none"> ▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective ▪ Power supply voltage unstable |

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| 545 | A | Fusing overheat error 3 (center) | |
| | | <p>After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot roller rotating.</p> | <ul style="list-style-type: none"> ▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor defective |

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| 547 | B | Zero cross signal detection error | |
| | | <p>Zero cross signals were not detected within the prescribed time.</p> | <ul style="list-style-type: none"> ▪ PSU, BCU harness loose or broken ▪ PSU defective ▪ BCU defective |

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| 551 | A | Fusing thermistor open (end) | |
| | | <p>The temperature of the hot roller remained below</p> | <ul style="list-style-type: none"> ▪ Fusing thermistor out of its position because of incorrect installation |

Service Call Conditions

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| | | 0°C for 5 sec. at the end of the hot roller. | <ul style="list-style-type: none"> ▪ Fusing thermistor disconnected or defective ▪ Power supply not within rated range (15% or more below rating) |
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| 552 | A | Fusing temperature warm-up error (end) | |
| | | The fusing temperature did not reach the standby temperature within 20 sec. at the center of the hot roller after the main switch turned on. | <ul style="list-style-type: none"> ▪ Fusing thermistor defective or out of position ▪ Fusing lamp disconnected ▪ Thermistor defective ▪ Fusing lamp defective |

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| 553 | A | Fusing overheat error 1 (end) | |
| | | The fusing thermistor detected a fusing temperature over 230 °C for 5 sec. at the center of the hot roller. | <ul style="list-style-type: none"> ▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective |

Trouble-
shooting

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| 554 | A | Fusing overheat error 2 (end) | |
| | | A fusing temperature over 250 °C is detected at the center of the hot roller by the fusing temperature monitor circuit in the BCU board. The power was interrupted for more than 0.3 sec. | <ul style="list-style-type: none"> ▪ TRIAC short on PSU (PSU defective) ▪ BCU board defective ▪ Fusing thermistor defective ▪ Power supply voltage unstable |

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| 555 | A | Fusing overheat error 3 (end) | |
| | | After warmup, the center of the hot roller attained full operating temperature and maintained this temperature for 10 sec. without the hot | <ul style="list-style-type: none"> ▪ Center hot roller thermistor installed incorrectly, disconnected. ▪ Center hot roller thermistor |

Service Call Conditions

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| | | roller rotating. | defective |
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| 557 | B | Zero cross waveform signal error | |
| | | The waveform of the zero cross signal was detected out of range. | <ul style="list-style-type: none"> ▪ Electrical noise on the power supply line |

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| 559 | A | Consecutive fusing unit paper jams | |
| | | <p>Three consecutive paper jams occurred in the fusing unit.</p> <p>The paper jam counter for the fusing unit reaches 3 times. The paper jam counter clears after the paper feeds correctly.</p> <p>Note: This SC is issued only if SP1159 is set to "1".</p> | <ul style="list-style-type: none"> ▪ Remove the paper jam in the fusing unit. ▪ Make sure that the paper path in the fusing unit is clear. |

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| 590 | B | Exhaust fan motor error | |
| | | <p>The CPU detects an exhaust fan lock signal for more than 3.5 seconds.</p> | <ul style="list-style-type: none"> ▪ Poor connection of the exhaust fan motor ▪ Too much load on the motor drive |

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| 620 | B | Communication error between IPU and ADF | |
| | | <p>A break occurred in the connection between the IPU and ADF</p> | <ul style="list-style-type: none"> ▪ ADF disconnected ▪ ADF defective ▪ IPU harness connection loose, broken ▪ IPU defective ▪ External noise |

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| 621 | B | Communication timeout between BCU and finisher | |
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Service Call Conditions

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| | | A break (LOW) signal was received from the finisher. | <ul style="list-style-type: none"> ▪ Finisher serial cable connection loose, broken ▪ BCU defective ▪ Finisher main board defective ▪ External noise |
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| 632 | B | Key/card counter device error 1 | |
| | After 1 data frame is sent to the device, an ACK signal is not received within 100 ms, and is not received after 3 retries. | <ul style="list-style-type: none"> ▪ Serial line from the device to the main machine is unstable, disconnected, or defective | |

Trouble-shooting

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| 633 | B | Key/card counter device error 2 | |
| | | During communication with the device, the MCU received a break (Low) signal. | <ul style="list-style-type: none"> ▪ Serial line from the device to the main machine is unstable, disconnected, or defective |

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| 634 | B | Key/card counter device error 3 | |
| | | The backup battery of the counter | <ul style="list-style-type: none"> ▪ RAM backup battery |

Service Call Conditions

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| | | device RAM is low. | <ul style="list-style-type: none"> ▪ exhausted ▪ Counter device defective |
| 635 | B | <p>Key/card counter device error 4</p> <p>After installation of the device a message alerts user to a battery voltage abnormal error.</p> | <ul style="list-style-type: none"> ▪ Device control board defective ▪ Device control board backup battery defective |
| 636 | B | OSM User Code File Error | |
| | | The correct "usercode" file could not be found in the root folder of the SD card because the file is not present, or the existing file is corrupted or the wrong type file. | <ul style="list-style-type: none"> ▪ Make sure the eccm.mod file is in the root folder of the SD card. <p>Note: The usercode files are created with the User Setting Tool "IDissuer.exe".</p> |
| 641 | D | Engine-Controller Communication Error: Non-Response | |
| | | There was no response to a frame sent from the controller board to the engine. | <ul style="list-style-type: none"> ▪ Turn the machine power off/on. |
| 650 | B | Communication error of the remote service modem (Cumin-M) | |
| -001 | - | <p>Authentication error</p> <p>The authentication for the Cumin-M failed at dial up connection.</p> <ul style="list-style-type: none"> ▪ Incorrect SP settings ▪ Disconnected telephone line ▪ Disconnected modem board <p>Check and set the correct user name (SP5816-156) and password (SP5816-157).</p> | |
| -004 | - | Incorrect modem setting | |

Service Call Conditions

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| | | Dial up fails due to the incorrect modem setting. |
| | | Same as -001 |
| -005 | - | Communication line error |
| | | The supplied voltage is not sufficient due to the defective communication line or defective connection. |
| | | Same as -001 |
| | | Consult with the user's local telephone company. |
| -011 | - | Incorrect network setting |
| | | Both the NIC and Cumin-M are activated at the same time. |
| | | Same as -001 |
| | | Disable the NIC with SP5985-1. |
| -012 | - | Modem board error |
| | | The modem board does not work properly even though the setting of the modem board is installed with a dial up connection. |
| | | Same as -001 |
| | | Install the modem board. Check and reset the modem board setting with SP5816. Replace the modem board. |
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Trouble-
shooting

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| | | Incorrect dial up connection |
| | | -001: Program parameter error |
| | | -002: Program execution error |
| 651 | C | An unexpected error occurred when the modem (Cumin-M) tried to call the center with a dial up connection. |
| | | <ul style="list-style-type: none"> ▪ Caused by a software bug ▪ No action required because this SC does not interfere with operation of |

Service Call Conditions

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| | | the machine. |
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| 669 | B | EEPROM Communication Error | |
| | | The machine failed to detect a match between the read/write data for the EEPROM on the BCU after 3 attempts. | <ul style="list-style-type: none"> ▪ EEPROM installed incorrectly ▪ EEPROM defective. Turn the machine power off/on after replacing the EEPROM. ▪ BCU defective. |

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| 670 | D | Engine response error | |
| | | After powering on the machine, a response is not received from the engine within 30 seconds. | <ul style="list-style-type: none"> ▪ BCU installed incorrectly ▪ BCU defective ▪ Controller board defective |

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| 672 | D | Controller-to-operation panel communication error at startup | |
| | | After powering on the machine, the communication circuit between the controller and the operation panel is not opened, or communication with controller is interrupted after a normal startup. | <ul style="list-style-type: none"> ▪ Controller stalled ▪ Controller board installed incorrectly ▪ Controller board defective ▪ Operation panel connector loose or defective |

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| 687 | D | Memory address (PER) command error | |
| | | The BCU did not receive a memory address command from the controller with the prescribed time once the paper reached the registration sensor. | <ul style="list-style-type: none"> ▪ Harness connection at BCU, Controller board loose or broken ▪ Defective BCU ▪ Defective Controller Board |

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| 721 | B | Front fence motor error | |
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Service Call Conditions

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| | | The jogger fence motor in the finisher is not operating. | <ul style="list-style-type: none"> ▪ Jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The motor harness loose or broken ▪ Jogger fence HP sensor dirty, loose, defective ▪ Jogger fence motor defective |
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| 722 | B | Rear fence motor error | |
| | | The rear jogger fence motor in the finisher is not operating. | <ul style="list-style-type: none"> ▪ Rear jogger motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ The rear jogger fence motor harness loose or broken ▪ Rear jogger fence HP sensor dirty, loose, defective ▪ Rear jogger fence motor defective |

Trouble-shooting

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| 723 | B | Feed-out belt motor error | |
| | | The feed-out belt did not return to the home position within the prescribed time. | <ul style="list-style-type: none"> ▪ Feed-out belt motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Feed-out belt motor drive obstructed (jammed paper, paper scraps, etc.) ▪ Motor harness loose or broken ▪ Feed-out belt HP sensor dirty, disconnected, broken ▪ Motor defective |

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| 725 | B | Finisher stack feed-out motor error | |
| | | The stack feed-out belt HP sensor did not activate within the prescribed time after the stack feed-out motor turned on. | <ul style="list-style-type: none"> ▪ Finisher stack feed-out motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Stack feed-out motor harness loose, broken ▪ Stack feed-out HP sensor harness |

Service Call Conditions

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| | | <ul style="list-style-type: none"> loose, broken ▪ Stack feed-out motor defective ▪ Stack feed-out HP sensor defective |
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| 730 | B | Shift tray motor error | |
| | | <p>The shift tray motor in the 1000-sheet finisher is not operating.</p> <ul style="list-style-type: none"> ▪ Shift motor drive is obstructed (jammed paper, paper scraps, etc.) ▪ Shift motor harness loose, broken ▪ Shift tray HP sensor harness loose, broken ▪ Shift motor defective ▪ Shift tray HP sensor defective | |

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| 740 | B | Corner stapler motor error | |
| | | <p>The corner stapler motor in the 1000-sheet finisher is not operating.</p> <ul style="list-style-type: none"> ▪ Staple jam ▪ Number of sheets in stack exceeds allowed number of sheets for stapling ▪ Stapler motor obstructed ▪ Stapler motor defective | |

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| 742 | B | Stapler movement motor | |
| | | <p>The stapler movement motor in the 1000-sheet finisher is not operating.</p> <ul style="list-style-type: none"> ▪ Stapler or motor drive is blocked by obstruction ▪ Motor harness loose or broken ▪ Stapler HP sensor harness loose, broken ▪ Motor defective ▪ Stapler HP sensor defective | |

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| 746 | | Stack feed motor error | |
| | | <p>The stack feed HP sensor in the 1000-sheet booklet finisher did not detect "ON" twice (once: jam error) within the prescribed time after the stack feed</p> | |

Service Call Conditions

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| | | <p>motor turned on.</p> <p>-or-</p> <p>The stack feed HP sensor did not detect "OFF" twice (once: jam error) for the specified time after the stack feed motor turned on.</p> |
| | | <ul style="list-style-type: none"> ▪ Motor drive obstructed ▪ Stack feed motor harness loose, broken ▪ Stack feed motor defective |

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| 750 | B | Tray lift motor error | |
| | | <p>The tray lift motor in the 1000-sheet booklet finisher is not operating.</p> | <ul style="list-style-type: none"> ▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Stack height sensor dirty, harness loose, broken ▪ Motor defective ▪ Stack height sensor defective |

Trouble-
shooting

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| 751 | B | Stack pressure solenoid error | |
| | | <p>The stack pressure solenoid in the finisher is not operating.</p> | <ul style="list-style-type: none"> ▪ Solenoid harness loose, broken ▪ Solenoid obstructed ▪ Stack height sensor dirty, harness loose, broke ▪ Solenoid defective ▪ Stack height sensor defective |

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| 760 | B | Finisher punch motor error | |
| | | <p>The punch HP sensor did not activate within the prescribed time after the punch motor turned on. The 1st detection issues a jam error, and the 2nd failure issues this SC code.</p> | <ul style="list-style-type: none"> ▪ Punch HP sensor harness loose, broken ▪ Punch motor harness loose, broken ▪ Punch motor obstructed ▪ Punch motor defective ▪ Punch HP sensor defective |

Service Call Conditions

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| 761 | B | Folder plate motor error | |
| | | The folder plate in the 1000-sheet booklet finisher moved but was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. | |
| | | <ul style="list-style-type: none"> ▪ Folder plate motor drive obstructed ▪ Folder plate HP sensor harness loose, broken ▪ Folder plate motor harness loose, broken ▪ Folder plate motor defective ▪ Folder plate HP sensor defective | |
| 763 | B | Punch movement motor error | |
| | | The punch unit moved but it was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. | <ul style="list-style-type: none"> ▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective |
| 764 | B | Paper position slide motor error | |
| | | The paper position sensor detected movement of the slide but the slide was not detected at the home position within the prescribed time. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. | <ul style="list-style-type: none"> ▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective |
| 765 | B | Fold unit bottom fence lift motor | |
| | | The fold unit bottom fence lift motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. | <ul style="list-style-type: none"> ▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective |

Service Call Conditions

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| 766 | B | Clamp roller retraction motor | |
| | | The clamp roller retraction motor in the 1000-sheet booklet finisher is not operating. The 1st detection failure issues a jam error, and the 2nd failure issues this SC code. | <ul style="list-style-type: none"> ▪ Motor harness loose, broken ▪ Motor drive obstructed ▪ Motor defective |
| 791 | B | Bridge unit error | |
| | | The machine can communicate with the finisher but not the bridge unit. | <ul style="list-style-type: none"> ▪ Poor connection between the finisher and mainframe ▪ Bridge unit harness damaged or defective ▪ Bridge unit defective |
| 792 | B | Finisher unit error | |
| | | The machine cannot communicate with the bridge unit but not the finisher. | <ul style="list-style-type: none"> ▪ Poor connection between the finisher and mainframe ▪ Finisher harness damaged or defective ▪ Finisher unit defective |
| 816 | D | Energy saver I/O sub system error | |
| | | Energy saver sub system is not operating correctly. | <ul style="list-style-type: none"> ▪ Controller board defective |
| 819 | C | Fatal kernel error | |
| | | Due to a control error, a RAM overflow occurred during system processing. | <ul style="list-style-type: none"> ▪ Controller board defective ▪ Insufficient memory ▪ Expanded memory defective |

Trouble-
shooting

Service Call Conditions

Note: For more details about this SC code error, execute SP5990 to print an SMC report so that you can read the error code. The error code is not displayed on the operation panel.

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| 839 | B | USB flash error | |
| | | This is a self-diagnostic error. The device ID of the on-board USB flash ROM was not recognized. | <ul style="list-style-type: none"> ▪ Replace the controller board |
| 851 | D | IEEE 1394 I/F Abnormal | |
| | | IEEE1394 interface error. | <ul style="list-style-type: none"> ▪ IEEE1394 interface board defective ▪ Controller board defective |
| 853 | D | Wireless LAN board error 1 | |
| | | At startup the wireless LAN board could be accessed, but the wireless LAN board (IEEE 802.11b or Bluetooth) could not access the controller board. | <ul style="list-style-type: none"> ▪ Wireless LAN board not installed when the machine was turned on |
| 854 | D | Wireless LAN board error 2 | |
| | | The board that holds the wireless LAN board can be accessed, but the wireless LAN board (802.11b/Bluetooth) itself cannot be accessed while the machine is operating | <ul style="list-style-type: none"> ▪ Wireless LAN board has been removed during machine operation. |
| 855 | D | Wireless LAN board error 3 | |

Service Call Conditions

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| | | An error was detected for the wireless LAN board (802.11b or Bluetooth). | <ul style="list-style-type: none"> ▪ Wireless LAN board defective ▪ Wireless board connection not tight |
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| 856 | D | Wireless LAN board error | |
| | | An error is detected for the wireless LAN board (802.11b or Bluetooth). | <ul style="list-style-type: none"> ▪ Wireless LAN board defective ▪ PCI connector loose |

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| 857 | D | USB I/F Error | |
| | | The USB driver is unstable and generated an error. The USB I/F cannot be used. The USB driver can generate three types of errors: RX, CRC, and STALL errors. Only the STALL error can generate this SC code. | <ul style="list-style-type: none"> ▪ USB 2.0 disconnected ▪ Controller board defective |

Trouble-
shooting

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| 858 | A | Data encryption conversion error | |
| | | A serious error occurred during data encryption. | |
| 0 | A | Key acquisition error | <ul style="list-style-type: none"> ▪ Replace the controller board |
| 1 | A | HDD key setting error | <ul style="list-style-type: none"> ▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board |
| 2 | A | NVRAM read/write error | <ul style="list-style-type: none"> ▪ Replace the NVRAM |
| 30 | A | NVRAM error | <ul style="list-style-type: none"> ▪ Turn the machine power off/on ▪ If the error reoccurs, replace the controller board |
| 31 | A | | <ul style="list-style-type: none"> ▪ See SC991 |

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| 859 | B | HDD data encryption error | |
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Service Call Conditions

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| | | Encryption of data on the hard disk failed. | |
| 8 | B | HDD check error | <ul style="list-style-type: none"> ▪ Format the HDD |
| 6 | B | Power loss during encryption | <ul style="list-style-type: none"> ▪ Format the HDD |
| 10 | B | Data read/write error | <ul style="list-style-type: none"> ▪ See SC863 below |

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| 860 | B | HDD error 1 | |
| | | The hard disk connection is not detected because it is defective or has not been formatted | <ul style="list-style-type: none"> ▪ Cable between HDC and HDD loose or defective ▪ HDD power connector loose or defective ▪ HDD not formatted ▪ HDD defective ▪ Replace the controller board |

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| 861 | B | HDD error 2 | |
| | | The HDD did not enter the ready status within 30 sec. after power on. | <ul style="list-style-type: none"> ▪ Cable between HDC and HDD loose or defective ▪ HDD power connector loose or defective ▪ HDD defective ▪ Replace the controller board |

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| 863 | B | HDD error 3 | |
| | | Startup without HD data lead. Data stored on the hard disk is not read correctly, due to a bad sector on the HDD | <ul style="list-style-type: none"> ▪ Format the HDD ▪ HDD defective ▪ Controller board defective |

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| 864 | D | HDD error 4 | |
| | | HD data CRC error. During operation | <ul style="list-style-type: none"> ▪ HDD defective |

Service Call Conditions

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| | | of the HD, the HD responded with a CRC error. | |
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| 865 | D | HDD error 5 | |
| | | HDD responded to an error during operation for a condition other than those for SC863 or 864. | <ul style="list-style-type: none"> ▪ HDD defective. |

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| 866 | D | SD card error 1: Recognition error | |
| | | The SD card in the slot contains illegal program data. | <ul style="list-style-type: none"> ▪ Use only SD cards that contain the correct data. |

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| 867 | D | SD card error 2: SD card removed | |
| | | The SD card in the boot slot when the machine was turned on was removed while the machine power was on. | <ul style="list-style-type: none"> ▪ Insert the SD card, then turn the machine off and on. |

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| 868 | D | SD card error 3: SD card access | |
| | | An error occurred while an SD card was used. | <ul style="list-style-type: none"> ▪ SD card not inserted correctly ▪ SD card defective ▪ Controller board defective <p>Note: If you want to try to reformat the SD card, use SD Formatter Ver 1.1.</p> |

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|-----|---|---|---|
| 870 | B | Address Book Data Error | |
| | | Address book data stored on the hard disk was detected as abnormal when it was accessed from either the operation panel or the network. | <ul style="list-style-type: none"> ▪ Initialize the address book data (SP5-846-050). ▪ Initialize the user information (SP5-832-006). |

Service Call Conditions

| | | | |
|-----|---|--|---|
| | | | <ul style="list-style-type: none"> ▪ Replace the HDD.HDD defective |
| 872 | B | HDD mail RX data abnormal | |
| | | An error was detected at power on. The data received during mail receive could be neither read nor written. | <ul style="list-style-type: none"> ▪ HDD sector corrupted. Reformat with SP5832 007. If this does not repair the problem, replace the HDD. |
| 873 | B | <p>HDD mail TX data error</p> <p>An error was detected on the HDD immediately after the machine was turned on, or power was turned off while the machine used the HDD.</p> | <ul style="list-style-type: none"> ▪ Do SP5832-8 (Format HDD – Mail TX Data) to initialize the HDD. ▪ Replace the HDD |
| 874 | D | <p>Delete All error 1: HDD</p> <p>A data error was detected for the HDD/NVRAM after the Delete All option was used.</p> <p>Note: The source of this error is the Data Overwrite Security Unit D362 running from an SD card.</p> | <ul style="list-style-type: none"> ▪ Turn the main switch off/on, and try the operation again. ▪ Install the Data Overwrite Security Unit again. For more, see “Installation”. ▪ HDD defective |
| 875 | D | <p>Delete All error 2: Data area</p> <p>An error occurred while the machine deleted data from the HDD.</p> <p>Note: The source of this error is the Data Overwrite Security Unit D362 running from an SD card.</p> | <ul style="list-style-type: none"> ▪ Turn the main switch off/on, and try the operation again. |

Service Call Conditions

| | | | |
|-----|---|--|--|
| 876 | D | Log data abnormal | |
| | | An error was detected in the handling of the log data at power on or during machine operation. This can be caused if you turn the machine off while it is operating. | <ul style="list-style-type: none"> ▪ Software error. Update the firmware ▪ NVRAM defective ▪ HDD defective |
| 877 | D | Data Overwrite Security SD card error | |
| | | The 'all delete' function did not execute but the Data Overwrite Security Unit (D362) is installed and activated. | <ul style="list-style-type: none"> ▪ Replace the NVRAM ▪ Reinstall the DOS from the SD card ▪ SD card defective |
| 878 | D | TPM electronic recognition error | |
| | | The main machine firmware failed to recognize TPM because USB flash is not operating or a system module was updated incorrectly. | <ul style="list-style-type: none"> ▪ Replace the controller board |
| 880 | D | File format converter error | |
| | | A request for access to the File Format Converter (MLB) was not answered within the specified time. | <ul style="list-style-type: none"> ▪ File format converter disconnected ▪ File format converter board defective |
| 900 | D | Electrical total counter error | |
| | | The total count contains something that is not a number. | <ul style="list-style-type: none"> ▪ NVRAM incorrect type ▪ NVRAM defective ▪ NVRAM data scrambled ▪ Unexpected error from external source |

Service Call Conditions

| | | | |
|-----|---|--|---|
| 901 | D | Mechanical total counter error | |
| | | The counter was removed during standby or while it is operating, possibly damaging the connector. | <ul style="list-style-type: none"> ▪ Check the connection of the mechanical counter ▪ Counter defective |
| 920 | D | Printer Error 1 | |
| | | An internal application error was detected and operation cannot continue. | <ul style="list-style-type: none"> ▪ Software defective ▪ Insufficient memory |
| 921 | B | Printer error 2 | |
| | | When the application started, the necessary font was not on the SD card. | <ul style="list-style-type: none"> ▪ Font not on the SD card |
| 925 | D | Network File Error | |
| | | The file that manages NetFile is corrupted and operation cannot continue. | <ul style="list-style-type: none"> ▪ Software defective ▪ Files on the HDD corrupted |
| 990 | D | <p>Software performance error</p> <p>The software attempted to perform an unexpected operation due to: 1) software bug, 2) incorrect internal parameter, 3) insufficient working memory.</p> | |
| | | <ul style="list-style-type: none"> ▪ Turn the machine power off/on ▪ Reinstall the controller and/or main firmware <p>Note: When this SC occurs, the file name, address, and data will be stored in NVRAM. This information can be checked by using SP7-403. Note the above data and the situation in which this SC occurs. Then report the data and conditions to your technical control center.</p> | |

Service Call Conditions

| | | | |
|-----|---|---|--|
| 991 | C | Software continuity error | |
| | | The software attempted to perform an unexpected operation. However, unlike SC990, the object of the error is continuity of the software. | <ul style="list-style-type: none"> ▪ No operation required. <p>Note: This SC code does not appear on the panel, and is only logged.</p> |
| 992 | D | Unexpected Software Error | |
| | | Software encountered an unexpected operation not defined under any SC code. | <ul style="list-style-type: none"> ▪ Software defective ▪ An error undetectable by any other SC code occurred |
| 997 | B | Application function selection error | |
| | | Application selected by the operator did not start or end normally due to a software problem. An option required by the application may not be installed. | |
| | | <ul style="list-style-type: none"> ▪ Confirm which devices are required for the application. ▪ Make sure all devices are configured correctly. ▪ If the problem is with the fax unit, the nesting of the fax group may be too complicated | |
| 998 | D | Application start error | |
| | | No applications start within 60 sec. after the power is turned on. | |
| | | <ul style="list-style-type: none"> ▪ Loose connection of RAM-DIMM, ROM-DIMM ▪ Defective controller ▪ Software problem: check the setting of SP5875-001. If the setting is set to "1 (OFF)", change it to "0 (OFF)". ▪ Check if the RAM-DIMM and ROM-DIMM are correctly connected. ▪ Reinstall the controller system firmware. ▪ Replace the controller. | |
| | | | |

Service Call Conditions

Note 1

If a problem always occurs under specific conditions (for example, printer driver setting, image file), the problem may be caused by a software error. In this case, the following data and information need to be sent back to your product specialist. Please understand that it may take some time to get a reply on how to solve the problem, because in some cases the design staff in Japan must analyze the data.

- Symptom / Possible Causes / Action taken
- Summary sheet (SP mode “Printer SP”, SP1-004 [Print Summary])
- SMC - All (SP5-990-001)
- SMC - Logging (SP5-990-004)
- Printer driver settings used when the problem occurs
- All data displayed on the screen (SC code, error code, and program address where the problem is logged.)
- Image file which causes the problem, if possible

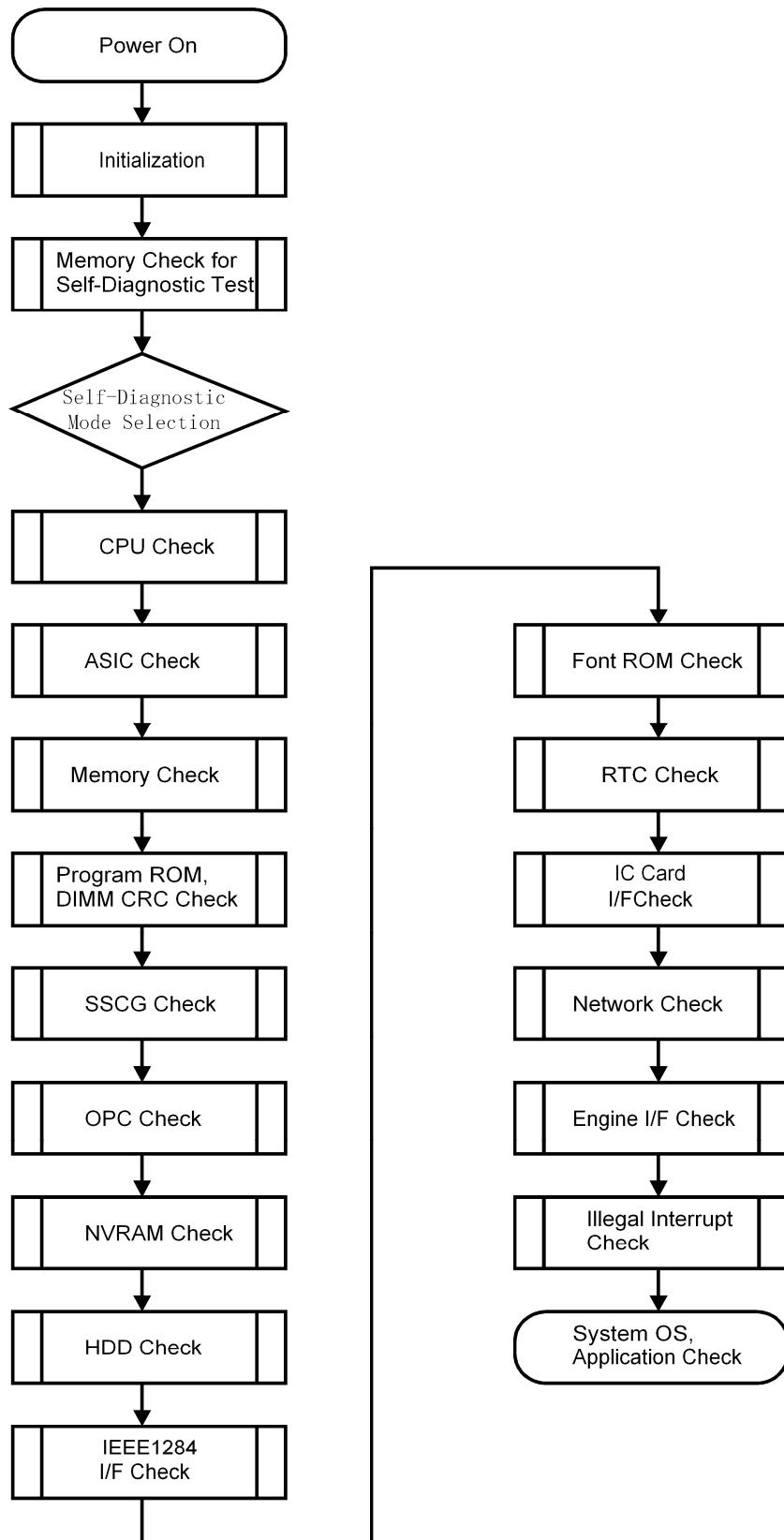
4.2 SELF-DIAGNOSTIC MODE

4.2.1 SELF-DIAGNOSTIC MODE AT POWER ON

As soon as the main machine is powered on, the controller waits for the initial settings of the copy engine to take effect and then starts an independent self-diagnostic test program. The self-diagnostic test follows the path of the flow chart shown below and checks the CPU, memory, HDD, and so on. An SC code is displayed in the touch panel if the self-diagnostic program detects any malfunction or abnormal condition.

Self-Diagnostic Mode

Self-Diagnostic Test Flow Chart



4.2.2 DETAILED SELF-DIAGNOSTIC MODE

Purpose

In addition to the self-diagnostic test initiated every time the main machine is powered on, you can set the machine in a more detailed diagnostic mode manually in order to test other components or conditions that are not tested during self-diagnosis after power on.

The following device is required in order to put the machine in the detailed self-diagnosis mode.

Also, the printer/scanner unit and the optional Centronics (IEEE1284) interface must be installed.

| Part No. | Name |
|----------|-----------------------------|
| G0219350 | Parallel Loopback Connector |

Executing Detailed Self-Diagnosis

Follow this procedure to do the detailed self-diagnosis.

1. Switch off the machine, and connect the parallel loopback device to the Centronics I/F port.
2. Hold down the $\#$ button, press and hold down the \otimes button, and then while pressing both keys at the same time, switch on the machine.
 - You will see “Now Loading” on the touch-panel, and then you will see the results of the test.

A report like the one below is printed every time a detailed self-diagnostic test is executed, whether errors were detected or not.

Self-Diagnostic Mode

| MODEL NAME XXXX | | Serial No. : ACLD000034 | Firmware P/# : ACP82XXXX | [1/1] | | | |
|------------------------------|--------------|--|--------------------------|-----------------|--------------|--------------|--------------|
| Self-Diagnosis Report | | Firmware Version : 2.49.01 | Wed Nov 22 13:15:30 2000 | | | | |
| [System Construction] | | | | | | | |
| Kernel Version | : | NetBSD 1.3.3 (SHINYOKOHAMA_ROM) #0: Sat Nov 11 16:15:35 JST 2000 | | | | | |
| CPU System Bus Clock | : | 100.0 MHz | CPU Pipeline Clock | : 200.0 MHz | | | |
| Board Type | : | 7 | ASIC Version | : 1397306160 | | | |
| RTC Existence | : | existence | RAM Capacity | : 100.663296 MB | | | |
| HDD Existence | : | existence | HDD Model | : | | | |
| [Total Counter] | | | | | | | |
| 0001000 | | | | | | | |
| [Program No. @@] | | | | | | | |
| MAIN | : | ACP82XXXX | ENGINE | : Ver1.96 | | | |
| LCDC | : | V1.39 | PI | : | | | |
| ADF | : | B3515620B | SIB | : B0045383 | | | |
| FIN | : | | FIN SDL | : | | | |
| BANK | : | A6825150 | LCT | : | | | |
| MBX | : | | FCU | : | | | |
| DPX | : | | | | | | |
| [Error List @@@] | | | | | | | |
| SCCODE | (ERROR CODE) | SC CODE | (ERROR CODE) | SC CODE | (ERROR CODE) | SC CODE | (ERROR CODE) |
| SC835 (110C) | | SC820 (0001) | | SC820 (0002) | | SC820 (0003) | |
| SC820 (0004) | | SC820 (0005) | | | | | |

4.3 PAPER FEED TROUBLESHOOTING

The machine is designed to automatically adjust the bottom plate pressure of each paper feed station in the main machine and paper tray unit for the paper size and amount of paper remaining in the tray. If the machine is frequently double-feeding or failing to feed with a particular paper size with a certain amount of paper remaining in the tray, this problem can be corrected with SP code settings, SP1908 to 1911. These SP codes change the amount of time the bottom plate motor runs forward or reverse to increase or decrease pressure on the bottom of the stack.

- **Double feeding** occurs when the bottom plate is exerting too much pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs in reverse to lower the tray. This is a minus (-) value.
- **Failure to feed** occurs when the bottom plate is not exerting enough pressure on the paper remaining in the tray. To correct this, increase the length of time the motor runs forward to raise the tray. This is a positive setting.

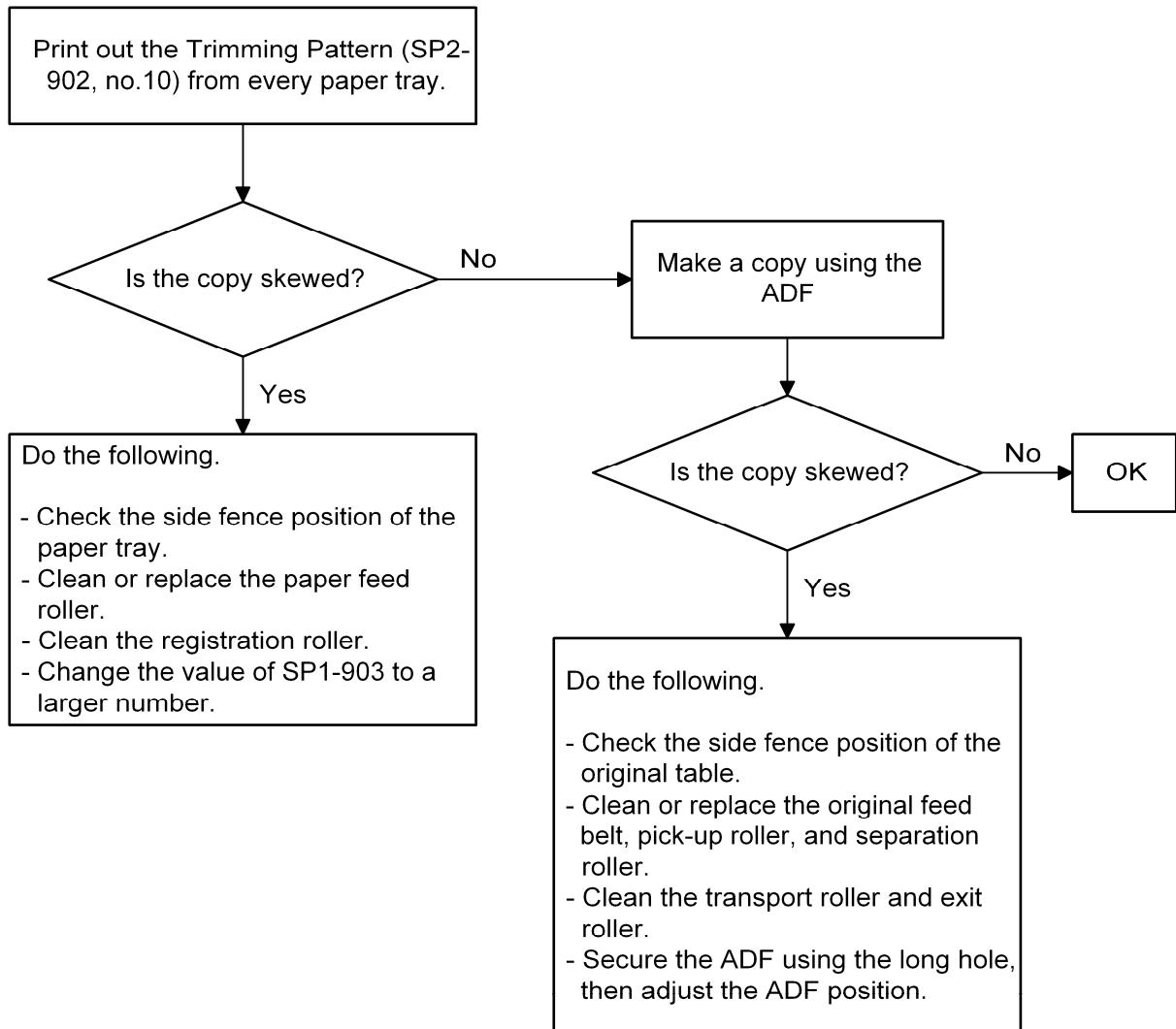
Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.

- For more details about how this feature operates, please refer to "Feed Pressure Adjustment for Paper Size" in Detailed Section Descriptions – Paper Feed.
- For more details about how to do the adjustments, please refer to "SP1xxx: Feed" in Service Tables.

Skewed Image

4.4 SKEWED IMAGE

Do the following to fix a skewed image problem.



4.5 IMAGE PROBLEMS

4.5.1 SKEWED, TRAPEZOID AND PARALLELOGRAM IMAGES

Skewed Images

- The image's leading and trailing edges are parallel.
- The image's left and right edges are also parallel.
- But, all four sides are not parallel with the paper edge.

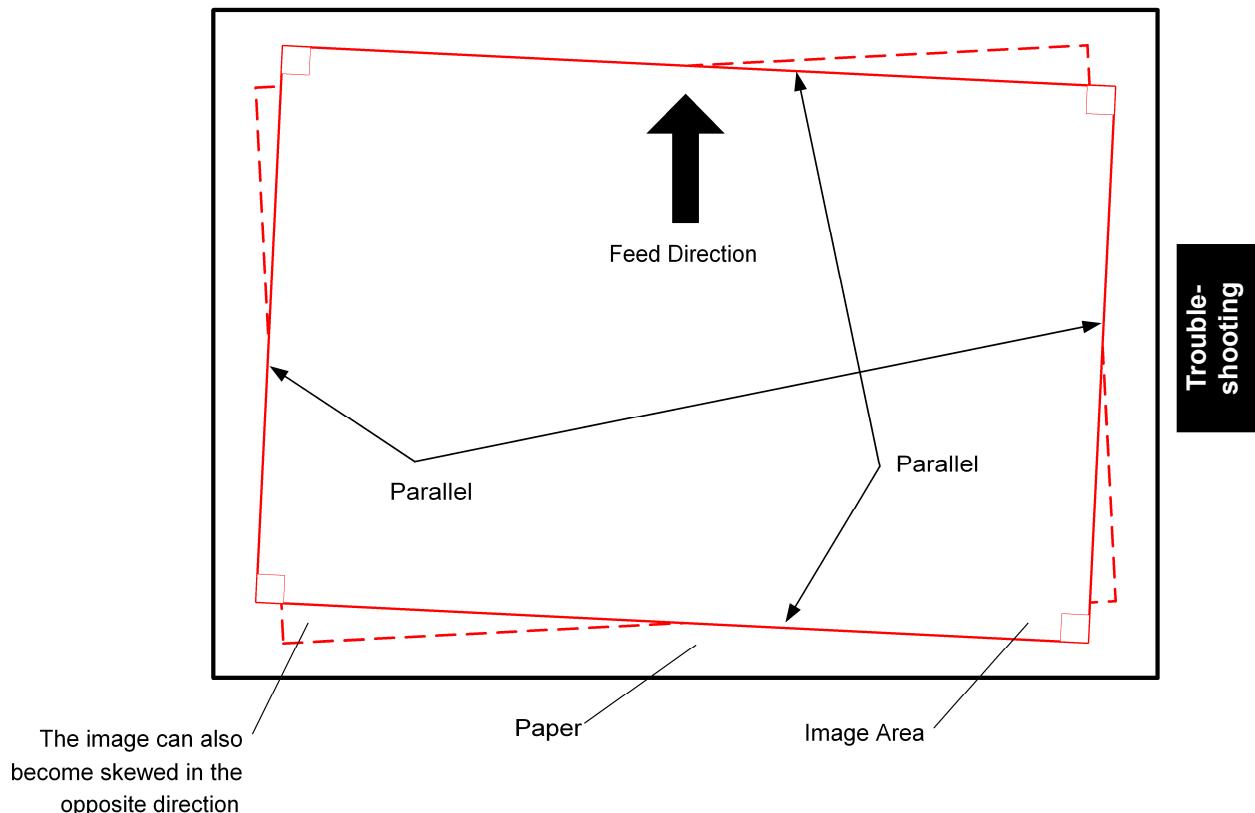
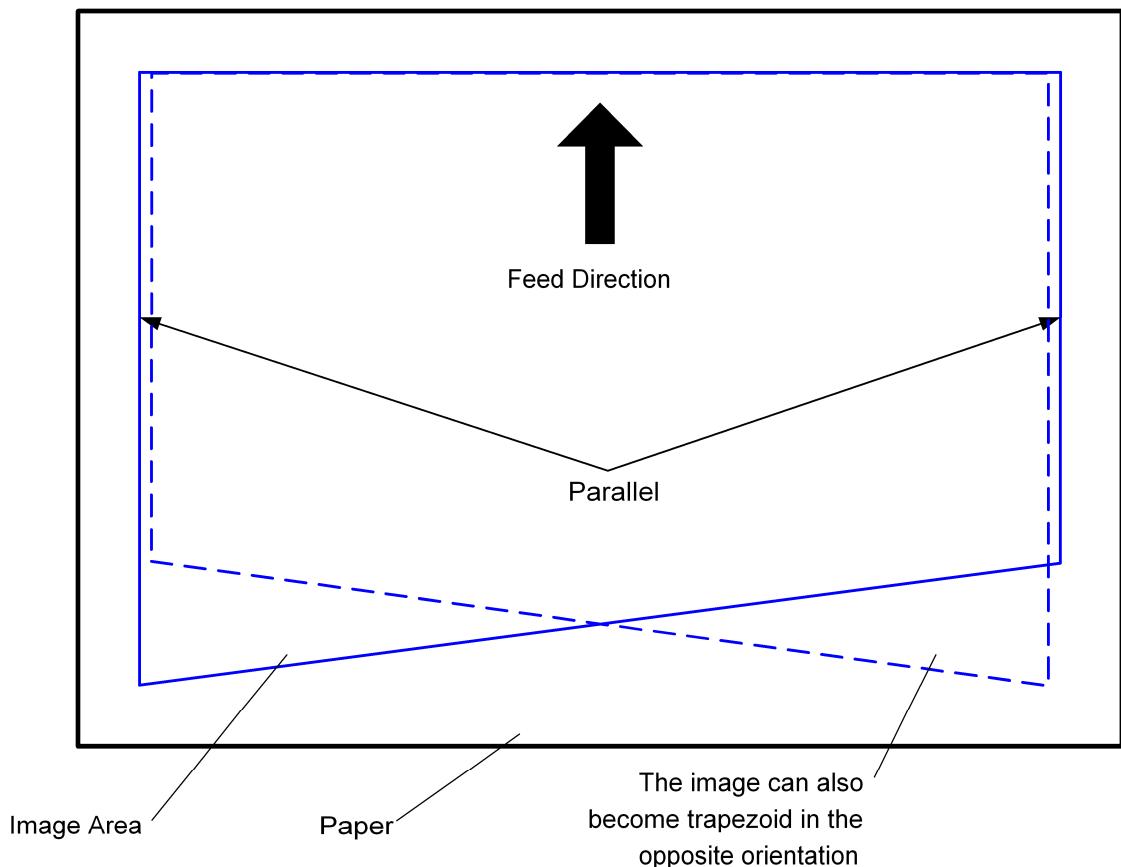


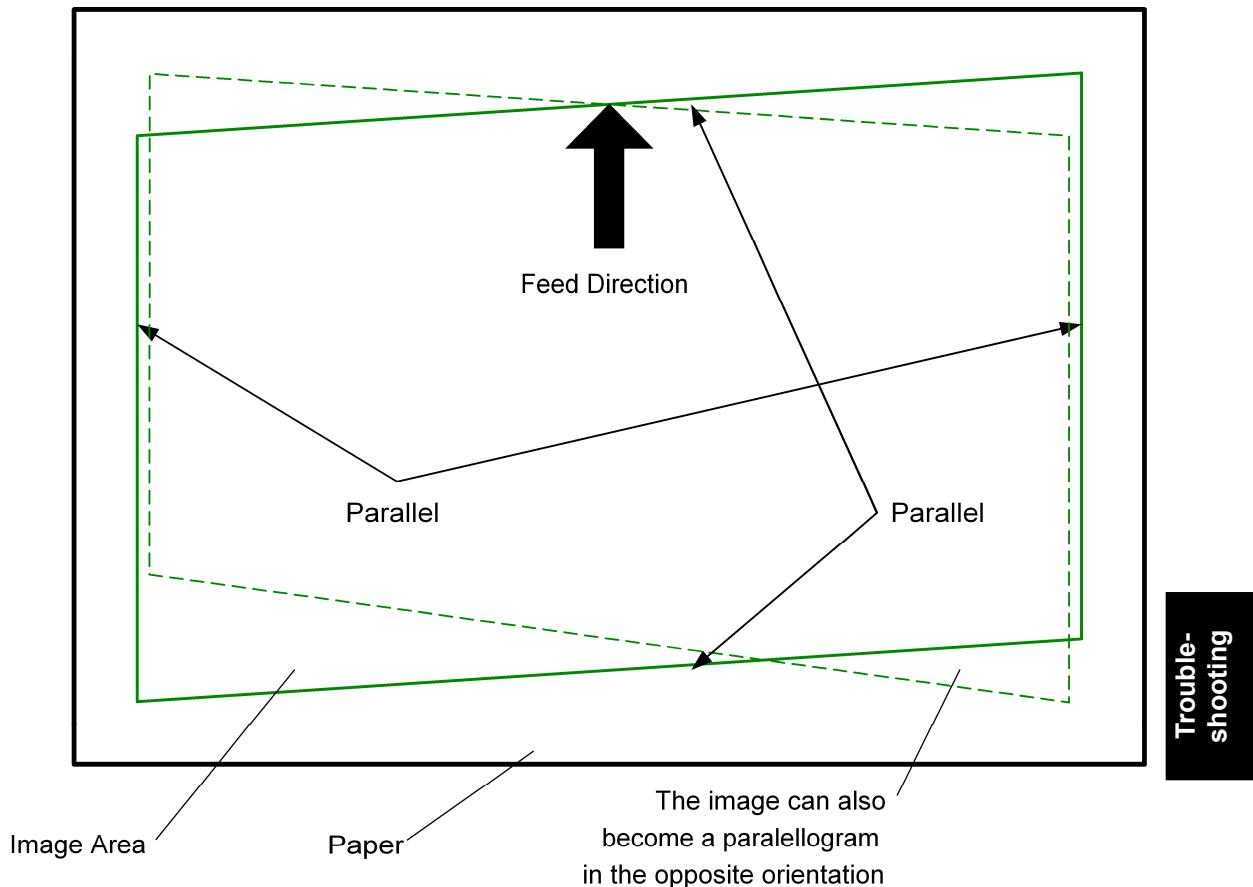
Image Problems

Trapezoid Images

- Only the image's trailing edge is not parallel with the paper edge. The other 3 sides are parallel to the paper's edges.



Parallelogram Images

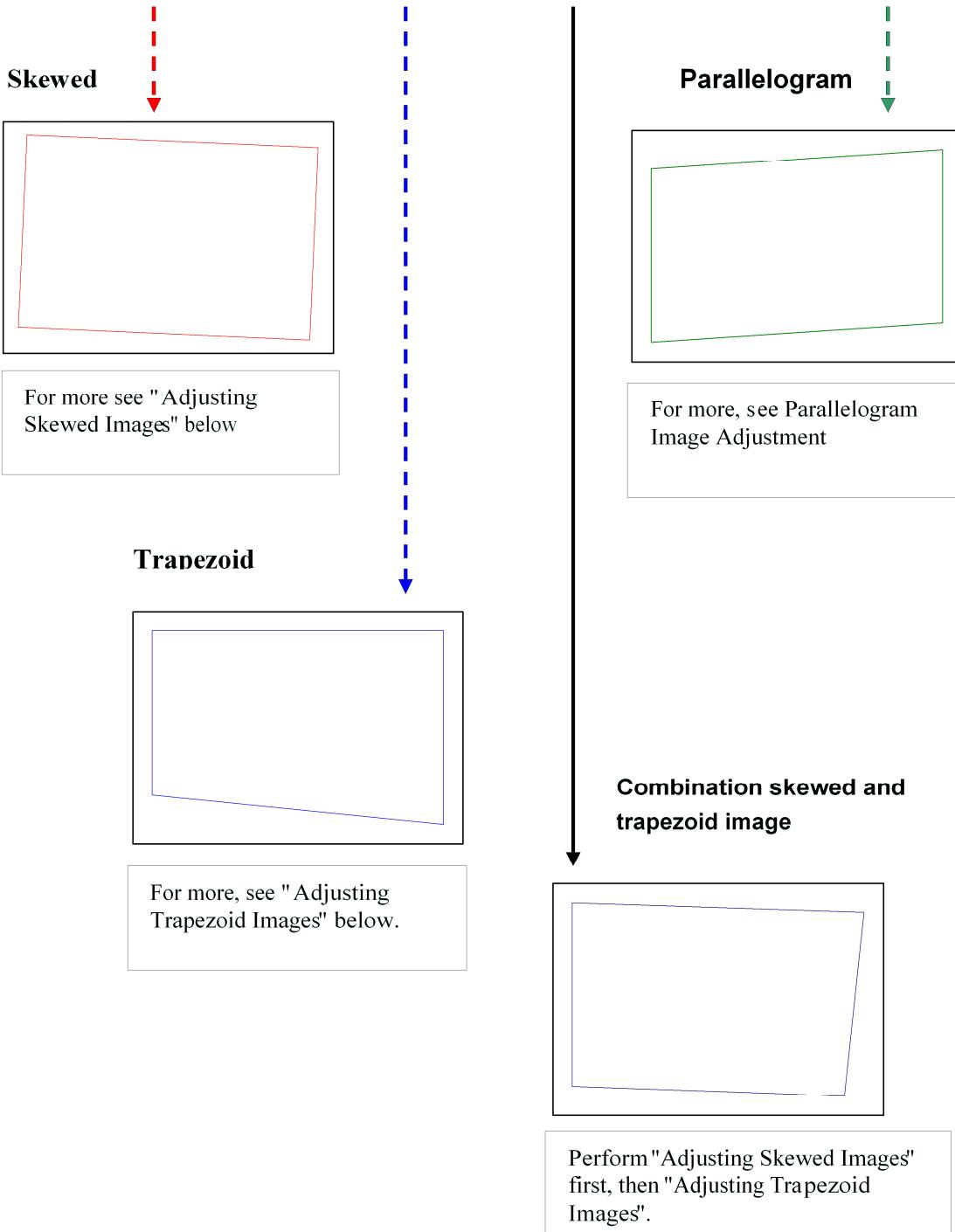


- Like skewed images, the leading/trailing edges and left/right edges are parallel to each other. But, the leading and trailing edges are not parallel to the paper's edges.

Image Problems

4.5.2 CHECKING IMAGES WITH THE TRIMMING PATTERN

DoSP2-902-3 (Pattern 10) to print a trimming pattern.



4.5.3 CORRECTING THE IMAGES

Correcting Skewed Images

1. Test pattern (Trimming Pattern) mode check

| | |
|-----------------------------|---|
| Is the image skewed? | |
| No | Yes |
| | 1. Adjust the side fences. There must be no gap between the fences and the paper stack. |
| | 2. Adjust the paper buckle: SP1-003-1 and 2. |

2. Platen mode check

| | |
|---|--|
| Set an original flush against the left and rear scales and make a copy. | |
| Does the image come out as a parallelogram? | |
| No | Yes |
| | Attach the Scanner Holder (a supporter that is normally attached during shipping) OR Do Procedure A below. |

3. ADF mode check

| | | |
|-----------------------------------|---|--|
| Feed an original through the ADF. | | |
| Is the image skewed? | | |
| No | Yes | |
| | Do the front and rear transport rollers feed the original straight? | |

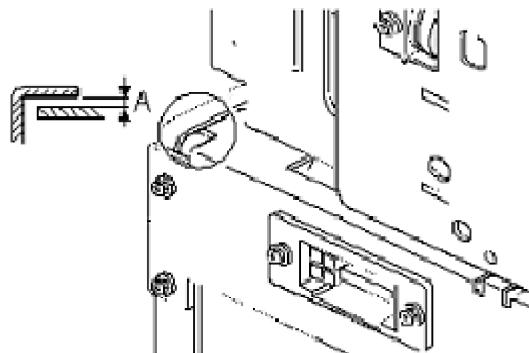
Image Problems

| | No | Yes |
|---------------------|-----------------------|--|
| | | Change the position of the right hinge screw to the longer hole, and make small position adjustments that are necessary. |
| | Do Procedure B below. | |
| Procedure complete. | | |

Procedure A

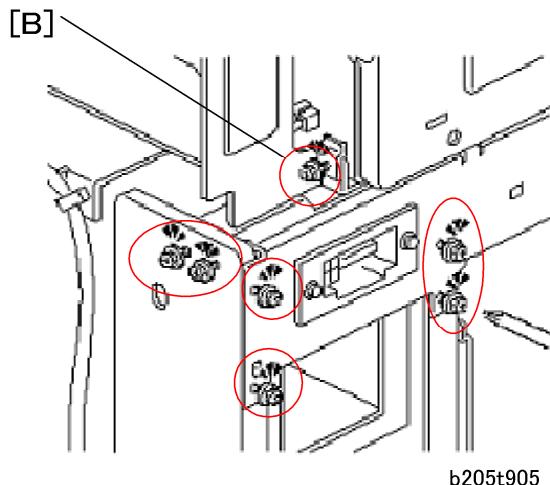
1. Remove the rear and left covers, then the left scanner cover.

Rear, left upper side of machine



b205t904a

2. Check to see if there is a gap between the scanner unit holder and frame at [A].
3. If there is no gap, the left front section of the scanner unit is lower than the standard position.

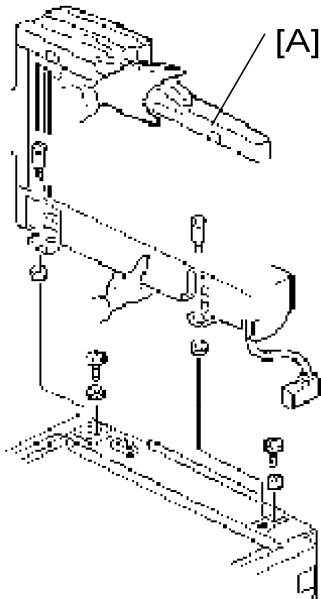


4. Loosen all screws (x7) [B].
5. Lift up the left front of unit until there is a 1 to 2 mm gap.
6. Tighten the 7 screws.
7. Insert a washer (#07080050, 1 mm thick) into gap [A].
8. Attach the washer in its position with an adhesive that sets quickly.

Note

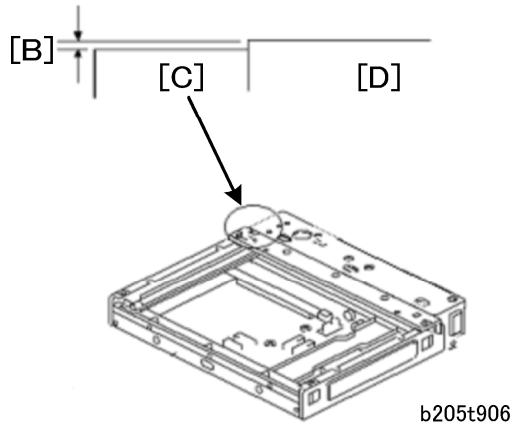
- This washer will also absorb small amounts of shock.
- 9. Check if the parallelogram image still appears.

Procedure B



1. Remove the ADF [A], machine rear cover, scanner left cover, and scanner rear cover.

Image Problems



b205t906

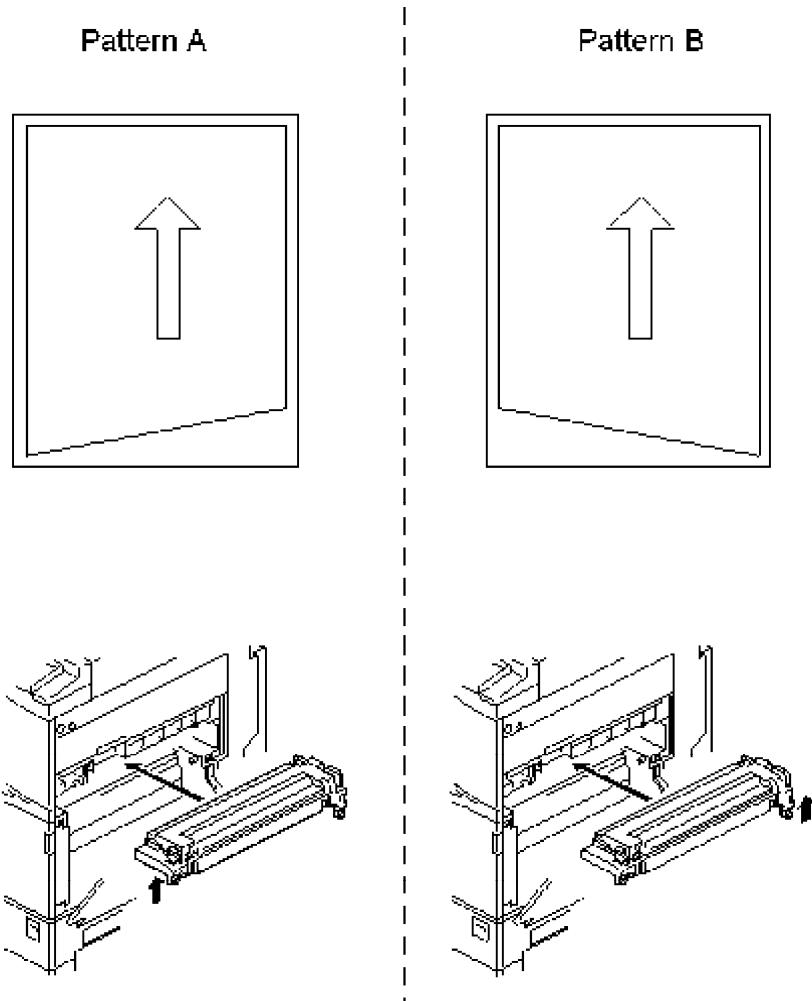
2. Measure the height difference [B] between the hinge bracket [C] and scanner housing [D].
3. If the difference is 0.5 mm or more:
Add a spacer ($t = 0.5$ to 0.8) between the hinge bracket (mainframe) and ADF left hinge, to lift the left side of the ADF
-or-
Adjust the stepped height difference between the hinge bracket and scanner housing until it is within 0 ± 0.3 mm.

 **Note**

- This is necessary because skew occurs when the hinge bracket more than 0.3 mm lower than the scanner housing.

Correcting Trapezoid Images

Procedure 1: Minor Adjustment of the Fusing Unit Height (front-to-rear)



Trouble-
shooting

1. Print out the SP2-902 Trimming Pattern (value: 10).
2. If the image is a pattern A trapezoid:
 - a) Remove and reinstall the Fusing Unit.
 - b) Tighten the left fixing screw while you push up the unit's left side (until it stops).
3. If the image is a pattern B trapezoid, do the same for the unit's right side.
4. If the image is still printed out as a trapezoid, do Procedure 2 below.

Procedure 2: Minor Adjustment of the Fusing Unit Position (front-to-rear)

1. Remove the fusing unit, then add a washer ($t = 0.5$ to 1.6) to the front fixing screw.

 Note

 - This will increase the distance from the mainframe stay.
2. Check the image.

Image Problems

- Still NG: Go to the next step.
 - OK: Adjustment Complete.
3. Add more washers ($t = 0.5$ to 1.6 , as above).

 **Note**

- Too many washers can cause wrinkling in the paper.
 - Still NG: Go to the next step.
 - OK: Adjustment Complete.
4. Remove the fusing unit and all the washers added in steps 1 and 2 above.
5. Then, add washer(s) in the same way for the rear side.

Recommended Washers:

$t = 0.5$, 07080040Z or 07080040G

$t = 0.8$, 07080050Z or 07080050G

Correcting Parallelogram Images

For the procedure, see "Parallelogram Image Problems".

4.6 ELECTRICAL COMPONENT DEFECTS

4.6.1 SENSORS

| Component | CN | PCB | State | |
|---------------------------|--------|-----|---------|---|
| 1st Bottom Fence Sensor 1 | 309-1 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 1st Bottom Fence Sensor 2 | 309-4 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 1st Bottom Fence Sensor 3 | 309-7 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 1st Paper End Sensor | 307-1 | BCU | Open | The Paper End indicator lights even if paper is placed in the 1st paper tray. |
| | | | Shorted | The Paper End indicator does not light even if there is no paper in the 1st paper tray. |
| 1st Paper Height Sensor 1 | 310-1 | BCU | Open | The CPU cannot determine the paper near-end condition properly. |
| | | | Shorted | |
| 1st Paper Height Sensor 2 | 310-4 | BCU | Open | The CPU cannot determine the paper near-end condition properly. |
| | | | Shorted | |
| 1st Paper Lift Sensor | 306-1 | BCU | Open | SC501 displays. |
| | | | Shorted | Paper jam will occur during copying. |
| 1st Side Fence Sensor | 309-10 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |

Trouble-shooting

Electrical Component Defects

| | | | | |
|---------------------------|--------|-----|---------|---|
| 1st Tray Detect Sensor | 309-13 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 2nd Bottom Fence Sensor 3 | 309-21 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 2nd Bottom Fence Sensor 1 | 309-15 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 2nd Bottom Fence Sensor 2 | 309-18 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 2nd Paper End Sensor | 308-1 | BCU | Open | The Paper End indicator lights even if paper is placed in the 2nd paper tray. |
| | | | Shorted | The Paper End indicator does not light even if there is no paper in the 2nd paper tray. |
| 2nd Paper Height Sensor 1 | 310-7 | BCU | Open | The CPU cannot determine the paper near-end condition properly. |
| | | | Shorted | |
| 2nd Paper Height Sensor 2 | 310-10 | BCU | Open | The CPU cannot determine the paper near-end condition properly. |
| | | | Shorted | |
| 2nd Paper Lift Sensor | 306-2 | BCU | Open | SC502 displays. |
| | | | Shorted | Paper jam will occur during copying. |
| 2nd Side Fence Sensor | 309-24 | BCU | Open | The CPU cannot detect the paper size properly. |
| | | | Shorted | |
| 2nd Tray Detect | 309-27 | BCU | Open | The CPU cannot detect the |

Electrical Component Defects

| | | | | |
|---------------------------------|--------|-----|---------|--|
| Sensor | | | Shorted | paper size properly. |
| APS Sensor 1: Original Width | 223-1 | SIO | Open | The CPU cannot detect the original size properly. APS and ARE do not function correctly. |
| | | | Shorted | |
| APS Sensor 2: Original Width | 223-4 | SIO | Open | The CPU cannot detect the original size properly. APS and ARE do not function correctly. |
| | | | Shorted | |
| APS Sensor 3: Original Length | 223-7 | SIO | Open | The CPU cannot detect the original size properly. APS and ARE do not function correctly. |
| | | | Shorted | |
| APS Sensor 4: Original Length | 223-10 | SIO | Open | The CPU cannot detect the original size properly. APS and ARE do not function correctly. |
| | | | Shorted | |
| APS Sensor 5: Original Length | 223-13 | SIO | Open | The CPU cannot detect the original size properly. APS and ARE do not function correctly. |
| | | | Shorted | |
| Bridge Open Sensor (Paper Exit) | 701-3 | CKB | Open | "Open Cover" is displayed even the cover is closed. |
| | | | Shorted | "Open Cover" is not displayed even the cover is open. |
| Bridge Open Sensor (Relay) | 701-1 | CKB | Open | "Open Cover" is displayed even the cover is closed. |
| | | | Shorted | "Open Cover" is not displayed even the cover is open. |

Trouble-
shooting

Electrical Component Defects

| | | | | |
|-----------------------------|--------|-----|---------|--|
| Duplex Unit Entrance Sensor | 340-10 | BCU | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| Duplex Unit Exit Sensor | 859-1 | BCU | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| Duplex Unit Set Sensor | 859-9 | BCU | Open | The Cover Open indicator is not lit even if the right upper cover is opened. |
| | | | Shorted | The Cover Open indicator is lit even if the right upper cover is closed. |
| Exit Sensor | 703-4 | CKB | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| ID Sensor | 321-1 | BCU | Open | SC392 is displayed (see note) |
| | | | Shorted | |
| Interchange/Inverter Sensor | 331-9 | BCU | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator |

Electrical Component Defects

| | | | | |
|---------------------------|-------|-----|---------|--|
| | | | | lights even if there is no paper. |
| Lower Relay Sensor | 308-4 | BCU | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| New PCU Detect Sensor | 327-6 | BCU | Open | The TD sensor initial setting procedure is not performed when a new PCU is installed. |
| | | | Shorted | The TD sensor initial setting procedure is performed whenever the front cover is closed. |
| Paper End Sensor (Bypass) | 860-3 | BCU | Open | The Paper End indicator lights even if paper is placed in the 1st paper tray. |
| | | | Shorted | The Paper End indicator does not light even if there is no paper in the 1st paper tray. |
| Paper End Sensor (Duplex) | 860-3 | BCU | Open | The Paper End indicator lights even if paper is placed in the 1st paper tray. |
| | | | Shorted | The Paper End indicator does not light even if there is no paper in the 1st paper tray. |
| Paper Exit Sensor | 324-1 | BCU | Open | The Paper Jam indicator will |

Trouble-shooting

Electrical Component Defects

| | | | | |
|----------------------------|-------|-----|---------|--|
| | | | | light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| Paper Overflow Sensor | 324-4 | BCU | Open | The paper overflow message is not displayed when the paper overfull condition exist. |
| | | | Shorted | The paper overflow message is displayed. |
| Paper Overflow Sensor | 703-1 | CKB | Open | The paper overflow message is not displayed when the paper overfull condition exist. |
| | | | Shorted | The paper overflow message is displayed. |
| Paper Present Sensor | 330-1 | BCU | Open | LED does not light even if paper is in 1-bin tray. |
| | | | Shorted | LED lights even if paper is not in 1-bin tray. |
| Paper Size Sensor (Bypass) | 860-6 | BCU | Open | The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made. |
| | | | Shorted | |
| Paper Size Sensor (Duplex) | 860-6 | BCU | Open | The CPU cannot detect the proper paper size, and misfeeds may occur when a copy is made. |
| | | | Shorted | |
| Registration Sensor | 321-5 | BCU | Open | The Paper Jam indicator will |

Electrical Component Defects

| | | | | |
|--------------------|-------|-----|---------|--|
| | | | | light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| Relay Sensor | 702-1 | CKB | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |
| Scanner HP Sensor | 228-1 | SIO | Open | SC120 is displayed. |
| | | | Shorted | The CPU does not detect the scanner home position and the scanner motor does not stop. |
| Shift Sensor | 903-1 | STB | Open | SC770 is displayed. |
| | | | Shorted | |
| TD Sensor | 327-1 | BCU | Open | SC390 is displayed. |
| | | | Shorted | |
| Upper Relay Sensor | 307-4 | BCU | Open | The Paper Jam indicator will light whenever a copy is made. |
| | | | Shorted | The Paper Jam indicator lights even if there is no paper. |

Trouble-
shooting



- An SC condition occurs only when a new PCU is being installed in the machine.
During copying, if the ID sensor fails, the image density will be changed.

Electrical Component Defects

4.6.2 SWITCHES

| Component | CN | PCB | State | Symptom |
|------------------------------|-------|-----|---------|--|
| Correct PCU Detect Switch | 327-8 | BCU | Open | The TD sensor initial setting procedure is not performed when a new PCU is installed. |
| | | | Shorted | The TD sensor initial setting procedure is performed whenever the front cover is closed. |
| Front Door Safety Switch | 321-3 | BCU | Open | The Cover Open indicator is not lit even if the front cover is opened. |
| | | | Shorted | The Cover Open indicator is lit even if the front cover is closed. |
| Right Upper Cover Switch | 321-8 | BCU | Open | The Cover Open indicator is not lit even if the right upper cover is opened. |
| | | | Shorted | The Cover Open indicator is lit even if the right upper cover is closed. |
| Right Lower Cover Switch | 321-1 | BCU | Open | The Cover Open indicator is not lit even if the right lower cover is opened. |
| | | | Shorted | The Cover Open indicator is lit even if the right lower cover is closed. |

Blown Fuse Conditions

4.7 BLOWN FUSE CONDITIONS

| Fuse | Rating | | Symptom when turning on the main switch |
|------|-------------|--------------|--|
| | 115 V | 220 to 240 V | |
| PSU | | | |
| FU1 | 15 A/250 V | 8 A/250V | No response. |
| FU2 | 8 A/125 V | 5 A/250 V | No response |
| FU3 | 2 A/125 V | 1 A/250V | Anti-condensation/Tray Heater does not turn on. |
| FU4 | 6.3 A/125 V | 6.3 A/250V | Optional finisher, bridge unit, and shift tray does not work then SC792 is displayed. |
| FU5 | 6.3 A/125 V | 6.3 /250 V | All motors do not rotate. The "Cover Open" and SC indicators light. |
| FU6 | 6.3 A/125 V | 6.3 A/250V | The touch panel does not turn on, and all motors (except scanner motor) do not rotate. |
| FU7 | 5 A/250 V | 5 A/250 V | No response |
| FU8 | 5 A/250 V | 5 A/250 V | No response |

Trouble-
shooting

SERVICE TABLES

5. SERVICE TABLES

5.1 SERVICE PROGRAM MODE

The service program (SP) mode is used to check electrical data, change modes, and adjust values.

CAUTION

- Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

5.1.1 SERVICE MODE LOCK/UNLOCK

At locations where the machine contains sensitive data, the customer engineer cannot operate the machine until the Administrator turns the service mode lock off. This function makes sure that work on the machine is always done with the permission of the Administrator.

1. If you cannot go into the SP mode, ask the Administrator to log in with the User Tool and then set “Service Mode Lock” to OFF. After he or she logs in:
 - [User Tools] > System Settings > Administrator Tools > Service Mode Lock > OFF
 - This unlocks the machine and lets you get access to all the SP codes.
 - The service technician can do servicing on the machine and turn the machine off and on. It is not necessary to ask the Administrator to log in again each time the machine is turned on.
2. If you must use the printer bit switches, go into the SP mode and set SP5169 to “1”.
3. After machine servicing is completed:
 - Change SP5169 from “1” to “0”.
 - Turn the machine off and on.
 - Tell the administrator that you completed servicing the machine.
 - The administrator will then set the “Service Mode Lock” to ON.

5.1.2 SERVICE PROGRAM MODE OPERATION

Overview

The service program mode is used to check electrical data, change modes, and adjust values. Two service program modes are provided:

Service Program Mode

- SP Mode (Service). Includes all the options in the SP displays for normal maintenance and adjustments.
- SSP Mode (Special Service). Includes the normal SP modes and some additional options in the SP displays not required for normal settings and adjustments. (Most are marked "DFU" in the following tables.) Do not change these important settings needlessly. For details, contact your supervisor.

Entering and Exiting SP mode

Entering the Service Mode.

1. Press the Clear Mode (□) key.
2. Use the keypad to enter "107".
3. Hold down the Clear/Stop (○) key for at least 3 seconds.

To enter the Normal Service Mode:

1. On the touch-panel, press Copy SP.

To enter the Special Service Mode:

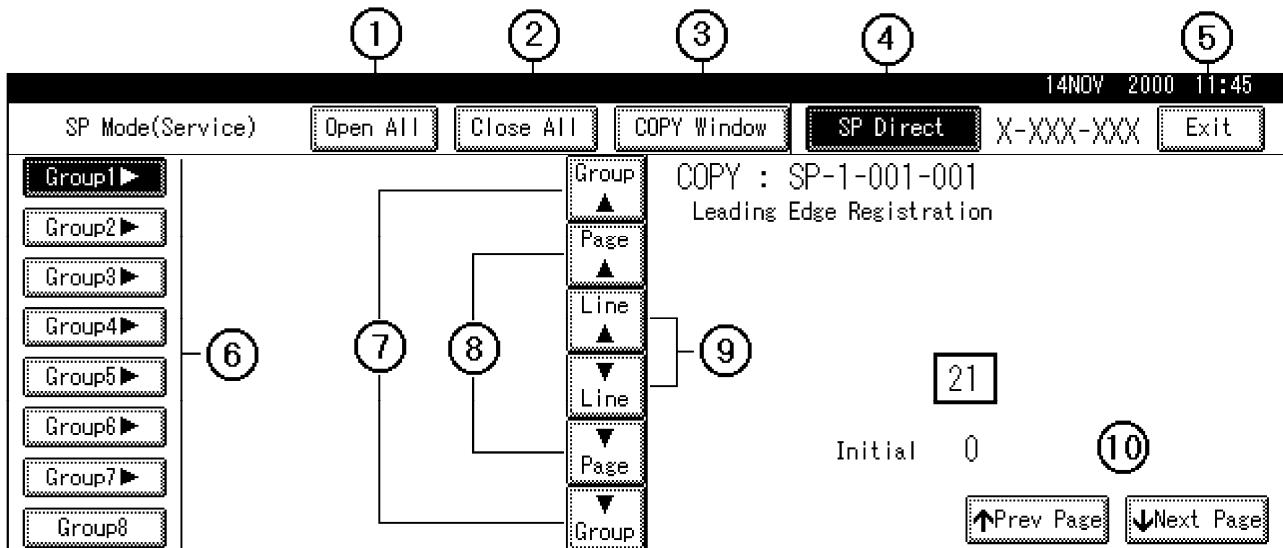
1. Hold down the # button, then press Copy SP.
2. Press Exit two times to return to the copy window.

Note

- Use SP2902 to print a test pattern (see 'Test Pattern Printing').

SP Mode Button Summary

Here is a short summary of the touch-panel buttons.



① Opens all SP groups and sublevels.

② Closes all open groups and sublevels and restores the initial SP mode display.

③ Opens the copy window (copy mode) so you can make test copies. To return to the SP

Service Program Mode

mode screen, press SP Mode (highlighted) in the copy window.

- ④ Enter the SP code directly with the number keys if you know the SP number and then press $\textcircled{#}$. (SP Mode must be highlighted before you can enter the number. Just press SP Mode if it is not highlighted.)
- ⑤ Press twice to leave the SP mode and return to the copy window to resume normal operation.
- ⑥ Press any Group number to open a list of SP codes and titles for that group. For example, to open the SP code list for SP1nnn, press Group1. If an SP has sublevels, touch the appropriate button to expand the list.
- ⑦ Press to scroll the display to the previous or next group.
- ⑧ Press to scroll to the previous or next display in segments the size of the screen display (page).
- ⑨ Press to scroll the display to the previous or next line, line by line.
- ⑩ Press to move the highlight on the left to the previous or next selection in the list.

Switching Between SP Mode and Copy Mode for Test Printing

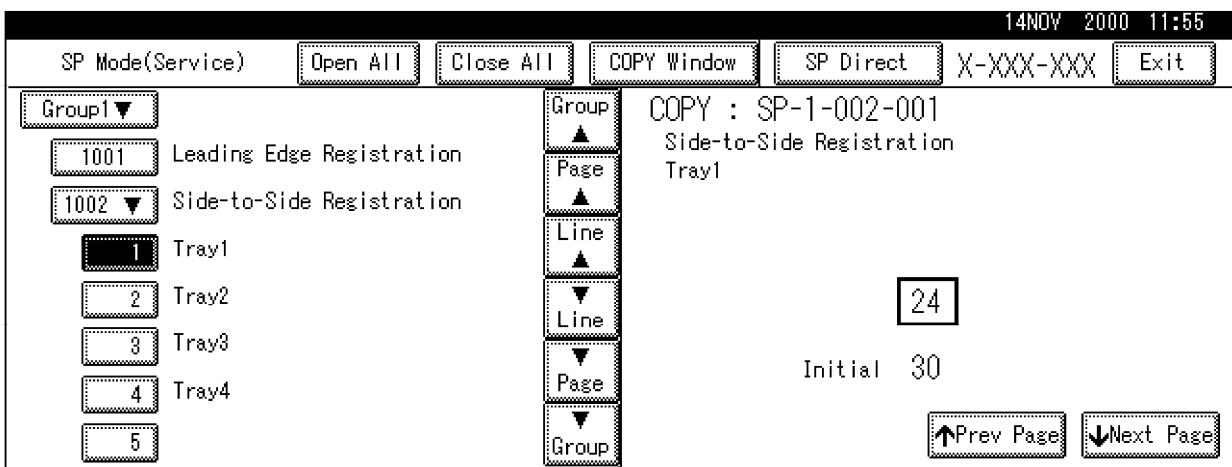
1. In the SP mode, select the test print and then press Copy Window.
2. Use the copy window (copier mode), to select the appropriate settings (paper size, etc.) for the test print.
3. Press the Start button ($\textcircled{\oplus}$) to execute the test print.
4. Press SP Mode (highlighted) to return to the SP mode screen and repeat from step 1.

Selecting the Program Number

Program numbers have two or three levels.

1. Before you begin, refer to the Service Tables to find the SP that you want to adjust. (See ‘Service Program Mode Tables’.)
2. Press the Group number on the left side SP Mode window that contains the SP that you want to adjust.
3. Use the scrolling buttons in the center of the SP mode window to display the SP number that you want to open, and then press that number to expand the list.
4. Use the center touch-panel buttons to scroll to the number and title of the item that you want to set and press. The small entry box on the right is activated and displays the default or the current setting below.

Service Program Mode



Note

- See the Service Program Mode Tables for the range of allowed settings.
- To enter a setting
 - Press the \odot button to toggle between plus and minus, and then use the keypad to enter the appropriate number. The number you enter writes over the previous setting.
 - Press $\#$ to enter the setting. (If you enter a number that is out of range, the key press is ignored.)
 - When you are prompted to complete the selection, press Yes.
 - If you need to perform a test print, press Copy Window to open the copy window and select the settings for the test print. Press Start (\odot) twice, and then press SP Mode (highlighted) in the copy window to return to the SP mode display.
 - When you are finished, press Exit twice to return to the copy window.

5.1.3 COMMONLY USED SP CODES AND FEATURES

This section is a summary of commonly used SP codes.

For details about the input/output checks, please refer to the SP code tables:

| | Input Check | Output Check |
|--------------|-------------|--------------|
| Main Machine | SP5803 | SP 5804 |
| ARDF | SP 6007 | SP 6008 |
| Finisher | SP 6117 | SP 6118 |

Test Pattern Printing (SP2902) Note

- You can print a test pattern to confirm correct operation of the machine.
1. Enter the SP mode and select SP2902.
 2. Enter the number for the test pattern that you want to print and press $\#$. (See the tables below.)
 3. Press Copy Window to open the copy window and then select the settings for the test print (paper size, etc.)
 4. Press Start \odot twice. (Ignore the “Place Original” messages) to start the test print.
 5. Press SP Mode (highlighted) to return to the SP mode display.

| No. | Test Pattern |
|-----|-------------------------|
| 0 | None |
| 1 | Vertical Line (1dot) |
| 2 | Horizontal Line (1dot) |
| 3 | Vertical Line (2-dot) |
| 4 | Horizontal Line (2-dot) |
| 5 | Grid Pattern (1dot) |
| 6 | Independent (1-dot) |
| 7 | Independent (2-dot) |
| 8 | 100% Black Coverage |
| 9 | Belt Pattern |
| 10 | Trimming Area |
| 11 | Argyle |
| 12 | Argyle (2-dot) |
| 13 | Checkered Flag |
| 14 | Horizontal Belt |

Service Program Mode

| No. | Test Pattern |
|-----|--|
| 15 | Independent (4-dot) |
| 16 | Grayscale Horizontal |
| 17 | Grayscale Vertical |
| 18 | Grayscale Horizontal/Vertical |
| 19 | Grayscale Grid |
| 20 | Grayscale Horizontal White Stripe |
| 21 | Grayscale Vertical White Stripe |
| 22 | Grayscale Horizontal/Vertical White Stripe |
| 23 | 100% White Coverage |
| 24 | Trimming Area (OR Outside Data) |

 Note

- See SP 4417 in the SP table for a different set of test patterns.

SMC Data Lists (SP5990)

1. Open SP mode 5990 and select the number corresponding to the list that you wish to print.

| SMC (System Parameter and Data Lists) | |
|---------------------------------------|-------------------------------|
| 1 | All Data List |
| 2 | SP Mode Data List |
| 3 | UP Mode Data List |
| 4 | Logging Data List |
| 5 | Self-Diagnostics Results List |
| 7 | NIB Summary |

Service Program Mode

| SMC (System Parameter and Data Lists) | |
|---------------------------------------|----------------------|
| 8 | Capture Log |
| 21 | Copy UP Mode List |
| 22 | Scanner SP Mode List |
| 23 | Scanner UP Mode List |

2. Touch “Execute” on the touch panel
3. Select. “Single Face” or “Both Face”, then touch “Execute” to start printing.
4. After printing the list, press Exit twice to close the SP Mode screen and return to copy mode.

Memory All Clear (SP5801)

Executing Memory All Clear resets all the settings stored in the NVRAM to their default settings except the following:

- SP2989 1-5: PCU ID (South Korea Only)
- SP2990 1-5: Original Toner ID (South Korea Only)
- SP2991 1-5: Original Toner Counter (South Korea Only)
- SP5811 1: Machine serial number
- SP5907: Plug & Play Brand Name and Production Name Setting

Normally, this SP mode should not be used. This procedure is necessary only after replacing the NVRAM, or when the copier malfunctions because the NVRAM is damaged.

1. Enter the SP mode, do SP5801, and press the number for the item that you want to initialize.

Service
Tables

| No. | What It Initializes | Comments |
|-----|---------------------|--|
| 1 | All Clear | Initializes items 2 to 12 below. |
| 2 | Engine Clear | Initializes all registration settings for the engine and process settings. |
| 3 | SCS | (System Control Service)/SRAM. Initializes default system settings, CSS settings, operation display coordinates, and ROM update information. |

Service Program Mode

| No. | What It Initializes | Comments |
|-----|---------------------|--|
| 4 | IMH Memory Clear | Initializes the image file system. (IMH: Image Memory Handler) |
| 5 | MCS | (Memory Control Service). Initializes the automatic delete time setting for stored documents. |
| 6 | Copier application | Initializes all copier application settings. |
| 7 | Fax application | Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer. |
| 8 | Printer application | Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter. |
| 9 | Scanner application | Initializes the scanner defaults for the scanner and all the scanner SP modes. |
| 10 | Network application | Deletes the network file application management files and thumbnails, and initializes the job login ID. |
| 11 | NCS | (Network Control Service) Initializes the system defaults and interface settings (IP addresses also), SmartNetMonitor for Admin, WebStatusMonitor settings, and the TELNET settings. |
| 12 | R-FAX | Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers. |
| 14 | Clear DCS Settings | Initializes the DCS settings. |
| 15 | Clear UCS Settings | Initializes: SP5846 (All), SP5801 15 |
| 18 | SRM Memory Clear | Initializes information in non-volatile RAM. |
| 19 | LCS Memory Clear | Initializes information in non-volatile RAM. |

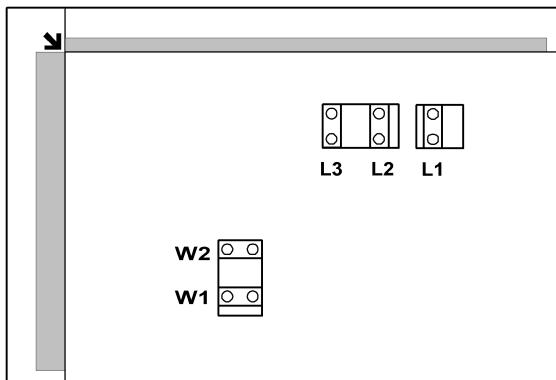
1. Press Execute and turn the main switch off and back on.

APS Output Display (SP4301)

When you open this SP, a small box will be displayed on the SP mode screen with a series of 0's and 1's. The meaning of the display is as follows.

| | |
|-----|-----------------|
| | 0 0 0 0 0 0 0 |
| Bit | 7 6 5 4 3 2 1 0 |

0 = Paper not detected, 1 = Paper detected



d017s905

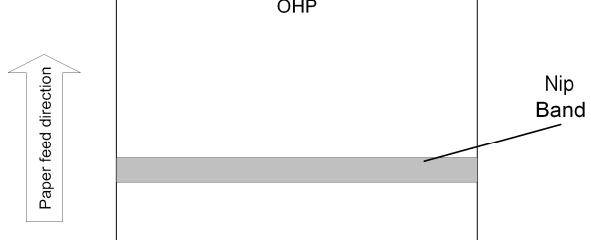
| Bit | Description |
|-----|-------------|
| 7 | L2 |
| 6 | L3 |
| 5 | W1 |
| 4 | W2 |
| 3 | Not Used |
| 2 | L1 |
| 1 | Not Used |
| 0 | Not Used |

Service Program Mode

Nip Band Width Measurement (SP1109)

When paper wrinkling or image off-set occurs, the pressure from the pressure roller can be adjusted by changing the position of the pressure springs. At this time, the nip band width can also be checked with SP1109, as follows.

1. Do a free run (SP5802) for about 50 sheets.
2. Access SP1109 and press the “1” key.
3. Press Copy Window to return to the copy window.
4. Place an OHP sheet (A4/8.5"x11" sideways) on the by-pass tray or in the 2nd paper tray.
5. Press the “Start” key.
6. The OHP sheet is stopped in the fusing unit for about 20 seconds, then it will be fed automatically.
7. Check the width of the nip band [A] around the center of the OHP. The relationship between the position of the pressure spring and the width is as follows.



| 1. Pressure spring position | Nip band width |
|--|----------------|
| Upper (default position) | 5.2 ±0.5 mm |
| Lower | 5.3 ±0.5 mm |
| 2. Envelope feed mode (green lever down) at the default pressure spring position | 4.7 ±0.5 mm |

If the width is out of the above specification, the pressure spring should be replaced.

Software Reset

The software can be rebooted when the machine hangs up. Use the following procedure.

Turn the main power switch off and on.

-or-

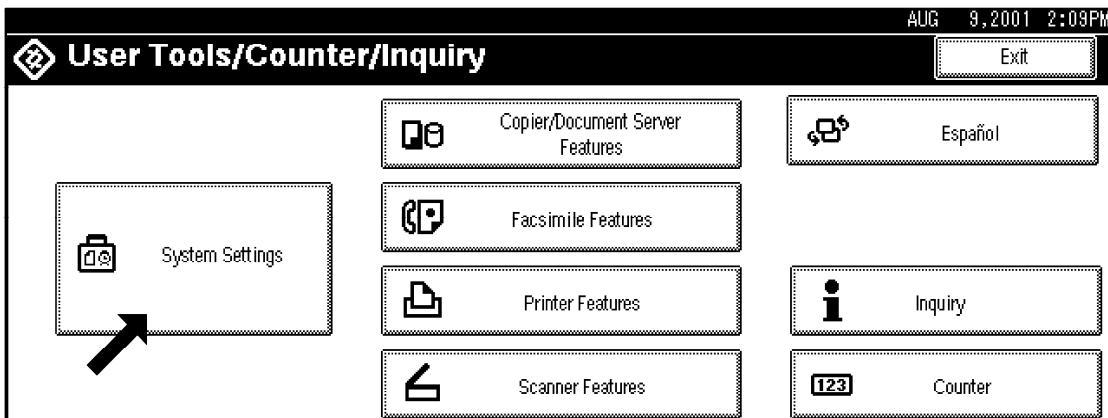
Press and hold down $\textcircled{*/}$ and $\textcircled{#}$ together for longer than 10 seconds. When the machine beeps once release both buttons. After “Now loading. Please wait” is displayed for a few seconds, the copy window will open. The machine is ready for normal operation.

Service Program Mode

System Setting Reset

The system settings in the UP mode can be reset to their defaults. Use the following procedure.

1. Press User Tools/Counter.
2. Press and hold down (#) and then touch "System Settings".

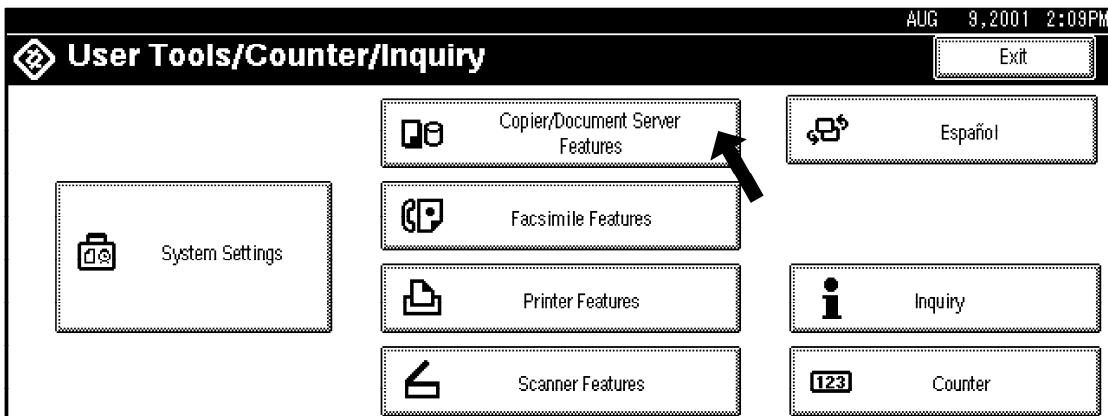


3. When the message prompts you to confirm that you want to reset the system settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

Copier Setting Reset

The copy settings in the UP mode can be reset to their defaults. Use the following procedure.

1. Press User Tools/Counter.
2. Press and hold down (#) and then touch "Copier/Document Server Settings".



3. When the message prompts you to confirm that you want to reset the Copier Document Server settings, press Yes.
4. When the message tells you that the settings have been reset, press Exit.

Service Program Mode

5.1.4 SERVICE PROGRAM MODE TABLES

Service Table Key

| Notation | What it means |
|--------------------------|---|
| [range / default / step] | Example: [-9 to +9 / +3.0 / 0.1 mm step]. The setting can be adjusted in the range ± 9 , the setting is reset to +3.0 after an NVRAM reset, and the value can be changed in 0.1 mm steps with each key press. |
| italics | Comments added for reference. |
| * | Value stored in NVRAM. After a RAM reset, this default value (factory setting) is restored. |
| 1111 | An SP number set in bold denotes a “Special Service Program” mode setting that appears only after entering the SP mode by pressing $\#$ and Copy SP together. (See ‘Service Program Mode Operation’.) |
| DFU | “Design or Factory Use”. Do not change this value. |
| Japan only | The feature or item is for Japan only. Do not change this value. |
| (S) | Sideways feed direction |
| (L) | Lengthwise feed direction |

5.2 SP1XXX: FEED

| | | |
|-------|---------------------------|--|
| 1001* | Leading Edge Registration | |
| 1 | Tray | Adjusts the printing leading edge registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10). [+9.0 to –9.0 / +0.0 / 0.1 mm/step] Use the  key to toggle between + and – before entering the value. The specification is 3 ± 2 mm. See “Replacement and Adjustment - Copy Adjustment” for details. |
| 2 | By-pass | |
| 3 | Duplex Side2 | |

| | | |
|-------|---|--|
| 1002* | Side-to-Side Registration | |
| 1 | Tray 1 | Adjusts the printing side-to-side registration from each paper feed station using the Trimming Area Pattern (SP2902 Pattern No. 10). [+9.0 to –9.0 / +0.0 / 0.1 mm/step] Use the  key to toggle between + and – before entering the value. The specification is 2 ± 1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details. |
| 2 | Tray 2 | |
| 3 | Tray 3 (Optional PFU Tray 1, or LCT) | |
| 4 | Tray 4 (Optional PFU Tray 2) | |
| 5 | By-pass | |
| 6 | Duplex Side 2 | |

Service
Tables

| | | |
|-------|--------------------------------|---|
| 1003* | Registration Buckle Adjustment | |
| 1 | Tray 1 | Adjusts the paper feed clutch timing at registration. The paper feed clutch timing determines the amount of paper buckle at registration. (A larger setting leads to more buckling.) [0 to 10 / 5 / 1 mm/step] |
| 2 | Tray 2/3/4 By-pass | |

SP1xxx: Feed

| | | |
|---|---------------|---------------------------|
| 3 | Duplex Side 2 | [0 to 20 / 6 / 1 mm/step] |
|---|---------------|---------------------------|

| | | |
|-------|---|---|
| 1007* | By-pass Paper Size Detection | |
| | Controls paper size detection for the by-pass feed table. | |
| 1 | Detection Timing | [-15 to 15 / 0 / 5 mm step] |
| 2 | LG Detection | [0 to 1 / 0 / -] 0: LT SEF, 1: LG |

| | | |
|------|--|--|
| 1103 | Fusing Idling | |
| | Switches fusing idling on/off. [0 = Off / 1 = On / 2 = Off plus machine temperature check] Switch on if fusing on the 1st and 2nd copies is incomplete (this may occur if the room is cold.) | |

| | | |
|------|--|--|
| 1104 | Fusing Temperature Control DFU | |
| | [0 to 1/1/1] 0: Hysteresis Control 1: Normal Control | |

| | | |
|-------|-------------------------------|--|
| 1105* | Fusing Temperature Adjustment | |
| | | |
| 1 | Roller Center | Adjusts the fusing temperature at the center and both ends of the hot roller for normal printing. |
| 2 | Roller Ends | [120 to 200 / 180 / 1°C/step] |
| 3 | Energy Saver | Adjusts the fusing temperature at the center and both ends of the hot roller for energy saver mode. [0 to 160 / 150 / 1°C/step] |
| 4 | Thick Paper – Roller Center | Adjusts the additional fusing temperature |

SP1xxx: Feed

| | | |
|----|---------------------------------|--|
| 5 | Thick Paper – Roller Ends | for thick paper for the 2nd paper tray and for the bypass tray. [0 to 30 / 15 / 1°C/step] |
| 6 | After Warming-up - Center | Adjusts the fusing temperature at the center of the hot roller after the machine has warmed up. [120 to 200 / 180 / 1°C/step] |
| 7 | After Warming-up - Ends | Adjusts the fusing temperature at both ends of the hot roller after the machine has warmed up. [120 to 200 / 185 / 1°C/step] |
| 8 | After Warming-up - No. of Pages | In this machine, fusing temperature is kept 10°C higher than the normal temperature for a number of pages after the machine has warmed up. This SP selects the number of pages made at this temperature. See Detailed Section Descriptions – Fusing for more details. [0 to 10 / 3 / 1 page/step] |
| 9 | After Warming-up - Time | In this machine, fusing temperature is kept 10°C higher than the normal temperature for a short while after the machine warms up. This SP selects the length of time that this temperature is used. See Detailed Section Descriptions – Fusing for more details. [0 to 180 / 60 / 1s/step] |
| 10 | Wait Temp: Center Minus | |
| 11 | Wait Temp: Ends Minus | |

Service
Tables

| | |
|------|----------------------------|
| 1106 | Fusing Temperature Display |
|------|----------------------------|

SP1xxx: Feed

| | | |
|---|----------------------------|--|
| 1 | Roller Center | Displays the fusing temperature for the center or both ends of the hot roller. |
| 2 | Roller Ends | |
| 3 | In the Machine at Power On | Displays the temperature in the machine at power on. This temperature is monitored by the thermistor on the SBCU board. |

| | | |
|-------|--|--|
| 1108* | Fusing Soft Start Adj: Cycle | |
| | Selects whether the fusing temperature control cycle is 1 or 3 seconds. If this is "1 (3 s)", the power supply fluctuation caused by the fusing lamp turning on is less often. [0 = 1 s / 1 = 2 s] Default: 0 = N. America, Taiwan, 1 = Europe/Asia | |

| | | |
|-------|---|--------------------------------|
| 1109* | Fusing Nip Band Check | |
| | Checks the fusing nip band. | |
| 1 | Execution | |
| 2 | Idling Rotation Time | [0 to 120 / 60 / 1 sec] |
| | Specifies the fusing rotation time before executing SP1109-001. | |
| 3 | Pre-Idling Time | [5 to 30 / 10 / 1 sec] |
| | Specifies the time that the paper stops in the fusing unit for measuring the nip. | |

| | | |
|------|---|--|
| 1159 | Fusing Jam Detection | |
| | Disables or enables the consecutive jam error for the fusing unit. [0 to 1/0/1 Step] | |
| | When set to "1" (on) this SC code is issued after the 3rd consecutive jam in the fusing unit. | |

SP1xxx: Feed

| | |
|-------|--|
| 1902* | AC Frequency Display DFU |
| | <p>Displays the AC frequency for fusing temperature control. [0 to 1/0/1 Step]</p> <p>Used to check the measured number of interrupts for the zero cross signal.</p> <p>Measured time interval is 500 ms with 5 interrupts per 2 mms: $10 \text{ ms} \times 50 = 500$</p> |

| | | |
|-------|---|---------------------------|
| 1903* | Feed Clutch Re-energize | |
| | Adjusts the paper feed amount allowed by the clutch after correcting the skew at registration. When paper jams occur after restarting paper feed after registration, increase the value to help the registration roller feed the paper. | |
| 1 | By-pass Feed | [0 to 10 / 6 / 1 mm/step] |
| 2 | Tray 1 Feed | [0 to 10 / 0 / 1 mm/step] |
| 3 | Other Trays | |

| | | |
|-------|------------------------------|--|
| 1907* | Timing Adjustment DFU | |
|-------|------------------------------|--|

| | | |
|------|---|-------------------------------------|
| 1908 | F1 Plate Adj | Upper Tray: Main Machine (Standard) |
| 1909 | F2 Plate Adj | Lower Tray: Main Machine (Standard) |
| 1910 | F3 Plate Adj | Upper Tray: PTU (Option) |
| 1911 | F4 Plate Adj | Lower Tray: PTU (Option) |
| | <p>These SP codes adjust the initial amount of pressure that the bottom plate exerts on the bottom of the stack that presses against the feed roller. Adjust these SP codes if the machine is consistently double-feeding or failing to feed a specific paper size.</p> <p>These SP codes adjust the length of time that the lift motor runs forward or reverse to raise or lower the bottom plate under the stack after the top of stack has reached the feed position.</p> <ul style="list-style-type: none"> ▪ Double feeding occurs when there is too much pressure. To | |

SP1xxx: Feed

| | | |
|-----|--------------|---|
| | | <p>correct this, increase the length of time the motor runs in reverse to lower the tray (to do this, reduce the value of the setting).</p> <ul style="list-style-type: none"> ▪ Failure to feed occurs when there is not enough pressure. To correct this, increase the length of time the motor runs forward to raise the tray. (to do this, increase the value of the setting). <p>How to Read These SP Codes</p> <ul style="list-style-type: none"> ▪ Each selection shows the paper size and a percentage that indicates the amount of paper remaining in the tray when the setting will take effect. For example, "B4,LG 70%" means the setting will take effect when B4 or Legal size paper is loaded in the tray and 70% of the paper remains in the tray. ▪ The "Initial" notation in the display indicates the default value for the setting. A positive number (+) indicates the length of time (ms) the lift motor runs forward to raise the bottom plate and increase pressure. A negative number (-) indicates the length of time (ms) the lift motor runs in reverse to lower the bottom plate and reduce pressure. ▪ Please note that the "Initial" settings for some settings are negative (reverse run time), others are positive (forward run time). <p>Note: Before doing any adjustments with these SP codes, confirm that the correct paper size has been selected for each tray with SP codes 1912, 1913, 1914, 1915.</p> |
| 1 | A3, DLT:100% | <ul style="list-style-type: none"> ▪ To correct feed problems for a paper size, be sure to set all four settings (100%, 70%, 30%, 10%) for each paper size that is causing problems. |
| --- | | |
| 56 | A5T:70%->30% | <ul style="list-style-type: none"> ▪ The "T" notation denotes "SEF" (Short Edge Feed). ▪ The "Y" notation denotes "LEF" (Long Edge Feed) |

| | |
|------|-----------------------------------|
| 1912 | Tray 1: Auto Paper Size Detection |
|------|-----------------------------------|

SP1xxx: Feed

| | | |
|------|--|--|
| 1913 | Tray 2: Auto Paper Size Detection | |
| 1914 | Tray 3: Auto Paper Size Detection | |
| 1915 | Tray 4: Auto Paper Size Detection | |
| | <p>Some paper sizes are very nearly the same (A4, LT for example). The paper size sensors are not sensitive enough to distinguish between such paper sizes. Use these SP codes to select the paper size for the tray. A setting can be done for each tray:</p> <p>Tray 1: Upper Tray (Main Machine) Tray 2: Lower Tray (Main Machine) Tray 3: LCT Tray or Upper Tray: Paper Tray Unit Tray 4: Lower: Tray Paper Tray Unit</p> | |
| 1 | Size 1: B5/Exe Landscape | <p>[0 to 1/0/1] 0: ISO (A3, A4, A5, etc.) 1: USA (DLT, LT, EXE, etc.) Note: "Landscape" means LEF (Long Edge Feed)</p> |
| 2 | Size 2: A5/HLT Landscape | |
| 3 | Size 3: A4/LT | |
| 4 | Size 4: A4/LG | |
| 5 | Size 5: A3/LT | |

Service Tables

| | | |
|------|-------------------------------------|---------------------------|
| 1991 | Max Fusing Lamp Duty DFU | |
| | These SP codes are debugging tools. | |
| 1 | Roller Center | <p>[40 to 100/80/10%]</p> |
| 2 | Roller Ends | |
| 3 | After Warming-up – Center | |
| 4 | After Warming-up - Ends | [40 to 100/100/10%] |

| | | |
|------|--|--|
| 1992 | Mtr Rvrs Time at Fusing Drv Rls DFU | |
| | <p>This is a debugging tool. [0 to 3/3/1]</p> | |

SP1xxx: Feed

| | | |
|------|-------------------------------|------------------------|
| 1996 | Heater Forced Off DFU | |
| | These are debugging tools | |
| 1 | Starting Temperature (Center) | [150 to 180/180/5 deg] |
| 2 | Starting Temperature (Side) | |
| 3 | Time (Center) | [0 to 5/0/1] |
| 4 | Time (Side) | |
| 5 | After Printing | [0 to 5/1/1] |

5.3 SP2XXX: DRUM

| | |
|-------|---|
| 2001* | Charge Bias |
| 1* | <p>Setting (Copying)</p> <p>Adjusts the voltage applied to the charge roller during printing. This value will be changed automatically when the charge roller bias correction is performed. Note that if this value is changed, the charge roller voltage will be corrected based on the new voltage. [2100 to 1500 / -1700 / 1 V/step]</p> |
| 2* | <p>ID Sensor Pattern</p> <p>Adjusts the voltage applied to the charge roller when making the Vsdp ID sensor pattern (for charge roller bias correction). The actual charge roller voltage is this value plus the value of SP2001 1. [0 to 400 / 200 / 1 V/step]</p> |
| 3 | <p>Temporary Input</p> <p>Inputs the charge roller voltage temporarily for test purposes. Do not change the value. [0 to -2500 / 0 / 1 V/step]</p> |

Service
Tables

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|-------|--|
| 2005* | Charge Bias Correction |
| 1 | <p>Vsdp Min</p> <p>Adjusts the lower threshold value for the charge roller correction.</p> <p>When the value of Vsdp/Vsg is less than this value, the charge roller voltage increases by 50V (e.g. from -500 to -550). The size of the increase depends on SP2005 3. [0 to 100 / 90 / 1%/step]</p> |
| 2 | <p>Vsdp Max</p> <p>Adjusts the upper threshold value for the charge roller correction.</p> |

SP2xxx: Drum

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|---|---|
| | When the value of Vsdp/Vsg is greater than this value, the charge roller voltage decreases by 50V (e.g. from -550 to -500). The size of the decrease depends on SP2005 3. [0 to 100 / 95 / 1 %/step] |
| 3 | Charge Roller Bias Correction Adjusts the size of the charge roller voltage correction. [0 to 200 / 50 / 1 V/step] |

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|-------|---|
| 2101* | Erase Margin Adjust |
| 1 | Leading Edge Adjusts the leading edge erase margin. The specification is 3 ± 2 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 9.0 / 3.0 / 0.1 mm/step] |
| 2 | Trailing Edge – Small Paper Adjusts the trailing edge erase margin for paper of length 216 mm or less. The specification is 3 ± 2 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 9.0 / 2.0 / 0.1 mm/step] |
| 3 | Trailing Edge – Middle Paper Adjusts the trailing edge erase margin for paper of length 216.1 to 297 mm. The specification is 3 ± 2 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 9.0 / 3.0 / 0.1 mm/step] |
| 4 | Trailing Edge – Large Paper Adjusts the trailing edge erase margin for paper longer than 297 mm. The specification is 3 ± 2 mm. See "Replacement and Adjustment - Copy Adjustment" for details. [0.0 to 9.0 / 4.0 / 0.1 mm/step] |

SP2xxx: Drum

| | |
|---|--|
| | Left Side |
| 5 | <p>Adjusts the left edge erase margin.</p> <p>The specification is 2 ± 1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details.</p> <p>[0.0 to 9.0 / 2.0 / 0.1 mm/step]</p> |
| | Right Side |
| 6 | <p>Adjusts the right edge erase margin.</p> <p>The specification is $2 +2.5/-1.5$ mm. See “Replacement and Adjustment - Copy Adjustment” for details.</p> <p>[0.0 to 9.0 / 2.0 / 0.1 mm/step]</p> |
| | Rear – Trailing Edge (Duplex 2nd Side) |
| 7 | <p>Adjusts the trailing edge erase margin on the reverse side of duplex copies.</p> <p>The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-2 or 3 or 4.</p> <p>The specification is 3 ± 2 mm. See “Replacement and Adjustment - Copy Adjustment” for details</p> <p>[0.0 to 9.0 / 1.2 / 0.1 mm/step]</p> |
| | Rear – Left Side (Duplex 2nd Side) |
| 8 | <p>Adjusts the left side erase margin on the reverse side of duplex copies.</p> <p>The actual left side erase margin on the reverse side is this value plus the value of SP2101-5.</p> <p>The specification is 2 ± 1.5 mm. See “Replacement and Adjustment - Copy Adjustment” for details.</p> <p>[0.0 to 9.0 / 0.3 / 0.1 mm/step]</p> |
| | Rear – Right Side (Duplex 2nd Side) |
| 9 | <p>Adjusts the right side erase margin on the reverse side of duplex copies.</p> <p>The actual right side erase margin on the reverse side is this value plus the value of SP2101-6.</p> <p>The specification is $2 +2.5/-1.5$ mm. See “Replacement and Adjustment - Copy Adjustment” for details.</p> <p>[0.0 to 9.0 / 0.3 / 0.1 mm/step]</p> |

SP2xxx: Drum

| | |
|-------|--|
| | Printer - Rear Trailing Edge |
| | In printer mode, adjusts the trailing edge erase margin on the reverse side of duplex copies. |
| 10 | The actual trailing edge erase margin on the reverse side is this value plus the value of SP2101-7. The specification is 3 ± 2 mm. See "Replacement and Adjustment - Copy Adjustment" for details [0.0 to 9.0 / 0.0 / 0.1 mm/step] |
| | LD Power Adjustment DFU |
| 2103* | [50 to 170 / 129 / 1/step] Adjusts the LD power. Do not change the value. |
| | Test Mode dpi |
| 2110* | Sets the scanning resolution (dpi). DFU [See below / 8 / 0to18] 0: 400x400 dpi 4: 300x300 dpi 8: 600x600 dpi |
| 2201* | Development Bias Adjust |
| | Printing |
| 1 | Adjusts the development bias during printing. This can be adjusted as a temporary measure if faint copies appear due to an aging drum. [-1500 to -200 / -650 / 1 V/step] |
| | ID Sensor Pattern |
| 2 | Adjusts the development bias for making the ID sensor pattern. The actual development voltage for the ID sensor pattern is this value plus |

SP2xxx: Drum

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| | <p>the value of SP2201-1.</p> <p>This should not be used in the field, because it affects ID sensor pattern density, which affects toner supply.</p> <p>[0 = N (200V) / 1 = H (240V) / 2 = L (160V) / 3 = HH (280V) / 4 = LL (120V)]</p> |
|--|--|

| | |
|-------|---|
| 2210* | Bias Off Time |
| | <p>Charge Bias DFU</p> <p>Adjusts the charge voltage (-1200V) application time.</p> <p>When the charge voltage and development bias are turned off at the same time, toner or carrier will be attracted to the drum. To reduce the toner or carrier attraction, the machine applies -1200V to the charge roller before the development bias is turned off. This SP adjusts the time for applying the charge.</p> <p>[0 to 150 / 80 / 1 ms /step]</p> |
| | <p>Development Bias DFU</p> <p>Adjusts the development bias off time.</p> <p>[-120 to 120 / 0 / 1ms/step]</p> |
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Service
Tables

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|-------|--|
| 2211* | PCU Reverse Interval |
| | <p>Adjusts the PCU reverse interval for cleaning during a job.</p> <p>When the machine has made this number of copies in the middle of a job, the machine reverses to clean the edge of the cleaning blade. After cleaning, the machine resumes the job. Set to a shorter interval if thin white lines appear on printouts.</p> <p>[0 to 999 / 100 / 1 sheet/step]</p> <p>0: Never cleans during job</p> |

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|-------|---|
| 2213* | Copies after Toner Near End |
| | <p>Selects the number of copies that can be made after toner near-end has been detected.</p> <p>[0 = 50 pages / 1 = 20 pages]</p> |

SP2xxx: Drum

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| | If the user normally makes copies with a high proportion of black, reduce the interval. |
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|-------|---------------------------|--|
| 2220* | Vsg/V/Vsdp/Vt/Vts Display | |
| 1 | Vsg | Displays the individual Vt, Vsg, Vsp, Vsdp, and Vts values. |
| 2 | V | |
| 3 | Vsdp | |
| 4 | Vt | |
| 5 | Vts | |
| 6 | Vsp/Vsg/Vsdp/Vt/Vts | Displays all the data used in process control, separated by slashes (/). |

| | |
|-------|---|
| 2301* | Transfer Current Adjust |
| | Normal Paper |
| 1* | <p>Adjusts the current applied to the transfer roller during copying from a paper tray when the user uses the “Normal” paper setting.</p> <p>If the user normally feeds thicker paper from a paper tray, use a higher setting.</p> <p>[0 = -2 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4µA]</p> |
| 2* | <p>Thick/Thin Paper</p> <p>Adjusts the current applied to the transfer roller during copying from the by-pass tray. These settings are also used if the 2nd tray is used and special paper is selected.</p> <p>If the user normally feeds thicker paper from the by-pass tray/2nd tray (special paper), use a higher setting. If waste toner is re-attracted from the drum (this can occur when using an OHP sheet), use a higher setting.</p> <p>[0 = -2 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4µA]</p> |
| 3* | Duplex Side 2 |

SP2xxx: Drum

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| | <p>Adjusts the current applied to the transfer roller during copying from the duplex unit when the user uses the “Normal” paper setting.</p> <p>Use this SP when the image on the rear side of the paper has a problem caused by poor image transfer.</p> <p>[0 = -2 µA / 1 = 0 µA / 2 = +2 µA / 3 = +4 µA]</p> |
| 4* | <p>Cleaning</p> <p>Adjusts the current applied to the transfer roller during roller cleaning.</p> <p>If toner remains on the roller after cleaning (dirty background appears on the rear side of the paper), increase the current.</p> <p>[−10 to 0 / −4 / 1 µA /step]</p> |
| 5 | Input – Front DFU |
| 6 | Input – Rear DFU |
| 7 | <p>Temp Inside the Machine</p> <p>Displays the temperature measured inside the machine just after power-on (by the thermistor on the SBCU board) the last time that the fusing unit was less than 40°C just after the machine was switched on.</p> <p>The transfer current is corrected in accordance with this value.</p> |

Service
Tables

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|------|--|
| | Developer Initialization |
| 2801 | <p>Initializes the developer and resets the TD and ID sensor outputs to their defaults. Do this SP after you fill the PCU with developer at machine installation and every time developer is replaced.</p> |

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|------|--|
| | Developer Mixing |
| 2802 | <p>Mixes the developer and checks Vt. The machine mixes the developer for 2 minutes and while doing this, it reads the TD sensor output (Vt). It does not initialize the TD sensor output.</p> <p>If the machine has not been used for a long time, prints may have a dirty background. In this case, use this SP mode to mix the developer.</p> |

SP2xxx: Drum

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|-------|--|
| 2803* | Developer Initialization Data |
| | Vts |
| 1 | When the machine detects a new PCU (photoconductor unit) in the machine, it checks the heat seals at the creation of the first ID sensor pattern. After the agitator is rotated for 30 sec., the machine creates the second ID sensor pattern and corrects the reference value of the TD sensor. The corrected reference value for the TD sensor is recorded here. |
| 2 | ID Sensor PWM Value Displays the PWM value of the ID sensor after performing the developer initialization. |

| | |
|------|--|
| 2804 | New PCU Check DFU |
| | This SP determines whether the machine is set to recognize a new PCU. [0 to 1/0/1] 0: New PCU recognition on. 1: New PCU recognition off. |

| | |
|-------|---|
| 2901* | Separation Voltage Adj |
| | Front – Leading Edge |
| 1 | Adjusts the voltage that is applied to the separation plate during printing at the leading edge of the paper on the front side. If the copies have pawl marks at the leading edge, increase this voltage. [-4000 to -1000 / -1800 / 1 V/step] |
| 2 | Front – Image Area Adjusts the voltage that is applied to the separation plate during printing on the image area of the paper on the front side. If the copies have pawl marks in the image area, increase this voltage. [-4000 to -1000 / -1800 / 1 V/step] |
| 3 | Rear – Leading Edge |

SP2xxx: Drum

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| | Adjusts the voltage applied to the separation plate, during printing at the leading edge of the paper on the rear side. See SP2901 1. [−4000 to −1000 / −2100 / 1 V/step] |
| 4 | Rear – Image Area Adjusts the voltage applied to the separation plate, during printing at the image area of the paper on the rear side. See SP2901 2. [−4000 to −1000 / −2100 / 1 V/step] |

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| 2902* | Test Pattern |
| | Prints the test patterns. Select the number of the test pattern that you want to print. When adjusting the printing registration, select no.10 (Trimming Area Pattern). [0 to 24 / 0 / 1 step] |

Test Patterns for SP2902

| | | | |
|---|-----------------------------|----|-------------------------------|
| 0 | None | 13 | Checker Flag Pattern |
| 1 | Vertical Line (1 dot) | 14 | Black Band (Vertical) |
| 2 | Horizontal Line (1 dot) | 15 | Independent Pattern (4 dot) |
| 3 | Vertical Line (2 dot) | 16 | Grayscale Horizontal |
| 4 | Horizontal Line (2 dot) | 17 | Grayscale Vertical |
| 5 | Grid Pattern 1 | 18 | Grayscale Vertical Horizontal |
| 6 | Independent Pattern (1 dot) | 19 | Grayscale Grid |
| 7 | Independent Pattern (2 dot) | 20 | Grayscale (Horizontal Margin) |
| 8 | Full Dot Pattern | 21 | Grayscale (Vertical Margin) |
| 9 | Black Band (Horizontal) | 22 | Grayscale (Ver Hor Margin) |

SP2xxx: Drum

| | | | |
|----|--------------------------------|----|----------------------|
| 10 | Trimming Area | 23 | All White Pattern |
| 11 | Argyle Pattern | 24 | Trimming Area Or Out |
| 12 | Hounds Tooth Check (2 dot Hor) | | |

| | |
|-------|--|
| 2906* | Tailing Correction |
| | Shift Value |
| 1 | Shifts the image across the page at the interval specified by SP2906 2. When making many copies of an original that contains vertical lines (such as a table), separation may not work correctly, then a tailing image will occur (ghosts of the vertical lines will continue past the bottom of the table). This SP prevents this problem. [0.0 to 1.0 / 0.0 / 0.1 mm/step] |
| 2 | Interval |
| | Changes the interval for the image shift specified by SP2906 1. [0 to 10 / 0 / 1 page/step] |

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|-------|--|
| 2907* | Filter Setting |
| | Adjusts the line width for the copy mode. The default setting disables this function. A number smaller than the default makes lines thinner, a number larger than the default makes lines thicker. |
| 1 | Text: Multilevel Copy [0 to 10 / 5 / 1 step] |
| 2 | Photo: Multilevel Copy [0 to 10 / 6 / 1 step] |
| 3 | Text/Photo: Multilevel Copy |
| 4 | Pale: Multilevel Copy [0 to 10 / 5 / 1 step] |
| 5 | Generation: Multilevel Copy |

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|------|---------------------|
| 2908 | Forced Toner Supply |
|------|---------------------|

SP2xxx: Drum

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| | <p>Forces the toner bottle to supply toner to the toner supply unit.</p> <p>Press Execute on the touch panel to start.</p> <p>During this process, the machine supplies toner until the toner concentration in the development unit reaches a standard level. However, if the toner concentration does not reach a standard level, the machine supplies toner for 2 minutes maximum.</p> |
|--|--|

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|-------|--|
| 2909* | Main Scan Magnification Adj |
| | [-0.5 to 0.5 / 0.0 / 0.1%/step] |
| 1 | Copy: Short Edge Feed |
| | Adjusts the main scan magnification in copy mode when the machine feeds the paper in the short edge feed orientation. |
| 2 | Printer: Short Edge Feed |
| | Adjusts the main scan magnification in printer mode when the machine feeds the paper in the short edge feed orientation. |
| 3 | Copy: Long Edge Feed |
| | Adjusts the main scan magnification in copy mode when the machine feeds the paper in the long edge feed orientation. |
| 4 | Printer: Long Edge Feed |
| | Adjusts the main scan magnification in printer mode when the machine feeds the paper in the long edge feed orientation. |

Service
Tables

| | |
|-------|---|
| 2910* | Margin Adjust for By-pass |
| | Adjusts the blank margin at the trailing edge of paper fed from the by-pass table. [-9.0 to +9.0 / 0 mm / 0.1 mm/step] |

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|-------|-----------------|
| 2913* | ID Test Pattern |
|-------|-----------------|

SP2xxx: Drum

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| | <p>Adjusts the image density level for black pixels on test pattern printouts (patterns are made with SP2902)</p> <p>[0 to 15 / 15 / 1/step]</p> <p>This SP affects all test patterns except for the grayscale test patterns.</p> |
|--|---|

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|-------|---|------------------------------------|
| 2915* | Polygon Motor Idling Time | |
| | <p>Selects the polygon motor idling time.</p> <p>The polygon motor starts rotating up to its operation speed if the user 1) sets an original, 2) touches a key, or 3) opens the platen cover or document feeder. This shortens the time to the first copy. However, with the default (10 s) set, the motor stops if the user does nothing for 10 s after doing one of the actions above, and stops 10 s at the end of a job.</p> <p>Note: If set at “0”, the polygon motor never turns off during stand-by. However, when the machine goes into energy saver mode, the polygon motor turns off regardless of this timer.</p> | |
| | 1 | Idling Time Adj. [0 to 60/10/1] |
| | 2 | Post Idling Time Adj. |

| | | |
|-------|---|--|
| 2921* | Toner Supply Mode | |
| | <p>Selects the toner supply mode.</p> <p>[0 = Sensor 1 / 1 = Sensor 2 / 2 = Fixed 1 / 3 = Fixed 2, 4 = Sensor 3]</p> <p>Normally, only use setting 0. Change to 3 temporarily if the TD sensor is defective. Do not use settings 1, 2 and 4; these are for designer's use only.</p> | |
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|-------|---|--|
| 2922* | Toner Supply Time | |
| | <p>Adjusts the toner supply motor on time for sensor supply mode.</p> <p>This SP is effective only when SP2921 is “0” or “1”.</p> <p>[0.1 to 5.0 / 0.6 / 0.1 s/step]</p> <p>Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black.</p> | |
| | | |

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|-------|--|
| | Toner Recovery Time |
| 2923* | <p>Adjusts the toner supply motor on time during recovery from toner near-end/end.</p> <p>This SP is effective only when SP2921 is “0”, “1”, or “2”.</p> <p>[1 to 60 / 30 / 1 s/step]</p> <p>Note that toner recovery is done in a 3-second cycle. So, the input value should be a multiple of 3 (e.g. 3, 6, 9). See “Toner Density Control” for more details.</p> |
| | Toner Supply Ratio |
| 2925* | <p>Adjusts the toner supply rate for fixed toner supply mode.</p> <p>This SP is effective only when SP2921 is “2” or “3”.</p> <p>Increasing this value increases the toner supply motor on time. So, use a high value if the user tends to make lots of copies that have a high proportion of black. See “Toner Density Control” for more details.</p> <p>[0 to 7 / 0 / 1/step]</p> <p>0: t, 1: 2t, 2: 4t, 3: 8t, 4: 12t, 5: 16t, 6: On continuously, 7: 0 s t: 200 ms</p> |
| | Standard Vt DFU |
| 2926* | <p>Adjusts Vts (Vt for a new PCU). The TD sensor output is adjusted to this value during the TD sensor initial setting process. This SP is effective only when SP2921 is “0”, “1”, or “2”.</p> <p>[0.00 to 5.00 / 2.50 / 0.05 V/step]</p> |
| | ID Sensor Control |
| 2927* | <p>Selects whether the ID sensor is used or not for toner density control.</p> <p>[0 = No / 1 = Yes]</p> <p>If this value is “0”, dirty background may occur after the machine has not been used for a long time.</p> |

SP2xxx: Drum

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|-------|---|
| 2928* | Toner End Clear |
| | <p>Clears the toner end condition. Press Execute on the touch panel to clear the toner end condition without adding new toner.</p> <p>When you press Execute, the following are cleared:</p> <ul style="list-style-type: none"> ▪ Toner end indicator (goes out) ▪ Toner near-end counter ▪ Toner near-end level <p>When making a lot of copies after changing this setting to “1”, the carrier may be attracted to the drum when the toner runs out, which may damage the drum.</p> |

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|-------|---|
| 2929* | Vref Adjustment |
| 1 | <p>Upper Limit</p> <p>Adjusts the upper limit for Vref. [0.5 to 3.5 / 3.10 / 0.05 V/step]</p> |
| 2 | <p>Lower Limit</p> <p>Adjusts the lower limit for Vref. [0.5 to 3.5 / 1.40 / 0.05 V/step]</p> |

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| 2930* | TD Sensor Manual Setting |
| | <p>Adjusts the TD sensor output. DFU [0 to 5 / 0.0V / 0.05V/step]</p> |

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|-------|--|
| 2931* | TD (V/wt%) Setting |
| | <p>Adjusts the TD sensor sensitivity (coefficient: S) for toner density control. DFU [0.01 to 1.50 / 0.4 / 0.01/step]</p> |

| | |
|-------|--|
| 2932* | Toner Density Control Level |
| | <p>Adjusts the toner density control threshold level. [0 = Normal / 1 = Dark / 2 = Light / 3 = Darker / 4 = Lighter]</p> |

SP2xxx: Drum

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| | Use this SP when you want to adjust the image density. |
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| 2933* | ID Sensor Control Correction |
| | Adjusts the ID sensor control coefficient. DFU [0.5 to 3 / 1 / 0.1/step] |

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|---|------------------------|--|
| 2934* | ID Sensor PWM Setting | |
| 1 | Display | Displays the PWM of the ID Sensor LED. |
| 3 | Upper Limit Correction | |
| 3 Corrects the upper limit of the PWM for the ID sensor LED. DFU [0 to 255 / 50 / 1/step] | | |

| | | |
|------|---|--|
| 2935 | ID Sensor Initialization | |
| | Performs the ID sensor initial setting. Press Execute on the touch panel to start. Perform this setting after replacing or cleaning the ID sensor. | |

Service
Tables

| | | |
|------|---|---|
| 2989 | Original PCU ID South Korea only | |
| | Displays the ISSUER CODE of the loaded PCU. The history of the PCU ID codes is stored in NVRAM for display. | |
| 1 | Latest | Most current code (in use). |
| 2 | Last 1 | Up to four issuer codes of toner lots in the same series can be stored. If a PCU with a new series code is set, then the new code replaces the history of the previous PCU. |
| 3 | Last 2 | |
| 4 | Last 3 | |
| 5 | Last 4 | |

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| 2990 | Original Toner ID South Korea only | |
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SP2xxx: Drum

| | | |
|---|--|---|
| | Displays the ISSUER CODE of the loaded toner. The history of the toner ID codes are stored in NVRAM for display. | |
| 1 | Latest | Most current code (in use). |
| 2 | Last 1 | Up to four issuer codes of toner lots in the same series can be stored. If toner with a new series code is set, then the new code replaces the history of the previous toner. |
| 3 | Last 2 | |
| 4 | Last 3 | |
| 5 | Last 4 | |

| | | |
|------|---|---|
| 2991 | Original Toner Counter South Korea only | |
| | Displays the page counts for the issuer code history. [0 to 65535 / 0 / 1] | |
| 1 | Latest | This SP displays the page counts for each successive issuer code. See SP2990 above. |
| 2 | Last 1 | |
| 3 | Last 2 | |
| 4 | Last 3 | |
| 5 | Last 4 | |

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|-------|---|--|
| 2992* | Copies After TD Sensor Error | |
| | Selects the number of copies that can be made after a TD sensor error has been detected. When the machine copies this amount, an SC condition will occur. If the optional fax unit is installed, the SC condition occurs immediately regardless of the number of prints (this is because the sender of the fax cannot check the image quality of the printout). | |
| 1 | 0:100 Pages 1:200 Pages | |
| 2 | Counter | |

SP2xxx: Drum

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|-------|--|--|
| 2993* | ISSUER CODE Ref South Korea Only | |
| | Sets the standard issuer code, once it has been determined. [0 to 9999 / 0 / 1] | |

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|-------|----------------------------|------------|
| 2994* | Vts Limitation - Factory | |
| 1 | Upper Limit - Factory Only | DFU |
| 2 | Lower Limit - Factory Only | DFU |

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|-------|---|--|
| 2995* | ID Sensor Detection Interval | |
| 1 | Warming-up | |
| | This SP controls the temperature at which the ID sensor pattern is created after the machine is turned on, or after the machine returns to full operation from the energy saver or auto off mode. [0 to 255 / 30 / 1 degree] | |
| 2 | Number of Pages | |
| | The machine makes an ID sensor pattern after the specified number of prints has been made. [0 to 999 / 300 / 1 page/step] | |
| 3 | Job End/Interrupt | |
| | Determines when the ID sensor reads the ID sensor pattern. 0: Job End. Read pattern at job end. 1: Interrupt. Read pattern at interval set with SP2995-2, even if the job is not completed. | |

Service
Tables

| | | |
|------|--|--|
| 2996 | Transfer Roller Cleaning | |
| | These SP codes determine how the transfer roller is cleaned. | |
| 1 | 0:OFF 1:ON | |

SP2xxx: Drum

| | |
|---|--|
| | Selects whether the transfer roller is cleaned. Transfer roller cleaning is necessary only when black spots occur in the image areas of copies. This can occur when bad environmental conditions increase the toner density. Set this to '1' when dirty background appears on the reverse side of the first page of a copy job. However, the first copy time will be longer regardless of the SP2996 001 setting. [0 = No / 1 = Yes] |
| 2 | <p>Interval</p> <p>This SP sets the page interval for transfer roller cleaning when SP2996 001 is set to "1" (Yes). Increase this setting only when absolutely necessary. A higher setting increases wear on the PCU. [0to100/50/1 sheets]</p> <p>Note: This SP does not execute for the first copy after power on or when the machine returns from the energy save or auto off mode.</p> <p>This SP setting does not correct poor copies if there is a problem with the TD sensor.</p> |

| | |
|-------|---------------------------------------|
| 2997* | Standard Vt (Factory Only) DFU |
|-------|---------------------------------------|

| | |
|-------|---|
| 2998* | PCU Reverse Rotation Time DFU |
| 1 | <p>Wait Time</p> <p>Adjusts the waiting time for starting to rotate the drum in reverse after the end of each job. The wait time calculation formula is as follows. [0 to 999 / 600/ 1]</p> <p>This SP is adjusted in units of 30 ms (1 step = 30 ms, 2 steps = 60 ms, etc.) If "0" is selected, the drum reverses immediately at the end of the job.</p> |
| 2 | <p>Reverse Time</p> <p>Adjusts the drum reverse rotation time. [0 to 99 / 60/ 1]</p> <p>This SP is adjusted in units of 60 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" is selected, the drum does not reverse at the end of the job.</p> |

SP2xxx: Drum

| | |
|---|---|
| | <p>Brake Time</p> |
| | <p>Adjusts the length of time of braking to stop reverse rotation of the drum. [0 to 99/60/1]</p> |
| 3 | <p>This SP is adjusted in units of 6 ms (1 step = 6 ms, 2 steps = 12 ms, etc.) If "0" is selected, the drum stops reverse rotation immediately.</p> <p>Note: Adjust the SP only if the PCU makes noise during braking when the drum rotation slows. To reduce or eliminate the noise, select a lower setting to reduce the braking time.</p> |

SP3xxx

5.4 SP3XXX

There are no Group 3 SP codes for this machine.

5.5 SP4XXX: SCANNER

| | | |
|-------|---|----------------------------------|
| | Scanner Sub Scan Magnification | |
| 4008* | <p>Adjusts the magnification of the sub scan direction during scanning. Changing this value changes the scanner motor speed. Press  to toggle ±. [-1 to 1 / 0 / 0.1%]</p> | |
| | Scanner Leading Edge Registration | |
| 4010* | <p>Adjusts the leading edge registration for scanning. Press  to toggle ±. [-2 to 2 / 0 / 0.1 mm] As you enter a negative value, the image moves toward the leading edge.</p> | |
| | Scanner Side-to-side Registration | |
| 4011* | <p>Adjusts side-to-side registration for scanning. Press  to toggle ±. C: [-2.5 to +2.5 / 0.0 / 0.1 mm step] M: [-4.2 to +4.2 / 0.0 / 0.1 mm step] As you enter negative values, the image will disappear at the left, and as you enter positive values, the image will appear at the left.</p> | |
| 4012* | Scanner Erase Margin: Scale | |
| | <p>Adjusts the erase margin at each side for scanning in book mode and ADF mode.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ Do not adjust this unless the user wishes to have a scanner margin that is greater than the printer margin. ▪ These settings are adjusted to erase shadows caused by the gap between the original and the scale of the scanner unit. | |
| 1 | Book: Leading Edge | [0 to 3.0 / 1.0 / 0.1 mm / step] |
| 2 | Book: Trailing Edge | [0 to 3.0 / 0.0 / 0.1 mm / step] |

SP4xxx: Scanner

| | | |
|---|-------------------|----------------------------------|
| 3 | Book: Left | [0 to 3.0 / 1.0 / 0.1 mm / step] |
| 4 | Book: Right | [0 to 3.0 / 0.0 / 0.1 mm / step] |
| 5 | ADF: Leading Edge | |
| 7 | ADF: Right | |
| 8 | ADF: Left | |

| | | |
|------|---|--|
| 4013 | Scanner Free Run | |
| | Performs a scanner free run with the exposure lamp on or off. | |
| 001 | Lamp: ON | [0 to 1 / 0 / 1] 0=Off, 1=On |
| 002 | Lamp: OFF | |

| | | |
|------|---|---|
| 4014 | Scanner Free Run | |
| | Performs a scanner free run with the exposure lamp on. Note: The free run is done for full size (A3/DLT). | |
| 1 | HP Detection Enable | <ul style="list-style-type: none"> ▪ Touch [Execute] to start this feature. |
| 2 | HP Detection Disable | <ul style="list-style-type: none"> ▪ Press the  (Clear/Stop) key to stop. |

| | | |
|------|---|--|
| 4020 | ADF Scan Glass Dust Check | |
| | This function checks the narrow scanning glass of the ADF for dust that can cause black lines in copies. If dust is detected a system banner message is displayed, but processing does not stop. | |
| 1 | Check On/Off Change | |
| | Issues a warning if there is dust on the narrow scanning glass of the ADF when the original size is detected before a job starts. This function can detect dust on the white plate above the scanning glass, as well as dust on the glass. Sensitivity of the level of detection is adjusted with SP4020 2. [0 to 1 / 0 / 1] | |

SP4xxx: Scanner

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|---|--|
| | <p>0: Off. No dust warning. 1: On. Dust warning. This warning does not stop the job.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ Before switching this setting on, clean the ADF scanning glass and the white plate above the scanning glass. |
| | <p>Detect Level</p> <p>Adjusts the sensitivity for dust detection on the ADF scanning glass. This SP is available only after SP4020 1 is switched on.</p> <p>[0 to 8 / 4/ 1]</p> |
| 2 | <p>If you see black streaks in copies when no warning has been issued, raise the setting to increase the level of sensitivity. If warnings are issued when you see not black streaks in copies, lower the setting.</p> <p>Note: Dust that triggers a warning could be removed from the glass by the originals in the feed path. If the dust is removed by passing originals, this is not detected and the warning remains on.</p> |
| 3 | <p>Correction Level</p> <p>Selects the level of the sub scan line correction when using the ARDF.</p> <p>[0 to 4 / 0 / 1 /step]</p> <p>0: Off, 1: Weakest, 2: Weak, 3: Strong, 4: Strongest</p> |

Service
Tables

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|------|---|
| 4301 | APS Scanner Output Display |
| | Displays the status of the APS sensors and platen/DF cover sensor (see 'APS Output Display'). |

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|-------|--|
| 4303* | APS A5/LT Size Detection |
| | <p>Selects if the copier defaults to A5 SEF/LEF if the APS sensor cannot detect the size of a small original.</p> <p>[0 to 2/0/1]</p> <p>0: Not detected as A5 1: Detected as A5 SEF 2: Detected as A5 LEF</p> |

SP4xxx: Scanner

| | |
|-------|--|
| 4305* | Original Size Detection |
| | Selects whether the machine determines that the original is A4/LT, or 8K/16K. 8K/16K is not available for USA models. [0 = Normal (LT for USA models, A4 for Europe/Asia models) 1 = Reversed [A4 for USA models, LT for Europe/Asia models] 2 = 8K/16K] |

| | |
|------|---|
| 4400 | Scanner Erase Margin |
| | These SPs set the area to be masked during platen (book) mode scanning. |
| 1 | Book: Leading Edge |
| 2 | Book: Trailing Edge |
| 3 | Book: Left |
| 4 | Book: Right |
| 5 | ADF: Leading Edge |
| 7 | ADF: Right |
| 8 | ADF: Left |

| | |
|------------------------|-------------------------------|
| 4417 | IPU Test Pattern |
| | Selects the IPU test Pattern. |
| Test Pattern Selection | [0 to 28 / 0 / 1] |
| | 0: Scanned image |
| | 1: Gradation main scan A |
| | 2: Gradation main scan B |
| | 3: Gradation main scan C |
| | 15: Gray pattern (1) |
| | 16: Gray pattern (2) |
| | 17: Gray pattern (3) |
| | 18: Shading pattern |

SP4xxx: Scanner

| | | |
|--|---------------------------|----------------------------|
| | 4: Gradation main scan D | 19: Thin line pattern |
| | 5: Gradation sub scan (1) | 20: Scanned + Grid pattern |
| | 6: Grid pattern | 21: Scanned + Grid scale |
| | 7: Slant grid pattern | 22: Scanned + Color patch |
| | 8: Gradation K | 23: Scanned + Slant Grid C |
| | 9: Check pattern 16 | 24: Scanned + Slant Grid D |
| | 10: Gray patch 16 (1) | 25: Gray Scale 18 text |
| | 11: Gray patch 16 (2) | 26: Gray Scale 18 photo |
| | 12: Gray patch 64 | 27: Gray Scale 256 text |
| | 13: Grid pattern (2) | 28: Gray Scale 256 photo |
| | 14: Color patch K | |

| | | |
|------|--------------------------------|--|
| 4429 | ICI Output Selection | |
| | Adjusts the ICI density level. | |
| 1 | Copy | [32 to 255 / 128 / 1 /step] 255: Strongest density |
| 2 | Scanner | |
| 3 | Fax | |

Service
Tables

| | | |
|------|--|--|
| 4450 | Scan Image Path Detection | |
| | Determines the method of image path detection. | |
| 1 | Black Reduction ON/OFF | Switches black image path detection on/off |
| 2 | SH ON/OFF | Switches shading image path detection on/off |

| | |
|------|--------------------|
| 4460 | Digital AE Setting |
|------|--------------------|

SP4xxx: Scanner

| | | |
|---|--|---|
| | Specifies the detection threshold for background deletion in ADS mode. | |
| 1 | Lower Limit | [0 to 1024 / 364 / 4 digit/step] |
| 2 | Background Level | [512 to 1532 / 972 / 1 digit/step] |

| | | |
|-------|---|--|
| 4540 | Printer Vector Correction | |
| | This SP corrects the printer coverage for 12 hues (RY, YR, YG, etc. x 4 Colors [R, G, B, Option]) for a total of 48 parameters. | |
| 1-4 | RY Phase: Option/R/G/B | Specifies the printer vector correction value. [0 to 255 / 0 / 1 /step] |
| 5-8 | YR Phase: Option/R/G/B | |
| 9-12 | YG Phase: Option/R/G/B | |
| 13-16 | GY Phase: Option/R/G/B | |
| 17-20 | GC Phase: Option/R/G/B | |
| 21-24 | CG Phase: Option/R/G/B | |
| 25-28 | CB Phase: Option/R/G/B | |
| 29-32 | BC Phase: Option/R/G/B | |
| 33-36 | BM Phase: Option/R/G/B | |
| 37-40 | MB Phase: Option/R/G/B | |
| 41-44 | MR Phase: Option/R/G/B | |
| 45-48 | RM Phase: Option/R/G/B | |

| | |
|-------|-------------------------------|
| 4550* | Scanner: Text/Chart |
| 4551* | Scanner: Text |
| 4552* | Scanner: Text (Dropout Color) |
| 4553* | Scanner: Text/Photo |

SP4xxx: Scanner

| | | |
|------|---|---|
| 4554 | Scanner: Photo | |
| 4565 | Scanner: Grayscale | |
| 4570 | Scanner: Color: Text/Photo | |
| 4571 | Scanner: Color: Text/Photo | |
| 4572 | Scanner: Color: Auto Color | |
| 5 | MTF: 0(Off), 1-15 (On) | |
| | <p>[0 to 15 / 8 / 1 /step] 0: MTF Off When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you may see very narrow width and spacing between black and white areas. MTF corrects this problem and emphasizes image detail.</p> | |
| 6 | Smoothing | Selects the level of smoothing for originals that contain dithered images. <p>[0 to 7 / 4 / 0 / step] 0: Default (Off) → 7: Strongest</p> |
| 7 | Brightness | Sets the overall brightness of the image. <p>[1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest</p> |
| 8 | Contrast | Sets the overall contrast of the image. <p>[1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest</p> |
| 9 | Ind. Dot Erase | Sets the level of independent dot erasure to improve the appearance of background. <p>[0 to 7/0/1] 0: Default (Off) → 7: Strongest</p> |
| 4580 | Fax: Text/Chart | |

SP4xxx: Scanner

| | | |
|------|--|---|
| 4581 | Fax: Text | |
| 4582 | Fax: Text/Photo | |
| 4583 | Fax: Photo | |
| 4584 | Fax: Original 1 | |
| 4585 | Fax: Original 2 | |
| 5 | MTF: 0(Off), 1-15 (On) | |
| | <p>[0 to 15 / 8 / 1 /step] 0: MTF Off When the CCD converts the original image to electrical signals, the contrast is reduced due to the influence that adjacent white and black pixels have on one another as a result of lens properties. Typically, you will see very narrow width and spacing between black and white areas. MTF corrects this problem and emphasizes image detail.</p> | |
| 6 | Smoothing | <p>Selects the level of smoothing for originals that contain dithered images. [0 to 7 / 4 / 0 / step] 0: Default (Off) → 7: Strongest</p> |
| 7 | Brightness | <p>Sets the overall brightness of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest</p> |
| 8 | Contrast | <p>Sets the overall contrast of the image. [1 to 255/128/1] 1: Weakest ← 128: Default → 255: Strongest</p> |
| 9 | Ind. Dot Erase | <p>Sets the level of independent dot erasure to improve the appearance of background. [0 to 7/0/1] 0: Default (Off) → 7: Strongest</p> |
| 10 | Text Erasure | <p>Sets the erasure level of textures. Set higher for stronger effect, lower for weaker effect. [0 to 2 / 0 / 1 /step]</p> |

SP4xxx: Scanner

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| | | 0: Not activated Note: This SP code exists for SP4580, SP4582 and SP4583 only. |
|--|--|--|

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|------|---|--|
| 4600 | SBU Version | |
| | Displays the version number of the SBU. | |

| | | |
|------|-------------------------|---|
| 4602 | Scanner Memory Erase | |
| | 1 Scanner Memory Access | Enables the read and write check for the SBU registers. |
| | 2 Address Setting | Not used. |
| | 3 Data Set | |

| | | |
|------|--------------------------|--|
| 4603 | AGC Execution DFU | |
| | Executes the AGC. | |
| 1 | HP Detection Enable | |
| 2 | HP Detection Disable | |

Service Tables

| | | |
|------|--|--|
| 4604 | FGATE Open/Close | |
| | Opens or closes the FGATE signal. This SP automatically returns to the default status (close) after exiting this SP. [0 or 1 / 0 / 1/step] 0: OFF, 1: ON Note: | <ul style="list-style-type: none"> ▪ When the registration sensor goes ON, the BCU generates the FGATE signal and sends it to the LD units. ▪ As soon as the LD units receive the FGATE signal, they send a feedback signal to the BCU. ▪ SC230, SC231 if the FGATE signal fails to switch on or off. |

SP4xxx: Scanner

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|------|--|
| 4606 | White Balance Target: R |
| 4607 | White Balance Target: G |
| 4608 | White Balance Target: B |
| | <p>These SP codes set the target values for R, G, B (Red, Green, Blue) during white level adjustment.</p> <p>[0 to 1024 / 784 / 1 digit/step]</p> |

| | | |
|------|--|---|
| 4623 | Black Level Fine Adj. Display | |
| | Note: <ul style="list-style-type: none"> ▪ RE: Red Even signal ▪ RO: Red Odd signal | |
| 1 | Latest: RE Color | <p>Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed).</p> <p>[0 to 255 / 128 / 1 digit/step]</p> |
| 2 | Latest: RO Color | <p>Displays the black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed).</p> |
| 3 | Latest: RE Color | <p>Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed).</p> |
| 4 | Latest: RO Color | <p>Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed).</p> |
| 5 | Latest: RE BW | <p>Displays the black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed).</p> <p>[0 to 255 / 128 / 1 digit/step]</p> |
| 6 | Latest: RO BW | <p>Displays the black offset value (rough adjustment)</p> |

SP4xxx: Scanner

| | | |
|---|---------------|--|
| | | for the odd red signal in the CCD circuit board (black and white printing speed). |
| 7 | Latest: RE BW | Displays the black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). |
| 8 | Latest: RO BW | Displays the black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |

| | | |
|------|--|--|
| 4624 | Black Level Rough Adj. Display | |
| | Note: <ul style="list-style-type: none"> ▪ GE: Green Even signal ▪ GO: Green Odd signal | |
| 1 | Latest: GE Color | Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 2 | Latest: GO Color | Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 3 | Latest: GE Color | Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). |
| 4 | Latest: GO Color | Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 5 | Latest: GE BW | Displays the black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |

SP4xxx: Scanner

| | | |
|---|---------------|--|
| 6 | Latest: GO BW | Displays the black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |
| 7 | Latest: GE BW | Displays the black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). |
| 8 | Latest: GO BW | Displays the black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |

| | | |
|------|--|-------------------------------|
| 4628 | Gain Adjustment Display | |
| | Displays the gain value of the amplifiers on the controller for Red. | |
| 1 | Latest: RE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Latest: RO Color | |
| 3 | Latest: RE BW | |
| 4 | Latest: RO BW | |

| | | |
|------|--|-------------------------------|
| 4629 | Gain Adjustment Display | |
| | Displays the gain value of the amplifiers on the controller for Green. | |
| 1 | Latest: GE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Latest: GO Color | |
| 3 | Latest: GE BW | |
| 4 | Latest: GO BW | |

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|------|---|--|
| 4630 | Gain Adjustment Display | |
| | Displays the gain value of the amplifiers on the controller for Blue. | |

SP4xxx: Scanner

| | | |
|---|------------------|-------------------------------|
| 1 | Latest: BE Color | |
| 2 | Latest: BO Color | [0 to 255 / 0 / 1 digit/step] |
| 3 | Latest: BE BW | |
| 4 | Latest: BO BW | |

| | | |
|------|--|---|
| 4640 | SBU Black Level Loop | |
| | Displays the black level adjustment time for each mode. The black level adjustment is done twice. The 1st loop decides the reference value for the 2nd loop. | |
| 1 | Loop Count 1st: Color | 1st adjustment [0 to 20 / 0 / 1 /step] |
| 2 | Loop Count 1st: B/W | |
| 3 | Loop Count 2nd: Color | 2nd adjustment [0 to 20 / 0 / 1 /step] |
| 4 | Loop Count 2nd: B/W | |

| | | |
|------|---|-------------------------|
| 4641 | SBU White Level Loop | |
| | Displays the white level adjustment time for each mode. | |
| 1 | Loop Count: Color | [0 to 20 / 0 / 1 /step] |
| 2 | Loop Count: B/W | |

| | | |
|-------|---|---------------------------|
| 4646* | SBU Timeout Error | |
| | Use this SP to determine whether the automatic scanner adjustment loop has exceeded the prescribed number of loops and flagged a timeout. | |
| | | |
| 1 | Black Level Adjustment 1 | 0: OK |
| 2 | Black Level Adjustment 2 | 1: AGC adjustment failure |
| 3 | White Level Adjustment | |

SP4xxx: Scanner

| | | |
|------|--|---|
| 4647 | SBU Error | |
| | Displays the result of the SBU connection check. | |
| 4654 | Black Level 1: Rough Adj. Display | |
| | RE: Red Even signal, RO: Red Odd signal | |
| 1 | Previous: RE Color | Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: RO Color | Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 3 | Previous: RE Color | Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: RO Color | Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 5 | Previous: RE BW | Displays the previous black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: RO BW | Displays the previous black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: RE BW | Displays the previous black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |

SP4xxx: Scanner

| | | |
|--|-------------------|--|
| | 8 Previous: RO BW | Displays the previous black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |
|--|-------------------|--|

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|------|--|---|
| 4655 | Black Level 1: Rough Adj. Display GE: Green Even signal, GO: Green Odd signal | |
| | 1 Previous: GE Color | Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: GO Color | Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 3 | Previous: GE Color | Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: GO Color | Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 5 | Previous: GE BW | Displays the previous black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: GO BW | Displays the previous black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: GE BW | Displays the previous black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |

SP4xxx: Scanner

| | | |
|--|-------------------|--|
| | 8 Previous: GO BW | Displays the previous black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |
|--|-------------------|--|

| | | |
|------|---|--|
| 4656 | Black Level 1: Rough Adj. Display | |
| | BE: Blue Even signal, BO: Blue Odd signal | |
| 1 | Previous: BE Color | Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: BO Color | Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 3 | Previous: BE Color | Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: BO Color | Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 5 | Previous: BE BW | Displays the previous black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: BO BW | Displays the previous black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: BE BW | Displays the previous black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |

SP4xxx: Scanner

| | | |
|---|-----------------|---|
| 8 | Previous: BO BW | Displays the previous black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed). |
|---|-----------------|---|

| | | |
|------|---|-------------------------------|
| 4658 | Gain Adjustment Display | |
| | Displays the previous gain value of the amplifiers on the controller for Red. | |
| 1 | Previous: RE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Previous: RO Color | |
| 3 | Previous: RE BW | |
| 4 | Previous: RO BW | |

| | | |
|------|---|-------------------------------|
| 4659 | Gain Adjustment Display | |
| | Displays the previous gain value of the amplifiers on the controller for Green. | |
| 1 | Previous: GE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Previous: GO Color | |
| 3 | Previous: GE BW | |
| 4 | Previous: GO BW | |

Service
Tables

| | | |
|------|--|-------------------------------|
| 4660 | Gain Adjustment Display | |
| | Displays the previous gain value of the amplifiers on the controller for Blue. | |
| 1 | Previous: BE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Previous: BO Color | |
| 3 | Previous: BE BW | |
| 4 | Previous: BO BW | |

SP4xxx: Scanner

| | | |
|------|---|---|
| 4661 | Black Level 2: Rough Adjustment Display | |
| | RE: Red Even signal, RO: Red Odd signal | |
| 1 | Previous: RE Color | Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: RO Color | Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 3 | Previous: RE Color | Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: RO Color | Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 5 | Previous: RE BW | Displays the previous 2nd black offset value (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: RO BW | Displays the previous 2nd black offset value (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: RE BW | Displays the previous 2nd black offset value (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Previous: RO BW | Displays the previous 2nd black offset value (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |

SP4xxx: Scanner

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|------|---|---|
| 4662 | Black Level 2: Rough Adjustment Display | |
| | GE: Green Even signal, GO: Green Odd signal | |
| 1 | Previous: GE Color | Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: GO Color | Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 3 | Previous: GE Color | Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: GO Color | Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 5 | Previous: GE BW | Displays the previous 2nd black offset value (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: GO BW | Displays the previous 2nd black offset value (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: GE BW | Displays the previous 2nd black offset value (fine adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Previous: GO BW | Displays the previous 2nd black offset value (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |

SP4xxx: Scanner

| | | |
|------|---|--|
| 4663 | Black Level 2: Rough Adjustment Display | |
| | BE: Blue Even signal, BO: Blue Odd signal | |
| 1 | Previous: BE Color | Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Previous: BO Color | Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 3 | Previous: BE Color | Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Previous: BO Color | Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 5 | Previous: BE BW | Displays the previous 2nd black offset value (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Previous: BO BW | Displays the previous 2nd black offset value (rough adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed). |
| 7 | Previous: BE BW | Displays the previous 2nd black offset value (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Previous: BO BW | Displays the previous 2nd black offset value (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed). |

SP4xxx: Scanner

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|------|---|--|
| 4673 | Black Level 2: Rough Adjustment Display | |
| | RE: Red Even signal, RO: Red Odd signal | |
| 1 | Factory Setting: RE Color | Displays the factory setting values of the black level adjustment for the even red signal in the CCD circuit board (color printing speed).. [0 to 255 / 112 / 1 digit/step] |
| 2 | Factory Setting: RO Color | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 3 | Factory Setting: RE Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Factory Setting: RO Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (color printing speed). |
| 5 | Factory Setting: RE BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Factory Setting: RO BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |
| 7 | Factory Setting: RE BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the even red signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Factory Setting: RO BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd red signal in the CCD circuit board (black and white printing speed). |

SP4xxx: Scanner

| | | |
|------|---|--|
| 4674 | Black Level 2: Rough Adjustment Display | |
| | GE: Green Even signal, GO: Green Odd signal | |
| 1 | Factory Setting: GE Color | Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Factory Setting: GO Color | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 3 | Factory Setting: GE Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the even green signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Factory Setting: GO Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (color printing speed). |
| 5 | Factory Setting: GE BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the even green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Factory Setting: GO BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |
| 7 | Factory Setting: GE BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the even |

SP4xxx: Scanner

| | | |
|---|------------------------|---|
| | | green signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Factory Setting: GO BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd green signal in the CCD circuit board (black and white printing speed). |

| | | |
|------|---|---|
| 4675 | Black Level 2: Rough Adjustment Display | |
| | BE: Blue Even signal, BO: Blue Odd signal | |
| 1 | Factory Setting: BE Color | Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 112 / 1 digit/step] |
| 2 | Factory Setting: BO Color | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 3 | Factory Setting: BE Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (color printing speed). [0 to 255 / 128 / 1 digit/step] |
| 4 | Factory Setting: BO Color | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (color printing speed). |
| 5 | Factory Setting: BE BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 112 / 1 digit/step] |
| 6 | Factory Setting: BO BW | Displays the factory setting values of the black level adjustment (rough adjustment) for the odd blue |

SP4xxx: Scanner

| | | |
|---|---------------------------|--|
| | | signal in the CCD circuit board (black and white printing speed). |
| 7 | Factory Setting: BE BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the even blue signal in the CCD circuit board (black and white printing speed). [0 to 255 / 128 / 1 digit/step] |
| 8 | Factory Setting: BO BW | Displays the factory setting values of the black level adjustment (fine adjustment) for the odd blue signal in the CCD circuit board (black and white printing speed). |

| | | |
|------|---|-------------------------------|
| 4677 | Gain Adjustment Display | |
| | Displays the factory setting values of the gain adjustment for Red. | |
| 1 | Factory Setting: RE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Factory Setting: RO Color | |
| 3 | Factory Setting: RE BW | |
| 4 | Factory Setting: RO BW | |

| | | |
|------|---|-------------------------------|
| 4678 | Gain Adjustment Display | |
| | Displays the factory setting values of the gain adjustment for Green. | |
| 1 | Factory Setting: GE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Factory Setting: GO Color | |
| 3 | Factory Setting: GE BW | |
| 4 | Factory Setting: GO BW | |

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| 4679 | Gain Adjustment Display |
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SP4xxx: Scanner

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| | Displays the factory setting values of the gain adjustment for Blue. | |
| 1 | Factory Setting: BE Color | [0 to 255 / 0 / 1 digit/step] |
| 2 | Factory Setting: BO Color | |
| 3 | Factory Setting: BE BW | |
| 4 | Factory Setting: BO BW | |

| | | |
|------|--|-------------------------------------|
| 4685 | Gray Balance Set: R DFU | |
| | Adjusts the gray balance of the red signal for each scanning mode. | |
| 1 | Book Read | [-512 to 511 / -240 / 1 digit/step] |
| 2 | DF Read | |

| | | |
|------|--|-------------------------------------|
| 4686 | Gray Balance Set: G DFU | |
| | Adjusts the gray balance of the green signal for each scanning mode. | |
| 1 | Book Read | [-512 to 511 / -240 / 1 digit/step] |
| 2 | DF Read | |

Service
Tables

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|------|---|-------------------------------------|
| 4687 | Gray Balance Set: B DFU | |
| | Adjusts the gray balance of the blue signal for each scanning mode. | |
| 1 | Book Read | [-512 to 511 / -240 / 1 digit/step] |
| 2 | DF Read | |

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|------|--|--|
| 4688 | DF: Density Adjustment | |
| | Adjusts the white shading parameter when scanning an image with the DF. | |
| | Adjusts the density level if the ID of outputs made in the DF and Platen mode is different. [50 to 150 / 109 / 1%/ step] | |

SP4xxx: Scanner

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|-------|--|--|---------|--|---|----------|--|
| 4800 | SBU ID Check Setting DFU | | | | | | |
| 4802 | <p>DF Shading Free Run</p> <p>Executes the scanner free run for shading movement with the exposure lamp on or off. The free run moves the scanning lamp a short distance and immediately returns it to its home position.</p> <table border="1"> <tr> <td>1</td><td>Lamp ON</td><td> <ul style="list-style-type: none"> ▪ Touch [ON] to start the free run </td></tr> <tr> <td>2</td><td>Lamp OFF</td><td> <ul style="list-style-type: none"> ▪ Be sure to touch "OFF" to stop the free run. </td></tr> </table> | 1 | Lamp ON | <ul style="list-style-type: none"> ▪ Touch [ON] to start the free run | 2 | Lamp OFF | <ul style="list-style-type: none"> ▪ Be sure to touch "OFF" to stop the free run. |
| 1 | Lamp ON | <ul style="list-style-type: none"> ▪ Touch [ON] to start the free run | | | | | |
| 2 | Lamp OFF | <ul style="list-style-type: none"> ▪ Be sure to touch "OFF" to stop the free run. | | | | | |
| 4803 | <p>Home Position Adjustment</p> <p>Adjusts the home position of the exposure lamp. [-1 to 1/0.1/0.1]</p> | | | | | | |
| 4804 | <p>Returning to Scanner HP</p> <p>Moves the exposure lamp a short distance and immediately returns it to its home position. Touch [Execute]> "Completed"> [Exit].</p> | | | | | | |
| 4806 | <p>Moving from Scanner HP</p> <p>Moves the exposure lamp a short distance away from the home position and stops.</p> <ul style="list-style-type: none"> ▪ Touch [Execute]> "Completed"> [Exit] ▪ Do SP4804 to return the exposure lamp to its home position. <p>Note</p> <ul style="list-style-type: none"> ▪ This SP is done before shipping the machine to another location. ▪ Turning the machine power off/on also returns the exposure lamp to its home position. | | | | | | |
| 4903* | Filter Settings | | | | | | |

SP4xxx: Scanner

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| | This SP code sets the threshold value for independent dot erase. <ul style="list-style-type: none"> ▪ The "0" setting disables independent dot erase. ▪ A higher setting detects more spurious dots for erasing. However, this could cause dots to erase in images that contain areas filled by dithering. | |
| 1 | Independent Dot Erase: Text/Photo | [0 to 7/0/1] |
| 2 | Independent Dot Erase: Generation | |

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| 4905* | Dither Selection DFU |
| | Changes the parameters for dithering. [0 to 255 / 0 / 1 /step] |

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| 4906 | Filter Setting: Other |
| | Outline level Adj [0 / 10 / 0 / 1] |

| | |
|------|--|
| 4907 | SBU Test Pattern Change |
| | Selects the test pattern generated by the controller board. [0 to 255 / 0 / 1 /step] 0: Default (Scanning Image) 1: Grid pattern 2: Gradation main scan 3: Gradation sub scan 4 to 250: Default (Scanning Image) |

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|------|----------------------------------|
| 4908 | Factory Setting Input DFU |
| 1 | Execution: ON/OFF |
| 2 | Execution Flag |

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|------|------------------------------------|
| 4918 | Manual Gamma Adjustment DFU |
|------|------------------------------------|

SP4xxx: Scanner

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| 4991 | IPU Image Pass [Path] Selection (RGB Frame Memory) DFU | |
| | Selects the image path. Enter the number to be selected using the 10-key pad. [0 to 11/ 2/ 1] | |
| | 0 | Scanner input RGB images |
| | 1 | Scanner I/F RGB images |
| | 2 | RGB images done by Shading correction (Shading ON, Black offset ON) |
| | 3 | Shading data |
| | 4 | Inner pattern data: Gray scale |
| | 5 | RGB images done by Line skipping correction |
| | 6 | RGB images done by Digital AE |
| | 7 | RGB images done by Vertical line correction |
| | 8 | RGB image done by Scanner gamma correction |
| | 9 | RGB image done by Filtering correction |
| | 10 | RGB images done by Full color ADS |
| | 11 | RGB image done by Color correction |

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|------|--|---|
| 4993 | Highlight Correction | |
| | Selects the level of highlight correction. | |
| 1 | Sensitivity Selection | Selects the Highlight correction level. [0 to 9 / 4 / 1 /step] 0: weakest sensitivity 9: strongest sensitivity |
| 2 | Range Selection | Selects the range level of Highlight |

SP4xxx: Scanner

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| | | correction. [0 to 9 / 4 / 1 /step] 0: weakest skew correction, 9: strongest skew correction |
|--|--|--|

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|------|---|
| 4994 | Text/Photo Detection Level Adj. |
| | Selects the definition level between Text and Photo for high compression PDF. [0 to 2 / 1 / 1 /step] 0: Text priority 1: Normal 2: Photo priority |

SP5xxx: Mode

5.6 SP5XXX: MODE

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|-------|--|
| 5024* | mm/inch Selection |
| | Selects whether mm or inches are used in the display. Note: After selecting the number, you must turn the main power switch off and on. Europe/Asia model: [0 = mm / 1 = inch] American model: [0 = mm / 1 = inch] |
| 5045 | Accounting Counter |
| | Selects whether the printer counter is displayed on the LCD. [0-1/0/1] 0: Displays the total counter only. 1: Displays both total counter and printer counter. |
| 5047 | Paper Display |
| | Determines whether the tray loaded with paper printed on one side is displayed. [0 to 1/1] 0: Not displayed 1: Displayed |
| 5052 | Return Time Priority Type |
| | The recovery time of the Basic model is 5 sec. so two settings are provided, one for energy save priority and one for start time priority. 0: Energy save priority 1: Start time priority |
| 5055* | Display IP Address |
| | Display or does not display the IP address on the LCD. [0 to 1 / 0 / 1] |

SP5xxx: Mode

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| | 0: OFF, 1: ON |
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| 5056* | Coverage Counter Display |
| | <p>Display or does not display the coverage counter on the LCD. [0 to 1 / 0 / 1] 0: Not displayed, 1: Displayed</p> |

| | |
|-------|--|
| 5061* | Toner Remaining Icon Display |
| | <p>Display or does not display the remaining toner display icon on the LCD. [0 to 1 / 0 / 1] 0: Not display, 1: Display</p> |

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|-------|---|
| 5104* | A3/DLT Double Count (SSP) |
| | <p>Specifies whether the counter is doubled for A3/DLT. “Yes” counts except from the bypass tray. When “Yes” is selected, A3 and DLT paper are counted twice, that is A4 x2 and LT x2 respectively.</p> |

| | |
|-------|--|
| 5106* | Density Level Setting |
| | Selects the image density level used in ADS mode. [1 to 7 / 4 / 1 notch per step] |
| | Example: If you set SP5106 to “2”: Pressing the Auto Image Density key toggles the display off and manual notch 2 is selected. |
| | Adjust this SP if the customer cannot attain clean copies after performing automatic density adjustment |

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|------|---|
| 5113 | Optional Counter Type |
| 1 | Default Optional Counter Type |
| | Selects the type of counter: 0: None |

SP5xxx: Mode

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|---|---|
| | 1: Key Card (RK3, 4) Japan only 2: Key Card Down 3: Pre-paid Card 4: Coin Lock 5: MF Key Card (Must be enabled with SP5114) 11: Exp Key Card (Add) 12: Exp Key Card (Deduct) |
| 2 | <p>External Optional Counter Type</p> <p>Enables the SDK application. This lets you select a number for the external device for user access control.</p> <p>Note: "SDK" refers to software on an SD card.</p> <p>[0 to 3/1]</p> <p>0: None 1: Expansion Device 1 2: Expansion Device 2 3: Expansion Device 3</p> |

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| 5114* | Optional Counter I/F |
| | MF Key Card Extension |
| 001 | <p>Use this SP to change the setting to "1" only when the "5" (MF Key Card) is selected with SP5113-001.</p> <p>[0: Not installed/ 1: Installed (scanning accounting)]</p> |

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|------|---|
| 5118 | Disable Copying |
| | <p>Temporarily denies access to the machine. Japan Only</p> <p>[0 to 1/1]</p> <p>0: Release for normal operation 1: Prohibit access to machine</p> |

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|------|----------------------------------|
| 5120 | Mode Clear Opt. Counter Removal |
| | Do not change. Japan Only |

SP5xxx: Mode

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|-------|--|
| | [0 to 2/1] 0: Yes. Normal reset 1: Standby. Resets before job start/after completion 2: No. Normally no reset |
| 5121 | Counter Up Timing Determines whether the optional key counter counts up at paper feed-in or at paper exit. Japan Only [0 to 1/1] 0: Feed count 1: No feed count |
| 5126 | F Size Original Setting Selects the F-size original setting. [0 to 2 / 0 / 1 /step] 0: 8 1/2" x 13" (Foolscap) 1: 8 1/4" x 13" (Folio) 2: 8" x 13" (F) |
| 5127 | APS OFF Mode This SP can be used to switch APS (Auto Paper Select) off when a coin lock or pre-paid key card device is connected to the machine. [0 to 1/1] 0: On 1: Off |
| 5129* | F Paper Size Selection Selects the "F" paper size. [0 to 2 / 0 / 1 step] 0: 8" x 13" 1: 8.5" x 13" |

SP5xxx: Mode

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| | 2: 8.25" x 13" |
|--|----------------|

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|-------|---|
| 5131* | Paper Size Type Selection |
| | Selects the paper size (type) for both originals and copy paper. [0 to 2 / DIP SW setting / 1 step] 0: Japan 1: North America 2: Europe After changing the setting, turn the copier off and on. If the paper size of the archive files stored on the HDD is different, abnormal copies could result. Ask the customer to restore the archive files. |

| | |
|------|---|
| 5150 | Bypass Length Setting |
| | Sets up the by-pass tray for long paper. [0 to 1/1] 0: Off 1: On. Sets the tray for feeding paper up to 600 mm long. With this SP selected on, paper jams are not detected in the paper path. |

| | |
|------|--|
| 5162 | App. Switch Method |
| | Controls if the application screen is changed with a hardware switch or a software switch. [0 to 1/1] 0: Soft Key Set 1: Hard Key Set |

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| 5165 | Z-Fold Position (Not Used) | |
| | Adjusts the position of the first fold to decrease or increase the distance between the leading edge and the crease of the 2nd fold. | |
| 1 | A3T (SEF) | [-4 ~ +4/0/ 0.2 mm] |

SP5xxx: Mode

| | | |
|---|-------------|--|
| 2 | B4T (SEF) | |
| 3 | A4T (SEF) | |
| 4 | DLTT (SEF) | |
| 5 | LGT (SEF) | |
| 6 | LTT (SEF) | |
| 7 | 12x18 (SEF) | |
| 8 | Other | |

| | |
|------|--|
| 5167 | Fax Printing Mode at Optional Counter Off |
| | Enables or disables the automatic print out without an accounting device. This SP is used when the receiving fax is accounted for by an external accounting device. 0: Automatic printing 1: No automatic printing |

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|------|---|
| 5169 | CE Login |
| | If you will change the printer bit switches, you must 'log in' to service mode with this SP before you go into the printer SP mode. [0 to 1/1] 0: Off. Printer bit switches cannot be adjusted. 1: On. Printer bit switches can be adjusted. |

| | |
|-------|--|
| 5179* | Bypass Size Error |
| | This SP determines whether a paper size error prompt appears when the machine detects the wrong paper size for the job and jams during feed from the bypass tray. [0 to 1/0/1] 0: Off 1: On |

SP5xxx: Mode

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|------|--|
| 5186 | RK 4: Setting Japan Only |
| | Enables or disables the prevention for RK4 (accounting device) disconnection. If the RK4 is disconnected for 10 seconds when this SP is set to "1 (Enable)", the machine automatically jams a sheet of paper and stops. [0 or 1 / 0 / 1/step] 0: Disable 1: Enable |
| 5188 | Copy NV Version DFU |
| 5195 | Limitless SW DFU |
| 5212 | Page Numbering |
| 3 | Duplex Printout Left/Right Position |
| | Horizontally positions the page numbers printed on both sides during duplexing. [-10 to +10/1 mm] 0 is center, minus is left, + is right. |
| 4 | Duplex Printout High/Low Position |
| | Vertically positions the page numbers printed on both sides during duplexing. [-10 to +10/1 mm] 0 is center, minus is down, + is up. |
| 5302 | Set Time DFU |
| | Sets the time clock for the local time. This setting is done at the factory before delivery. The setting is GMT expressed in minutes. [-1440 to 1440/1 min.] JA: +540 (Tokyo) NA: -300 (NY) EU: +6- (Paris) CH: +480 (Peking) |

SP5xxx: Mode

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| | TW: +480 (Taipei) AS: +480 (Hong Kong) |
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| 5307 | Summer Time | |
|------|--|--|
| | <p>Lets you set the machine to adjust its date and time automatically with the change to Daylight Savings time in the spring and back to normal time in the fall. This SP lets you set these items:</p> <ul style="list-style-type: none"> ▪ Day and time to go forward automatically in April. ▪ Day and time to go back automatically in October. ▪ Set the length of time to go forward and back automatically. <p>The settings for 002 and 003 are done with 8-digit numbers:</p> | |
| | Digits | Meaning |
| | 1st, 2nd | Month. 4: April, 10: October (for months 1 to 9, the first digit of 0 cannot be input, so the eight-digit setting for 002 or 003 becomes a seven-digit setting) |
| | 3rd | Day of the week. 0: Sunday, 1: Monday |
| | 4th | The number of the week for the day selected at the 3rd digit. If "0" is selected for "Sunday", for example, and the selected Sunday is the start of the 2nd week, then input a "2" for this digit. |
| | 5th, 6th | The time when the change occurs (24-hour as hex code). Example: 00:00 (Midnight) = 00, 01:00 (1 a.m.) = 01, and so on. |
| | 7th | The number of hours to change the time. 1 hour: 1 |
| | 8th | If the time change is not a whole number (1.5 hours for example), digit 8 should be 3 (30 minutes). |
| | 1 Setting | Enables/disables the settings for 002 and 003. [0 to 1/1] 0: Disable 1: Enable |
| | 2 Rule Set (Start) | The start of summer time. |

SP5xxx: Mode

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|---|-------------------|-------------------------|
| 4 | Rule Set (End) | The end of summer time. |
|---|-------------------|-------------------------|

| | | |
|------|---|---------------------------|
| 5401 | Access Control DFU | |
| | This SP stores the settings that limit uses access to SDK application data. | |
| | 103 | Default Document ACL |
| | 200 | SDK1 Unique ID |
| | 201 | SDK1 Certification Method |
| | 210 | SDK2 Unique ID |
| | 211 | SDK2 Certification Method |
| | 220 | SDK3 Unique ID |
| | 221 | SDK3 Certification Method |
| | 230 | Certification Device |

| | |
|------|---|
| 5404 | User Code Count Clear |
| | Clears the counts for the user codes assigned by the key operator to restrict the use of the machine. Press [Execute] to clear. |

| | |
|------|---|
| 5411 | LDAP Certification |
| 4 | <p>Easy Certification</p> <p>Determines whether easy LDAP certification is done.</p> <p>[0 to 1/1/1]</p> <p>1: On</p> <p>0: Off</p> |
| 5 | <p>Password Null Not Permit</p> <p>This SP is referenced only when SP5411-4 is set to "1" (On).</p> |

SP5xxx: Mode

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| | [0 to 1/0/1] 0: Password NULL not permitted. 1: Password NULL permitted. |
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|------|---|
| 5413 | Lockout Setting |
| 1 | <p>Lockout On/Off Switches on/off the lock on the local address book account.</p> <p>[0 to 1/0/1] 0: Off 1: On</p> |
| 2 | <p>Lockout Threshold Sets a limit on the frequency of lockouts for account lockouts.</p> <p>[1 to 10/5/1]</p> |
| 3 | <p>Cancellation On/Off Determines whether the system waits the prescribed time for input of a correct user ID and password after an account lockout has occurred.</p> <p>[0 to 1/0/1] 0: Off (no wait time, lockout not cancelled) 1: On (system waits, cancels lockout if correct user ID and password are entered.)</p> |
| 4 | <p>Cancellation Time Determines the length of time that the system waits for correct input of the user ID and password after a lockout has occurred. This setting is used only if SP5413-3 is set to "1" (on).</p> <p>[1 to 999/60/1 min.]</p> |

| | |
|------|--|
| 5414 | Access Mitigation |
| 1 | <p>Mitigation On/Off Switches on/off masking of continuously used IDs and passwords that are identical.</p> <p>[0 to 1/0/1] 0: Off</p> |

SP5xxx: Mode

| | |
|---|---|
| | 1: On |
| 2 | Mitigation Time Sets the length of time for excluding continuous access for identical user IDs and passwords. [0 to 60/15/1 min.] |

| | |
|------|---|
| 5415 | Password Attack |
| 1 | Permissible Number Sets the number of attempts to attack the system with random passwords to gain illegal access to the system. [0 to 100/30/1 attempt] |
| 2 | Detect Time Sets the time limit to stop a password attack once such an attack has been detected. [1 to 10/5/1 sec.] |

| | |
|------|---|
| 5416 | Access Information |
| 1 | Access User Max Number Limits the number of users used by the access exclusion and password attack detection functions. [50 to 200/200/1 users] |
| 2 | Access Password Max Number Limits the number of passwords used by the access exclusion and password attack detection functions. [50 to 200/200/1 passwords] |
| 3 | Monitor Interval Sets the processing time interval for referencing user ID and password information. [1 to 10/3/1 sec.] |

| | |
|------|---------------|
| 5417 | Access Attack |
|------|---------------|

SP5xxx: Mode

| | |
|---|---|
| 1 | <p>Access Permissible Number</p> <p>Sets a limit on access attempts when an excessive number of attempts are detected for MFP features.</p> <p>[0 to 500/100/1]</p> |
| 2 | <p>Attack Detect Time</p> <p>Sets the length of time for monitoring the frequency of access to MFP features.</p> <p>[10 to 30/10/1 sec.]</p> |
| 3 | <p>Productivity Fall Waite</p> <p>Sets the wait time to slow down the speed of certification when an excessive number of access attempts have been detected.</p> <p>[0 to 9/3/1 sec.]</p> |
| 4 | <p>Attack Max Number</p> <p>Sets a limit on the number of requests received for certification in order to slow down the certification speed when an excessive number of access attempts have been detected.</p> <p>[50 to 200/200/1 attempt]</p> |

| | |
|------|--|
| 5420 | User Authentication |
| | <p>These settings should be done with the System Administrator.</p> <p>Note: These functions are enabled only after the user access feature has been enabled.</p> |
| 1 | <p>Copy</p> <p>Determines whether certification is required before a user can use the copy applications.</p> <p>[0 to 1/0/1]</p> <p>0: On 1: Off</p> |
| 11 | <p>Document Server</p> <p>Determines whether certification is required before a user can use the document server.</p> |

SP5xxx: Mode

| | |
|----|--|
| | [0 to 1/0/1] 0: On 1: Off |
| 21 | Fax Determines whether certification is required before a user can use the fax application. [0 to 1/0/1] 0: On 1: Off |
| 31 | Scanner Determines whether certification is required before a user can use the scan applications. [0 to 1/0/1] 0: On 1: Off |
| 41 | Printer Determines whether certification is required before a user can use the printer applications. [0 to 1/0/1] 0: On 1: Off |
| 51 | SDK1 [0 or 1/ 0 / 1] 0: ON. 1: OFF |
| 61 | SDK2 Determines whether certification is required before a user can use the SDK application. |
| 71 | SDK3 |

| | |
|------|---|
| 5481 | Authentication Error Code |
| | These SP codes determine how the authentication failures are displayed. |
| 1 | System Log Disp Determines whether an error code appears in the system log after a user authentication failure occurs. [0 to 1/0/1] |

SP5xxx: Mode

| | |
|---|--|
| | 0: Off 1: On |
| 2 | <p>Panel Disp</p> <p>Determines whether an error code appears on the operation panel after a user authentication failure occurs.</p> <p>[0 to 1/1/1]</p> <p>1: On 0: Off</p> |

| | |
|------|---|
| 5490 | MF Keycard Japan Only |
| | <p>Sets up operation of the machine with a keycard.</p> <p>[0 to 1/0/1]</p> <p>0: Disabled. Cancels operation if no code is input. 1: Enabled. Allows operation if another code is input and decrements the counter once for use of the entered code.</p> |

| | |
|-------|---|
| 5501* | PM Alarm |
| | PM Alarm Interval |
| 1 | <p>Sets the PM interval.</p> <p>The value stored in this SP is used when the value of SP5501 2 is “1”.</p> <p>[0 to 255 / 0 / 1 k copies/step]</p> |
| 2 | <p>Original Count Alarm DFU</p> <p>Selects whether the PM alarm for the number of scans is enabled or not.</p> <p>If this is “1”, the PM alarm function is enabled.</p> <p>[0 = No / 1 = Yes]</p> |

| | |
|-------|---|
| 5504* | Jam Alarm Japan Only |
| | <p>Sets the alarm to sound for the specified jam level (document misfeeds are not included). RSS use only</p> <p>[0 to 3 / 3 / 1 step]</p> |

SP5xxx: Mode

| | |
|--|---|
| | 0: Zero (Off) 1: Low (2.5K jams) 2: Medium (3K jams) 3: High (6K jams) |
|--|---|

| | |
|-------|--|
| 5505* | Error Alarm |
| | Sets the error alarm level. Japan only DFU [0 to 255 / 50 / 100 copies per step] |

| | | |
|------|-------------------------------------|--|
| 5507 | Supply Alarm | |
| 1 | Paper Supply Alarm (0:Off 1:On) | Switches the control call on/off for the paper supply. DFU 0: Off, 1: On 0: No alarm. 1: Sets the alarm to sound for the specified number transfer sheets for each paper size (A3, A4, B4, B5, DLT, LG, LT, HLT) |
| 2 | Staple Supply Alarm (0:Off 1:On) | Switches the control call on/off for the stapler installed in the finisher. DFU 0: Off, 1: On 0: No alarm 1: Alarm goes off for every 1K of staples used. |
| 3 | Toner Supply Alarm (0:Off 1:On) | Switches the control call on/off for the toner end. DFU 0: Off, 1: On If you select "1" the alarm will sound when the copier detects toner end. |
| 128* | interval: Others | The "Paper Supply Call Level: nn" SPs specify the paper control call interval for the referenced paper sizes. DFU |
| 132* | Interval: A3 | |
| 133* | Interval: A4 | [00250 to 10000 / 1000 / 1 Step] |

SP5xxx: Mode

| | | |
|------|---------------|--|
| 134* | Interval: A5 | |
| 141* | Interval: B4 | |
| 142* | Interval: B5 | |
| 160* | Interval: DLT | |
| 164* | Interval: LG | |
| 166* | Interval: LT | |
| 172* | Interval: HLT | |

| | | |
|------|-----------------------------------|---|
| 5508 | CC Call Japan Only | |
| 1 | Jam Remains | Enables/disables initiating a call. [0 to 1/1] 0: Disable 1: Enable |
| 2 | Continuous Jams | |
| 3 | Continuous Door Open | |
| 11 | Jam Detection: Time Length | Sets the length of time to determine the length of an unattended paper jam. [03 to 30/1] |
| 12 | Jam Detection Continuous Count | Sets the number of continuous paper jams required to initiate a call. [02 to 10/1] |
| 13 | Door Open: Time Length | Sets the length of time the remains opens to determine when to initiate a call. [03 to 30/1] |

Service Tables

| | | |
|------|---|-------------------|
| 5515 | SC/Alarm Setting | |
| | With NRS (New Remote Service) in use, these SP codes can be set to issue an SC call when an SC error occurs. If this SP is switched off, the SC call is not issued when an SC error occurs. | |
| 1 | SC Call | [0 or 1 / 1 / -] |

SP5xxx: Mode

| | | |
|----|--------------------------------|--------------------------------------|
| 2 | Service Parts Near End Call | 0: Off 1: On |
| 3 | Service Parts End Call | |
| 4 | User Call | |
| 6 | Communication Test Call | [0 or 1 / 1 / -] 0: Off 1: On |
| 7 | Machine Information Notice | |
| 8 | Alarm Notice | |
| 9 | Non Genuine Toner Alarm | |
| 10 | Supply Automatic Ordering Call | |
| 11 | Supply Management Report Call | |
| 12 | Jam/Door Open Call | |
| | | |
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|------|--------------------------|
| 5792 | MCS Debug Log DFU |
|------|--------------------------|

| | |
|------|-------------------------|
| 5793 | ECS Debug SW DFU |
|------|-------------------------|

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|------|---|--|
| 5801 | Memory Clear | |
| | Resets NVRAM data to the default settings. Before executing any of these SP codes, print an SMC Report. | |
| 1 | All Clear | Initializes items 2 to 15 below. |
| 2 | Engine | Initializes all registration settings for the engine and copy process settings. |
| 3 | SCS | Initializes default system settings, SCS (System Control Service) settings, operation display coordinates, and ROM update information. |
| 4 | IMH Memory Clear | Initializes the image file system. |

SP5xxx: Mode

| | | |
|----|---------------------|---|
| | | (IMH: Image Memory Handler) |
| 5 | MCS | Initializes the automatic delete time setting for stored documents. (MCS: Memory Control Service) |
| 6 | Copier application | Initializes all copier application settings. |
| 7 | Fax application | Initializes the fax reset time, job login ID, all TX/RX settings, local storage file numbers, and off-hook timer. |
| 8 | Printer application | Initializes the printer defaults, programs registered, the printer SP bit switches, and the printer CSS counter. |
| 9 | Scanner application | Initializes the defaults for the scanner and all the scanner SP modes. |
| 10 | Web Service | Deletes the Netfile (NFA) management files and thumbnails, and initializes the Job login ID. Netfiles: Jobs to be printed from the document server using a PC and the DeskTopBinder software |
| 11 | NCS | Initializes the system defaults and interface settings (IP addresses also), the SmartNetMonitor for Admin settings, WebStatusMonitor settings, and the TELNET settings. (NCS: Network Control Service) |
| 12 | R-FAX | Initializes the job login ID, SmartNetMonitor for Admin, job history, and local storage file numbers. |
| 14 | Clear DCS Setting | Initializes the DCS (Delivery Control Service) settings. |

SP5xxx: Mode

| | | |
|----|-------------------|--|
| 15 | Clear UCS Setting | Initializes the UCS (User Information Control Service) settings. |
| 16 | MIRS Setting | Initializes the MIRS (Machine Information Report Service) settings. |
| 17 | CCS | Initializes the CCS (Certification and Charge-control Service) settings. |
| 18 | SRM Memory Clear | Initializes the SRM (System Resource Manager) settings. |
| 19 | LCS | Initializes the LCS (Log Count Service) settings. |
| 20 | Web Appliance | Initializes Web application settings. |
| 21 | ECS | Initializes ECS (Engine Control Service). |

| | | |
|------|---|---|
| 5802 | Free Run | |
| | Performs a free run for both scanner and the printer. <ul style="list-style-type: none"> ▪ Touch [ON] to start the free run. ▪ Touch [OFF] to stop. | |
| 1 | A4 (LEF)/F1 | Free run for A4-size paper, long-edge feed, from the upper tray. |
| 2 | A3/F2 | Free run for A3-size paper from the lower tray. |
| 3 | A4 (SEF)/F2 | Free run for A4-size paper, short-edge feed, from the lower tray. |

| | | |
|------|---|--|
| 5803 | Input Check | |
| | Displays signals received from sensors and switches. Press the  (Clear Modes) key to exit | |
| 1 | Original Size Sensor | |

SP5xxx: Mode

| | |
|----|-----------------------------|
| 2 | ENG Enable Signal |
| 3 | Tray 2: Paper Height Sensor |
| 4 | Tray 1: Paper Height Sensor |
| 5 | Tray 2: Paper End Sensor |
| 6 | Tray 2: Paper Feed Sensor |
| 7 | Warm-up Signal |
| 8 | ENG Down Time Signal |
| 9 | Bank Motor Ready Signal |
| 10 | Bank Paper Height Sensor |
| 11 | Bank: Set Sensor |
| 12 | Bank: Cover Open |
| 13 | Fusing Unit Set |
| 14 | Interchange Sensor |
| 15 | Interchange Unit Set |
| 16 | 1-Bin Unit Set |
| 17 | 1-Bin Unit: Paper Set |
| 18 | Tray 1: Paper Feed Sensor |
| 19 | Tray 1: Paper End Sensor |
| 20 | Tray 2: Paper Lift Sensor |
| 21 | Tray 1: Paper Lift Sensor |
| 22 | Tray 3: Paper End Sensor |
| 23 | Tray 4: Paper End Sensor |
| 24 | Tray 3: Paper Lift Sensor |

SP5xxx: Mode

| | |
|----|----------------------------|
| 25 | Tray 4: Paper Lift Sensor |
| 26 | Duplex Unit Set |
| 27 | Mechanical Counter Set |
| 28 | By-pass Tray Unit Set |
| 29 | By-pass: Paper End Sensor |
| 30 | By-pass: Paper Size Sensor |
| 31 | Duplex: Entrance Sensor |
| 32 | Duplex: Exit Sensor |
| 33 | Registration Sensor |
| 34 | Front Safety SW- 24V |
| 35 | Front Safety SW – 5V |
| 36 | Paper Overflow Sensor |
| 37 | Fan Lock |
| 38 | Bottle Lock Motor |
| 39 | Destination Code |
| 40 | SIU: BW/Color |
| 42 | Bridge Exit Sensor |
| 43 | Bridge Relay Sensor |
| 44 | Bridge Center Cover Open |
| 45 | Bridge Right Cover Open |
| 46 | Bridge Unit Set Detection |
| 47 | Bridge Motor Lock |
| 48 | Shift Tray Unit Set |

SP5xxx: Mode

| | |
|-----|---------------------------|
| 49 | Key Counter Set |
| 50 | Key Card Set |
| 51 | Tray 3: Paper Feed Sensor |
| 52 | Tray 4: Paper Feed Sensor |
| 53 | Tray 3: Paper Size Sensor |
| 54 | Tray 4: Paper Size Sensor |
| 55 | Paper Exit Sensor |
| 56 | PCU Set |
| 57 | New PCU Sensor |
| 58 | Tray 2: Paper Size Sensor |
| 59 | Tray 1: Paper Size Sensor |
| 60 | Main Motor Ready Signal |
| 61 | Tray 2: Tray Set Sensor |
| 62 | Tray 1: Tray Set Sensor |
| 63 | Right Cover Open |
| 200 | Scanner HP Sensor |
| 201 | Platen Cover Sensor |

Service
Tables

| | | |
|------|---------------------|--|
| 5804 | | Output Check |
| | | Turns on electrical components individually for test purposes. |
| 1 | Main Motor (Fwd) | Main motor (forward) |
| 2 | Main Motor (Rev) | Main motor (Reverse) Do not use |

SP5xxx: Mode

| | | |
|----|--------------------------------|-------------------------------|
| 3 | Registration CL | Registration clutch |
| 5 | Toner Bottle Motor | Toner supply motor |
| 6 | Exhaust Fan Motor (High Speed) | Exhaust fan (High Speed) |
| 7 | Exhaust Fan Motor (Low Speed) | Exhaust fan (Low Speed) |
| 9 | 1st Paper Feed CL | Upper paper feed clutch |
| 10 | 2nd Paper Feed CL | Lower paper feed clutch |
| 11 | 1st Paper Tray Up | Upper paper lift motor (Up) |
| 12 | 1st Paper Tray Down | Upper paper lift motor (Down) |
| 13 | 2nd Paper Tray Up | Lower paper lift motor (Up) |
| 14 | 2nd Paper Tray Down | Lower paper lift motor (Down) |
| 15 | Paper Transport CL1 | Upper relay clutch |
| 16 | Paper Transport CL2 | Lower relay clutch |
| 17 | Fuser Drive | Fusing drive release solenoid |

SP5xxx: Mode

| | | |
|----|-------------------------------------|---|
| | Cancel SOL | |
| 21 | Paper Transport CL3 | Relay clutch (Optional paper tray unit) |
| 22 | 3rd Paper Feed CL | Upper paper feed clutch (Optional paper tray unit) |
| 23 | 4th Paper Feed CL | Lower paper feed clutch (Optional paper tray unit) |
| 24 | Paper Bank Motor | Tray motor (Optional paper tray unit) |
| 25 | 3rd/LCT Tray Up | Upper Paper lift motor (Up) (Optional paper tray unit or LCT) |
| 26 | 3rd/LCT Tray Down | Upper paper lift motor (Down) (Optional paper tray unit or LCT) |
| 27 | 4th Tray Up | Lower paper lift motor (Up) (Optional paper tray unit) |
| 28 | 4th Tray Down | Lower paper lift motor (Down) (Optional paper tray unit) |
| 33 | Exit Junction Gate SOL (Upper Unit) | Exit junction gate (Optional interchange unit) |
| 41 | Interchange Motor CCW | Interchange motor (Reverse) (Optional duplex unit) |
| 42 | Interchange Sensor SW | Interchange sensor |
| 43 | Duplex Motor | Duplex transport motor (Optional duplex unit) |
| 44 | Duplex SOL | Inverter gate solenoid (Optional duplex unit) |
| 51 | Relay Fan | Bridge cooling fan motor (Optional bridge unit) |

SP5xxx: Mode

| | | |
|-----|------------------------------|--|
| | Motor | |
| 52 | Relay Transport Motor | Bridge unit drive motor (Optional bridge unit) |
| 53 | Relay SOL | Junction gate solenoid (Optional bridge unit) |
| 54 | Total Counter | Total counter |
| 60 | Polygon Motor | Polygonal mirror motor |
| 61 | Polygon Motor | Polygonal mirror motor and laser diode |
| 62 | LD ON | Laser diode - Do not use |
| 107 | QL | |
| 108 | PP. Chrg. | PP. means "Power Pack" (PCBs). |
| 109 | PP. Development | |
| 110 | PP. Image Transfer | |
| 111 | PP. Separation Voltage | |
| 202 | Scanner Lamp | |

| | | |
|-------|-------------------------|---|
| 5807* | Option Connection Check | |
| 1 | ARDF | Checks the connectors to the optional peripheral devices. Execution will return |
| 2 | Paper Tray Unit | |

SP5xxx: Mode

| | | |
|--|------------|---|
| | 3 LCT | either a "1" or "0" on the display. 1: Device connected correctly. 0: Device not connected correctly. |
| | 4 Finisher | |

| | |
|------|---|
| 5810 | SC Reset |
| | Resets all level A service call conditions, such as fusing errors. To clear the service call, touch "Execute" on the LCD, then turn the main power switch off/on. |

| | |
|------|--|
| 5811 | Machine No. Setting DFU |
| | This SP presents the screen used to enter the 11-digit number of the machine. The allowed entries are "A" to "Z" and "0" to "9". The setting is done at the factory, and should not be changed in the field. |

| | | |
|------|--------------------------|---|
| 5812 | Service Tel. No. Setting | |
| 1 | Service | Inputs the telephone number of the CE (displayed when a service call condition occurs.) |
| 2 | Facsimile | Use this to input the fax number of the CE printed on the Counter Report (UP mode). Not Used |
| 3 | Supply | Displayed on the initial SP screen. |
| 4 | Operation | Allows the service center contact telephone number to be displayed on the initial screen. |

Service
Tables

| | | |
|------|----------------|---|
| 5816 | Remote Service | |
| 1 | I/F Setting | Turns the remote diagnostics off and on. [0 to 2/1] 0: Remote diagnostics off. 1: Serial (CSS or NRS) remote diagnostics on. |

SP5xxx: Mode

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|----|--|
| | 2: Network remote diagnostics. |
| 2 | <p>CE Call</p> <p>Lets the customer engineer start or end the remote machine check with CSS or NRS; to do this, push the center report key</p> |
| 3 | <p>Function Flag</p> <p>Enables and disables remote diagnosis over the NRS network. [0 to 1/1]</p> <p>0: Disables remote diagnosis over the network.</p> <p>1: Enables remote diagnosis over the network.</p> |
| 7 | <p>SSL Disable</p> <p>Controls if RCG (Remote Communication Gate) confirmation is done by SSL during an RCG send for the NRS over a network interface. [0 to 1/1]</p> <p>0: Yes. SSL not used.</p> <p>1: No. SSL used.</p> |
| 8 | <p>RCG Connect Timeout</p> <p>Sets the length of time (seconds) for the time-out when the RCG (Remote Communication Gate) connects during a call via the NRS network. [1 to 90/1 sec.]</p> |
| 9 | <p>RCG Write Timeout</p> <p>Sets the length of time (seconds) for the time-out when sent data is written to the RCG during a call over the NRS network. [0 to 100/1 sec.]</p> |
| 10 | <p>RCG Read Timeout</p> <p>Sets the length of time (seconds) for the timeout when sent data is written from the RCG during a call over the NRS network. [0 to 100/1 sec.]</p> |
| 11 | Port 80 Enable |

SP5xxx: Mode

| | |
|-----|---|
| | Controls if permission is given to get access to the SOAP method over Port 80 on the NRS network. [0 to 1/1] 0: No. Access denied 1: Yes. Access granted. |
| 21 | RCG – C Registered This SP displays the Cumin installation end flag. 1: Installation completed 2: Installation not completed |
| 22 | RCG – C Registered Detail This SP displays the Cumin installation status. 0: Basil not registered 1: Basil registered 2: Device registered |
| 23 | Connect Type (N/M) This SP displays and selects the Cumin connection method. 0: Internet connection 1: Dial-up connection |
| 61 | Cert. Expire Timing DFU Proximity of the expiration of the certification. |
| 62 | Use Proxy This SP setting determines if the proxy server is used when the machine communicates with the service center. |
| 063 | HTTP Proxy Host This SP sets the address of the proxy server used for communication between embedded RCG-N and the gateway. Use this SP to set up or display the customer proxy server address. The address is necessary to set up embedded RCG-N. Note: The address display is limited to 128 characters. Characters beyond |

SP5xxx: Mode

| | | | | | | | | | |
|-----|--|---|---|---|---|---|--|---|---|
| | the 128th character are ignored. This address is customer information and is not printed in the SMC report. | | | | | | | | |
| 064 | <p>HTTP Proxy Port</p> <p>This SP sets the port number of the proxy server used for communication between embedded RCG-N and the gateway. This setting is necessary to set up embedded RCG-N.</p> <p>Note: This port number is customer information and is not printed in the SMC report.</p> | | | | | | | | |
| 065 | <p>HTTP Proxy Aut Usr</p> <p>This SP sets the HTTP proxy certification user name.</p> <p>Note:</p> <ul style="list-style-type: none"> ▪ The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. ▪ This name is customer information and is not printed in the SMC report. | | | | | | | | |
| 066 | <p>HTTP Proxy Aut Pass</p> <p>This SP sets the HTTP proxy certification password.</p> <ul style="list-style-type: none"> ▪ The length of the name is limited to 31 characters. Any character beyond the 31st character is ignored. ▪ This name is customer information and is not printed in the SMC report. | | | | | | | | |
| 67 | <p>CERT: Up State</p> <p>Displays the status of the certification update.</p> <table border="1"> <tr> <td>0</td><td>The certification used by Cumin is set correctly.</td></tr> <tr> <td>1</td><td>The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated.</td></tr> <tr> <td>2</td><td>The certification update is completed and the GW URL is being notified of the successful update.</td></tr> <tr> <td>3</td><td>The certification update failed, and the GW URL is being notified of the failed update.</td></tr> </table> | 0 | The certification used by Cumin is set correctly. | 1 | The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated. | 2 | The certification update is completed and the GW URL is being notified of the successful update. | 3 | The certification update failed, and the GW URL is being notified of the failed update. |
| 0 | The certification used by Cumin is set correctly. | | | | | | | | |
| 1 | The certification request (setAuthKey) for update has been received from the GW URL and certification is presently being updated. | | | | | | | | |
| 2 | The certification update is completed and the GW URL is being notified of the successful update. | | | | | | | | |
| 3 | The certification update failed, and the GW URL is being notified of the failed update. | | | | | | | | |

SP5xxx: Mode

| | | |
|----|-------------|--|
| | 4 | The period of the certification has expired and new request for an update is being sent to the GW URL. |
| | 11 | A rescue update for certification has been issued and a rescue certification setting is in progress for the rescue GW connection. |
| | 12 | The rescue certification setting is completed and the GW URL is being notified of the certification update request. |
| | 13 | The notification of the request for certification update has completed successfully, and the system is waiting for the certification update request from the rescue GW URL. |
| | 14 | The notification of the certification request has been received from the rescue GW controller, and the certification is being stored. |
| | 15 | The certification has been stored, and the GW URL is being notified of the successful completion of this event. |
| | 16 | The storing of the certification has failed, and the GW URL is being notified of the failure of this event. |
| | 17 | The certification update request has been received from the GW URL, the GW URL was notified of the results of the update after it was completed, but an certification error has been received, and the rescue certification is being recorded. |
| | 18 | The rescue certification of No. 17 has been recorded, and the GW URL is being notified of the failure of the certification update. |
| 68 | CERT: Error | Displays a number code that describes the reason for the request for update of the certification. |
| | 0 | Normal. There is no request for certification update in progress. |
| | 1 | Request for certification update in progress. The current certification has expired. |
| | 2 | An SSL error notification has been issued. Issued after the certification has expired. |

SP5xxx: Mode

| | | |
|----|---------------------|---|
| | 3 | Notification of shift from a common authentication to an individual certification. |
| | 4 | Notification of a common certification without ID2. |
| | 5 | Notification that no certification was issued. |
| | 6 | Notification that GW URL does not exist. |
| 69 | CERT: Up ID | |
| | | The ID of the request for certification. |
| 83 | Firmware Up Status | |
| | | Displays the status of the firmware update. |
| 84 | Non-HDD Firm Up | |
| | | This setting determines if the firmware can be updated, even without the HDD installed. |
| 85 | Firm Up User Check | |
| | | This SP setting determines if the operator can confirm the previous version of the firmware before the firmware update execution. If the option to confirm the previous version is selected, a notification is sent to the system manager and the firmware update is done with the firmware files from the URL. |
| 86 | Firmware Size | |
| | | Allows the service technician to confirm the size of the firmware data files during the firmware update execution. |
| 87 | CERT: Macro Version | |
| | | Displays the macro version of the NRS certification |
| 88 | CERT: PAC Version | |
| | | Displays the PAC version of the NRS certification. |
| 89 | CERT: ID2 Code | |

SP5xxx: Mode

| | |
|-----|--|
| | Displays ID2 for the NRS certification. Spaces are displayed as underscores (_). Asterisks (****) indicate that no NRS certification exists. |
| 90 | CERT: Subject Displays the common name of the NRS certification subject. CN = the following 17 bytes. Spaces are displayed as underscores (_). Asterisks (****) indicate that no DESS exists. |
| 91 | CERT: Serial Number Displays serial number for the NRS certification. Asterisks (****) indicate that no DESS exists. |
| 92 | CERT: Issuer Displays the common name of the issuer of the NRS certification. CN = the following 30 bytes. Asterisks (****) indicate that no DESS exists. |
| 93 | CERT: Valid Start Displays the start time of the period for which the current NRS certification is enabled. |
| 94 | CERT: Valid End Displays the end time of the period for which the current NRS certification is enabled. |
| 95 | Server On Check DFU |
| 96 | GW Host DFU |
| 97 | GW URL Path DFU |
| 99 | Debug Rescue G/WURL Set DFU |
| 150 | Selection Country DFU |
| 151 | Line Type Automatic Judgement DFU |
| 152 | Line Type Judgement Result DFU |
| 153 | Selection Dial/Push DFU |

SP5xxx: Mode

| | |
|-----|---|
| 154 | Outside Line Outgoing Number DFU |
| 156 | Dial Up User Name DFU |
| 157 | Dial Up Password DFU |
| 161 | Local Phone Number DFU |
| 162 | Connection Timing Adjustment DFU |
| 163 | Access Point DFU |
| 164 | Line Connecting DFU |
| 173 | Modem Serial No. DFU |
| 174 | Retransmission Limit DFU |
| 186 | RCG-C M Debut Bit SW DFU |
| 187 | Fax TX Priority DFU |
| 200 | Manual Polling |
| | No information is available at this time. |
| 201 | Regist: Status |
| | Displays a number that indicates the status of the NRS service device. |
| | 0 Neither the NRS device nor Cumin device are set. |
| | 1 The Cumin device is being set. Only Box registration is completed. In this status the Basil unit cannot answer a polling request. |
| | 2 The Cumin device is set. In this status the Basil unit cannot answer a polling request. |
| | 3 The NRS device is being set. In this status the Cumin device cannot be set. |
| 202 | Letter Number |

SP5xxx: Mode

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|-----|---|---|-----------|---|----------------------|---|--------------------------|---|-----------------------------|---|------------------------------|---|---|---|---------------------|---|----------------------------|---|-------------|---|-------------------|
| | Allows entry of the number of the request needed for the Cumin device. | | | | | | | | | | | | | | | | | | | | |
| 203 | <p>Confirm Execute</p> <p>Executes the inquiry request to the NRS GW URL.</p> | | | | | | | | | | | | | | | | | | | | |
| | <p>Confirm Result</p> <p>Displays a number that indicates the result of the inquiry executed with SP5816 203.</p> | | | | | | | | | | | | | | | | | | | | |
| | <table border="1"> <tr> <td>0</td><td>Succeeded</td></tr> <tr> <td>1</td><td>Inquiry number error</td></tr> <tr> <td>2</td><td>Registration in progress</td></tr> <tr> <td>3</td><td>Proxy error (proxy enabled)</td></tr> <tr> <td>4</td><td>Proxy error (proxy disabled)</td></tr> <tr> <td>5</td><td>Proxy error (Illegal user name or password)</td></tr> <tr> <td>6</td><td>Communication error</td></tr> <tr> <td>7</td><td>Certification update error</td></tr> <tr> <td>8</td><td>Other error</td></tr> <tr> <td>9</td><td>Inquiry executing</td></tr> </table> | 0 | Succeeded | 1 | Inquiry number error | 2 | Registration in progress | 3 | Proxy error (proxy enabled) | 4 | Proxy error (proxy disabled) | 5 | Proxy error (Illegal user name or password) | 6 | Communication error | 7 | Certification update error | 8 | Other error | 9 | Inquiry executing |
| 0 | Succeeded | | | | | | | | | | | | | | | | | | | | |
| 1 | Inquiry number error | | | | | | | | | | | | | | | | | | | | |
| 2 | Registration in progress | | | | | | | | | | | | | | | | | | | | |
| 3 | Proxy error (proxy enabled) | | | | | | | | | | | | | | | | | | | | |
| 4 | Proxy error (proxy disabled) | | | | | | | | | | | | | | | | | | | | |
| 5 | Proxy error (Illegal user name or password) | | | | | | | | | | | | | | | | | | | | |
| 6 | Communication error | | | | | | | | | | | | | | | | | | | | |
| 7 | Certification update error | | | | | | | | | | | | | | | | | | | | |
| 8 | Other error | | | | | | | | | | | | | | | | | | | | |
| 9 | Inquiry executing | | | | | | | | | | | | | | | | | | | | |
| 204 | <p>Confirm Place</p> <p>Displays the result of the notification sent to the device from the GW URL in answer to the inquiry request. Displayed only when the result is registered at the GW URL.</p> | | | | | | | | | | | | | | | | | | | | |
| 205 | <p>Register Execute</p> <p>Executes Cumin Registration.</p> | | | | | | | | | | | | | | | | | | | | |
| 206 | <p>Register Result</p> <p>Displays a number that indicates the registration result.</p> | | | | | | | | | | | | | | | | | | | | |
| 207 | | | | | | | | | | | | | | | | | | | | | |

SP5xxx: Mode

| | | | |
|-----|--------------------------------------|--|---|
| | 0 | Succeeded | |
| | 2 | Registration in progress | |
| | 3 | Proxy error (proxy enabled) | |
| | 4 | Proxy error (proxy disabled) | |
| | 5 | Proxy error (illegal user name or password) | |
| | 6 | Communication error | |
| | 7 | Certification update error | |
| | 8 | Other error | |
| | 9 | Registration executing | |
| 208 | Error Code | | |
| | | Displays a number that describes the error code that was issued when either SP5816 204 or SP5816 207 was executed. | |
| | Cause | Code | Meaning |
| | Illegal Modem Parameter | -11001 | Chat parameter error |
| | | -11002 | Chat execution error |
| | | -11003 | Unexpected error |
| | Operation Error, Incorrect Setting | -12002 | Inquiry, registration attempted without acquiring device status. |
| | | -12003 | Attempted registration without execution of an inquiry and no previous registration. |
| | | -12004 | Attempted setting with illegal entries for certification and ID2. |
| | Error Caused by Response from GW URL | -2385 | Attempted dial up overseas without the correct international prefix for the telephone number. |

SP5xxx: Mode

| | | | |
|-----|---------------|---|-------------------------------------|
| | | -2387 | Not supported at the Service Center |
| | | -2389 | Database out of service |
| | | -2390 | Program out of service |
| | | -2391 | Two registrations for same device |
| | | -2392 | Parameter error |
| | | -2393 | Basil not managed |
| | | -2394 | Device not managed |
| | | -2395 | Box ID for Basil is illegal |
| | | -2396 | Device ID for Basil is illegal |
| | | -2397 | Incorrect ID2 format |
| | | -2398 | Incorrect request number format |
| 209 | Instl Clear | Releases the machine from its embedded RCG setup. | |
| 250 | CommLog Print | Prints the communication log. | |

Service
Tables

| | | |
|------|--|---|
| 5821 | Remote Service Address Japan Only | |
| 1 | CSS PI Device Code | Sets the PI device code. After you change this setting, you must turn the machine off and on. |
| 2 | RCG IP Address | Sets the IP address of the RCG (Remote Communication Gate) destination for call processing at the remote service center. [00000000htoFFFFFFFh/1] |
| 5824 | NVRAM Data Upload | |

SP5xxx: Mode

| | |
|------|---|
| | <p>Uploads the NVRAM data to an SD card (B140). Push Execute.</p> <p>Note: When uploading data in this SP mode, the front door must be open.</p> |
| 5825 | <p>NVRAM Data Download</p> <p>Downloads data from an SD card to the NVRAM in the machine. After downloading is completed, remove the card and turn the machine power off and on.</p> |
| 5828 | <p>Network Setting</p> |
| 1 | <p>IPv4 Address (Ethernet/IEEE 802.11)</p> <p>This SP allows you to confirm and reset the IPv4 address for Ethernet and a wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.168.000.001" this is read "0C0A80001h"</p> |
| 2 | <p>IPv4 Subnet Mask (Ethernet/IEEE 802.11)</p> <p>This SP allows you to confirm and reset the IPv4 subnet mask for Ethernet and a wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "255.255.255.00" this is read "FFFFFF00h".</p> |
| 3 | <p>IPv4 Default Gateway (Ethernet/IEEE 802.11)</p> <p>This SP allows you to confirm and reset the IPv4 default gateway used by the network for Ethernet and wireless LAN (802.11): aaa.bbb.ccc.ddd For example, if the 8-bit entry is "192.169.000.001" this is read "0C0A80001h"</p> |
| 6 | <p>DHCP (Ethernet/IEEE 802.11)</p> <p>This SP code allows you confirm and change the setting that determines whether the IP address is used with DHCP on an Ethernet or wireless (802.11) LAN network.</p> |

SP5xxx: Mode

| | |
|----|--|
| | [0 to 1/1/0] 0: Not used (manual setting) 1: Used |
| 21 | Active IPv4 Address |
| | This SP allows you to confirm the IPv4 address that was used when the machine started up with DHCP. For example, if the the setting of the the IPv4 address is "0C0A80001h " this is displayed as "192.169.000.001". |
| 22 | Active IPv4 Subnet Mask |
| | This SP allows you to confirm the IPv4 subnet mask setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 subnet mask is "FFFFFF00H" this is displayed as "255.255.255.000" |
| 23 | Active IPv4 Gateway Address |
| | This SP allows you to confirm the IPv4 default gateway setting that was used when the machine started up with DHCP. For example, if the setting for the IPv4 gateway is "0C0A80001h" this is displayed as "192.168.000.001". |
| 50 | 1284 Compatibility (Centro) |
| | Enables and disables bi-directional communication on the parallel connection between the machine and a computer. [0 to 1/1] 0:Off 1: On |
| 52 | ECP (Centro) |
| | Disables and enables the ECP feature (1284 Mode) for data transfer. [0 to 1/1] 0: Disabled 1: Enabled |
| 65 | Job Spooling |
| | Switches job spooling on and off. 0: No spooling, 1: Spooling enabled |

SP5xxx: Mode

| | | | | | | |
|-----|---|---|----------------------|--|--|--|
| 66 | Job Spool Clear: Start Time | | | | | |
| | <p>This SP determines whether the job interrupted at power off is resumed at the next power on. This SP operates only when SP5828 065 is set to 1.</p> <p>1: Resumes printing spooled jog. 0: Clears spooled job.</p> | | | | | |
| 69 | Job Spool Protocol | | | | | |
| | This SP determines whether job spooling is enabled or disabled for each protocol. This is a 8-bit setting. | | | | | |
| 0 | LPR | 4 | BMLinks (Japan Only) | | | |
| 1 | FTP (Not Used) | 5 | DIPRINT | | | |
| 2 | IPP | 6 | Reserved (Not Used) | | | |
| 3 | SMB | 7 | Reserved (Not Used) | | | |
| 90 | TELNET (0:OFF 1:ON) | | | | | |
| | <p>Disables or enables Telnet operation. If this SP is disabled, the Telnet port is closed.</p> <p>[0 to 1/1]</p> <p>0: Disable 1: Enable</p> | | | | | |
| 91 | Web Operation (0:OFF 1:ON) | | | | | |
| | <p>Disables or enables the Web operation.</p> <p>[0 to 1/1]</p> <p>0: Disable 1: Enable</p> | | | | | |
| 145 | ActIPv6LinkLocal | | | | | |
| | <p>This is the IPv6 local address referenced on the Ethernet or wireless LAN (802.11) in the format:</p> <p>"Link-Local address" + "Prefix Length"</p> <p>The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses "</p> | | | | | |

SP5xxx: Mode

| | | | |
|-----|---|--|--|
| | below this table. | | |
| 147 | ActIPv6Sttles1 | These SPs are the IPv6 stateless addresses (1 to 5) referenced on the Ethernet or wireless LAN (802.11) in the format: "Stateless Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. | |
| 149 | ActIPv6Sttles2 | | |
| 151 | ActIPv6Sttles3 | | |
| 153 | ActIPv6Sttles4 | | |
| 155 | ActIPv6Sttles5 | | |
| 156 | IPv6 Manual Address | | |
| | This SP is the IPv6 manually set address referenced on the Ethernet or wireless LAN (802.11) in the format: "Manual Set Address" + "Prefix Length" The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table. | | |
| 158 | IPv6 Gateway | | |
| | This SP is the IPv6 gateway address referenced on the Ethernet or wireless LAN (802.11). The IPv6 address consists of a total 128 bits configured in 8 blocks of 16 bits each. These notations can be abbreviated. See "Note: IPV6 Addresses" below this table. | | |

Service
Tables

Note: IPV6 Addresses

Ethernet and the Wireless LAN (802.11) reference the IPV6 "Link-Local address + Prefix Length". The IPV6 address consists of 128 bits divided into 8 blocks of 16 bits:

aaaa:bbbb:cccc:dddd:eeee:ffff:gggg:hhhh:

The prefix length is inserted at the 17th byte (Prefix Range: 0x0~0x80). The initial setting is 0x40(64).

For example, the data:

2001123456789012abcdef012345678940h

is expressed:

2001:1234:5678:9012:abcd:ef01:2345:6789: prefixlen 64

However, the actual IPV6 address display is abbreviated according to the following rules.

SP5xxx: Mode

Rules for Abbreviating IPV6 Addresses

1. The IPV6 address is expressed in hexadecimal delimited by colons (:) with the following characters:
0123456789abcdefABCDEF
2. A colon is inserted as a delimiter every 4th hexadecimal character.
fe80:0000:0000:0000:0207:40ff:0000:340e
3. The notations can be abbreviated by eliminating zeros where the MSB and digits following the MSB are zero. The example in "2" above, then, becomes:
fe80:0:0:0207:40ff:0:340e
4. Sections where only zeros exist can be abbreviated with double colons (::). This abbreviation can be done also where succeeding sections contain only zeros (but this can be done only at one point in the address). The example in "2" and "3" above then becomes:
fe80::207:40ff:0:340e (only the first null sets zero digits are abbreviated as "::")
-or-
fe80:0:0:0:207:40ff::340e (only the last null set before "340e" is abbreviated as "::")

| | |
|-----|---|
| 161 | IPv6 Stateless Auto Setting Enables/disables the stateless automatic setting for Ethernet/wireless LAN operation. [0 to 1/1/1] 1: Enable 0: Disable |
| 236 | Web Item Invisible Determines whether each item can be set in Websys. [0x0000 to 0xffff/0xffff] Bit 1: NetRICOH Bit2: Vendor for consumables Bit2-15: Reserved |
| 237 | Web Shopping Link Invisible Determines whether the NetRICOH link is displayed on the Websys top page and link page. [0 to 1/1/1] 1: Display |

SP5xxx: Mode

| | |
|-----|--|
| | 0: No display |
| 238 | <p>Web Supplies Link Invisible Determines whether the consumable vendor link is displayed on the Websys top page and link page. [0 to 1/1/1]</p> <p>1: Display 0: No display</p> |
| 239 | <p>Web Link 1 Name Determines whether a name entered for "URL1" is displayed on the Websys link page. The name length is limited to 31 characters.</p> |
| 240 | <p>Web Link 1 URL Sets the URL referenced for URL1 linked to the Websys linked page. The link name is limited to 127 characters.</p> |
| 241 | <p>Web Link 1 Visible Determines whether the link for URL1 is displayed on the Websys top page. [0 to 1/1/1]</p> <p>1: Display 0: No display</p> |
| 242 | <p>Web Link 2 Name Determines whether a name entered for "URL2" is displayed on the Websys link page. The name length is limited to 31 characters.</p> |
| 243 | <p>Web Link 2 URL Sets the URL referenced for URL2 linked to the Websys linked page. The link name is limited to 127 characters.</p> |
| 244 | <p>Web Link 2 Visible Determines whether the link for URL2 is displayed on the Websys top page. [0 to 1/1/1]</p> <p>1: Display 0: No display</p> |

| | |
|------|----------------|
| 5832 | HDD Formatting |
|------|----------------|

SP5xxx: Mode

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|------|---|
| | Enter the SP number for the partition to initialize, then press #. When the execution ends, cycle the machine off and on. |
| . 1 | HDD Formatting (All) |
| . 2 | HDD Formatting (IMH) |
| . 3 | HDD Formatting (Thumbnail) |
| . 4 | HDD Formatting (Job Log) |
| 5 | HDD Formatting (Printer Fonts) |
| . 6 | HDD Formatting (User Info) |
| . 7 | Mail RX Data |
| . 8 | Mail TX Data |
| . 9 | HDD Formatting (Data for Design) |
| . 10 | HDD Formatting (Log) |
| . 11 | HDD Formatting (Ridoc I/F) (for Ridoc Desk Top Binder) |

| | |
|------|---|
| 5836 | Capture Setting |
| 1 | <p>Capture Function (0:Off 1:On)</p> <p>With this function disabled, the settings related to the capture feature cannot be initialized, displayed, or selected.</p> <p>[0 to 1/1]</p> <p>0: Disable 1: Enable</p> |
| 2 | <p>Panel Setting</p> <p>Determines whether each capture related setting can be selected or updated from the initial system screen.</p> <p>[0 to 1/1]</p> <p>0: Disable 1: Enable</p> |

SP5xxx: Mode

| | | |
|----|--|---|
| | The setting for SP5836-001 has priority. | |
| 71 | Reduction for Copy Color | [0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 DFU |
| 72 | Reduction for Copy B&W Text | [0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3 |
| 73 | Reduction for Copy B&W Other | [0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3 |
| 74 | Reduction for Printer Color | [0 to 3/1] 0:1, 1:1/2, 2:1/3, 3:1/4 DFU |
| 75 | Reduction for Printer B&W | [0 to 6/1] 0:1, 1:1/2, 2:1/3, 3:1/4, 6:2/3 |
| 76 | Reduction for Printer B&W HQ | [1 to 5/1] 1:1/2, 3:1/4, 4:1/6, 5:1/8 |
| 81 | Format for Copy Color | [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR DFU |
| 82 | Format for Copy B&W Text | [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 83 | Format Copy B&W Other | [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 84 | Format for Printer Color | [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR DFU |
| 85 | Format for Printer B&W | [0 to 3/1] 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 86 | Format for Printer | [0 to 3/1] |

SP5xxx: Mode

| | | |
|----|---|---|
| | B&W HQ | 0: JFIF/JPEG, 1: TIFF/MMR, 2: TIFF/MH, 3: TIFF/MR |
| 91 | Default for JPEG | [5 to 95/1] |
| | Sets the JPEG format default for documents sent to the document management server with the MLB, with JPEG selected as the format. Enabled only when optional File Format Converter (MLB: Media Link Board) is installed. | |

| | | | |
|------|--|---|--|
| 5840 | IEEE 802.11 | | |
| 6 | Channel MAX | | |
| 7 | Sets the maximum range of the bandwidth for the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1] | | |
| 8 | Channel MIN | | |
| 7 | Sets the minimum range of the bandwidth for operation of the wireless LAN. This bandwidth setting varies for different countries. [1 to 14/1] | | |
| 8 | Transmission Speed | [0 x 00 to 0 x FF / 0 x FF to Auto / -] 0 x FF to Auto [Default] 0 x 11 - 55M Fix 0 x 10 - 48M Fix 0 x 0F - 36M Fix 0 x 0E - 18M Fix 0 x 0D - 12M Fix 0 x 0B - 9M Fix 0 x 0A - 6M Fix | 0 x 07 - 11M Fix 0 x 05 - 5.5M Fix 0 x 08 - 1M Fix 0 x 13 - 0 x FE (reserved) 0 x 12 - 72M (reserved) 0 x 09 - 22M (reserved) |
| 11 | WEP Key Select | | |
| 11 | Determines how the initiator (SBP-2) handles subsequent login requests. [0 to 1/1] 0: If the initiator receives another login request while logging in, the request is | | |

SP5xxx: Mode

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| | refused. 1: If the initiator receives another login request while logging in, the request is refused and the initiator logs out. Note: Displayed only when the wireless LAN card is installed. |
| 42 | Fragment Thresh Adjusts the fragment threshold for the IEEE802.11 card. [256 to 2346 / 2346 / 1] This SP is displayed only when the IEEE802.11 card is installed. |
| 43 | 11g CTS to Self Determines whether the CTS self function is turned on or off. [0 to 1 / 1 / 1] 0: Off, 1: On This SP is displayed only when the IEEE802.11 card is installed. |
| 44 | 11g Slot Time Selects the slot time for IEEE802.11. [0 to 1 / 0 / 1] 0: 20 µm, 1: 9 µm This SP is displayed only when the IEEE802.11 card is installed. |
| 45 | WPA Debug Lvl Selects the debug level for WPA authentication application. [1 to 3 / 3 / 1] 1: Info, 2: warning, 3: error This SP is displayed only when the IEEE802.11 card is installed. |

Service Tables

| | | |
|------|---|--|
| 5841 | Supply Name Setting | |
| | Press the User Tools key. These names appear when the user presses the Inquiry button on the User Tools screen. | |
| 1 | Toner Name Setting: Black | |
| 7 | Org Stamp | |
| 11 | StapleStd1 | |

SP5xxx: Mode

| | | |
|----|------------|----------|
| 12 | StapleStd2 | |
| 13 | StapleStd3 | Not Used |
| 14 | StapleStd4 | |
| 21 | StapleBnd1 | |
| 22 | StapleBnd2 | |
| 23 | StapleBnd3 | |

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|------|--|
| 5842 | GWWS Analysis DFU |
| | This is a debugging tool. It sets the debugging output mode of each Net File process |

| | |
|------|---|
| 5844 | USB |
| | Transfer Rate |
| 1 | Sets the speed for USB data transmission. [Full Speed] [Auto Change] |
| 2 | Vendor ID Sets the vendor ID: Initial Setting: 0x05A Ricoh Company [0x0000 to 0xFFFF/1] DFU |
| 3 | Product ID Sets the product ID. [0x0000 to 0xFFFF/1] DFU |
| 4 | Device Release No. Sets the device release number of the BCD (binary coded decimal) display. [0000 to 9999/1] DFU Enter as a decimal number. NCS converts the number to hexadecimal |

SP5xxx: Mode

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| | number recognized as the BCD. |
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|------|--|
| 5845 | Delivery Server Setting |
| | These are delivery server settings. |
| 1 | FTP Port No. [0 to 65535/1] |
| | IP Address (Primary) |
| 2 | Use this SP to set the Scan Router Server address. The IP address under the transfer tab can be used with the initial system setting. [0 to FFFFFFFF/1] |
| | Delivery Error Display Time |
| 6 | Use this setting to set the length of time that the message is shown when a test error occurs during document transfer with the NetFile application and an external device. [0 to 999/1] |
| | IP Address (Secondary) |
| 8 | Sets the IP address that is given to the computer that is the secondary delivery server for Scan Router. This SP lets you set only the IP address, and does not refer to the DNS setting. |
| | Delivery Server Model |
| 9 | Lets you change the model of the delivery server that is registered by the I/O device. [0 to 4/1] 0: Unknown 1: SG1 Provided 2: SG1 Package 3: SG2 Provided 4: SG2 Package |
| | 10 Delivery Srv. Capability |

SP5xxx: Mode

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|----|--|
| | Changes the functions that the registered I/O device can do. [0 to 255/1] Bit7 = 1 Comment information exists Bit6 = 1 Direct specification of mail address possible Bit5 = 1 Mail RX confirmation setting possible Bit4 = 1 Address book automatic update function exists Bit3 = 1 Fax RX delivery function exists Bit2 = 1 Sender password function exists Bit1 = 1 Function to link MK-1 user and Sender exists Bit0 = 1 Sender specification required (if set to 1, Bit6 is set to "0") |
| 11 | Delivery Srv.Capability (Ext) These settings are for future use. They will let you increase the number of registered devices (in addition to those registered for SP5845 010). There are eight bits (Bit 0 to Bit 7). All are unused at this time. |
| 13 | Server Scheme (Primary) |
| 14 | Server Port Number (Primary) |
| 15 | Server URL Path (Primary) |
| 16 | Server Scheme (Secondary) |
| 17 | Server Port Number (Secondary) |
| 18 | Server URL Path (Secondary) |
| 19 | Capture Server Scheme |
| 20 | Capture Server Path Number |
| 21 | Capture Server URL Path |
| 22 | Report Setting Control |

| | |
|-------|----------------------------------|
| 5846* | UCS Setting |
| 1 | Machine ID (for Delivery Server) |

SP5xxx: Mode

| | |
|----|--|
| | Displays the unique device ID in use by the delivery server directory. The value is only displayed and cannot be changed. This ID is created from the NIC MAC or IEEE 1394 EUI. The ID is displayed as either 6-byte or 8-byte binary. |
| 2 | Machine ID Clear (Delivery Server) Clears the unique ID of the device used as the name in the file transfer directory. Execute this SP if the connection of the device to the delivery server is unstable. After clearing the ID, the ID will be established again automatically by cycling the machine off and on. |
| 3 | Maximum Entries Changes the maximum number of entries that UCS can handle. [2000 to 50000/1] If a value smaller than the present value is set, the UCS managed data is cleared, and the data (excluding user code information) is displayed. |
| 6 | Delivery Server Retry Timer Sets the interval for retry attempts when the delivery server fails to acquire the delivery server address book. [0 to 255/1 s] 0: No retries |
| 7 | Delivery Server Retry Times Sets the number of retry attempts when the delivery server fails to acquire the delivery server address book. [0 to 255/1] |
| 8 | Delivery Server Maximum Entries Lets you set the maximum number of account entries and information about the users of the delivery server controlled by UCS. [20000 to 50000/1] |
| 10 | LDAP Search Timeout Sets the length of the time-out for the search of the LDAP server. |

SP5xxx: Mode

| | |
|----|--|
| | [1 to 255/1] |
| 40 | <p>Addr Book Migration (SD -> HDD)</p> <p>This SP moves the address book data from an SD card to the HDD. You must cycle the machine off and on after executing this SP.</p> <p>Turn the machine off.</p> <p>Install the HDD.</p> <p>Insert the SD card with the address book data in SD card slot C3.</p> <p>Turn the machine on.</p> <p>Do SP5846 040.</p> <p>Turn the machine off.</p> <p>Remove the SD card from SD card slot C3.</p> <p>Turn the machine on.</p> <p>Note</p> <ul style="list-style-type: none"> ▪ Executing this SP overwrites any address book data already on the HDD with the data from the SD card. ▪ We recommend that you back up all directory information to an SD card with SP5846 051 before you execute this SP. ▪ After the address book data is copied to HDD, all the address book data is deleted from the source SD card. If the operation fails, the data is not erased from the SD card. |
| 41 | <p>Fill Addr Acl Info.</p> <p>This SP must be executed immediately after installation of an HDD unit in a basic machine that previously had no HDD. The first time the machine is powered on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it onto the new HDD. However, the new address book on the HDD can be accessed only by the system administrator at this stage. Executing this SP by the service technician immediately after power on grants full address book access to all users.</p> <p>Procedure</p> <ol style="list-style-type: none"> 1. Turn the machine off. 2. Install the new HDD. 3. Turn the machine on. 4. The address book and its initial data are created on the HDD |

SP5xxx: Mode

| | |
|----|---|
| | <p>automatically. However, at this point the address book can be accessed by only the system administrator or key operator.</p> <p>5. Enter the SP mode and do SP5846 041. After this SP executes successfully, any user can access the address book.</p> |
| 43 | Addr Book Media |
| 46 | Initialize All Settings & Addr Book |
| 47 | <p>Initialize Local Address Book</p> <p>Clears all of the address information from the local address book of a machine managed with UCS.</p> |
| 48 | <p>Initialize Delivery Addr Book</p> <p>Push [Execute] to delete all items (this does not include user codes) in the delivery address book that is controlled by UCS.</p> |
| 49 | <p>Initialize LDAP Addr Book</p> <p>Push [Execute] to delete all items (this does not include user codes) in the LDAP address book that is controlled by UCS.</p> |
| 50 | <p>Initialize All Addr Book</p> <p>Clears everything (including users codes) in the directory information managed by UCS. However, the accounts and passwords of the system administrators are not deleted.</p> |
| 51 | <p>Backup All Addr Book</p> <p>Uploads all directory information to the SD card. Do this SP before replacing the HDD. The operation may not succeed if the HDD is damaged.</p> |
| 52 | <p>Restore All Addr Book</p> <p>Downloads all directory information from the SD card. Upload the address book from the old HDD with SP5846 51 before removing it. Do SP5846 52 after installing the new HDD.</p> |
| 53 | Clear Backup Info. |

SP5xxx: Mode

| | <p>Deletes the address book uploaded from the SD card in the slot. Deletes only the files uploaded for that machine. This feature does not work if the card is write-protected.</p> <p>Note: After you do this SP, go out of the SP mode, turn the power off. Do not remove the SD card until the Power LED stops flashing.</p> | | | | | | | | | | | | | | | | | | |
|---|---|-----|---------|---|---|---|--|---|-------------------|---|--|---|------------------|---|------------------|---|------------------|---|------------------|
| 60 | <p>Search Option</p> <p>This SP uses bit switches to set up the fuzzy search options for the UCS local address book.</p> <table border="1"> <thead> <tr> <th>Bit</th><th>Meaning</th></tr> </thead> <tbody> <tr> <td>0</td><td>Checks both upper/lower case characters</td></tr> <tr> <td>1</td><td></td></tr> <tr> <td>2</td><td>Japan Only</td></tr> <tr> <td>3</td><td></td></tr> <tr> <td>4</td><td>--- Not Used ---</td></tr> <tr> <td>5</td><td>--- Not Used ---</td></tr> <tr> <td>6</td><td>--- Not Used ---</td></tr> <tr> <td>7</td><td>--- Not Used ---</td></tr> </tbody> </table> | Bit | Meaning | 0 | Checks both upper/lower case characters | 1 | | 2 | Japan Only | 3 | | 4 | --- Not Used --- | 5 | --- Not Used --- | 6 | --- Not Used --- | 7 | --- Not Used --- |
| Bit | Meaning | | | | | | | | | | | | | | | | | | |
| 0 | Checks both upper/lower case characters | | | | | | | | | | | | | | | | | | |
| 1 | | | | | | | | | | | | | | | | | | | |
| 2 | Japan Only | | | | | | | | | | | | | | | | | | |
| 3 | | | | | | | | | | | | | | | | | | | |
| 4 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 5 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 6 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| 7 | --- Not Used --- | | | | | | | | | | | | | | | | | | |
| <p>Complexity Option 1</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to upper case and sets the length of the password. [0 to 32/1]</p> <p>Note:</p> <ul style="list-style-type: none"> ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. | | | | | | | | | | | | | | | | | | | |
| <p>Complexity Option 2</p> <p>Use this SP to set the conditions for password entry to access the local</p> | | | | | | | | | | | | | | | | | | | |

SP5xxx: Mode

| | |
|----|---|
| | <p>address book. Specifically, this SP limits the password entry to lower case and defines the length of the password.</p> <p>[0 to 32/1]</p> <p>Note</p> <ul style="list-style-type: none"> ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 64 | <p>Complexity Option 3</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to numbers and defines the length of the password.</p> <p>[0 to 32/1]</p> <p>Note</p> <ul style="list-style-type: none"> ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 65 | <p>Complexity Option 4</p> <p>Use this SP to set the conditions for password entry to access the local address book. Specifically, this SP limits the password entry to symbols and defines the length of the password.</p> <p>[0 to 32/1]</p> <p>Note</p> <ul style="list-style-type: none"> ▪ This SP does not normally require adjustment. ▪ This SP is enabled only after the system administrator has set up a group password policy to control access to the address book. |
| 91 | <p>FTP Auth. Port Settings</p> <p>Sets the FTP port to get the delivery server address book that is used in the individual authorization mode.</p> <p>[0 to 65535/1]</p> |
| 94 | <p>Encryption Start</p> <p>Shows the status of the encryption function of the address book on the LDAP</p> |

SP5xxx: Mode

| | |
|--|------------------------------------|
| | server. [0 to 255/1] No default |
|--|------------------------------------|

| | | | |
|---------|---|---|---|
| 5847 | Rep Resolution Reduction | | |
| | 5847 1 through 5847 6 changes the default settings of image data sent externally by the Net File page reference function. [0 to 2/1] | 5847 21 sets the default for JPEG image quality of image files controlled by NetFile. | "NetFile" refers to jobs to be printed from the document server with a PC and the DeskTopBinder software. |
| 5847 2 | Rate for Copy B&W Text | [0 to 6/1] | 0: 1x 1: 1/2x 2: 1/3x 3: 1/4x 4: 1/6x 5: 1/8x 6: 2/3x1 1: "6: 2/3x" applies to 003, 005, 006 only. |
| 5847 3 | Rate for Copy B&W Other | [0 to 6/1] | |
| 5847 5 | Rate for Printer B&W | [0 to 6/1] | |
| 5847 6 | Rate for Printer B&W HQ | [0 to 6/1] | |
| 5847 21 | Network Quality Default for JPEG | | |
| | Sets the default value for the quality of JPEG images sent as NetFile pages. This function is available only with the MLB (Media Link Board) option installed. [5 to 95/1] | | |

| | | |
|------|--|--|
| 5848 | Web Service | |
| | 5847 2 sets the 4-bit switch assignment for the access control setting. Setting of 0001 has no effect on access and delivery from Scan Router. 5847 100 sets the maximum size of images that can be downloaded. The default is equal to 1 gigabyte. | |
| 1 | Access Control.: NetFile (Lower 4 Bits Only) | |

SP5xxx: Mode

| | | |
|-----|--|---|
| | Bit switch settings. 0000: No access control 0001: Denies access to Desk Top Binder. Access and deliveries from Scan Router have no effect on capture. | |
| 2 | Acc. Ctrl.: Repository (only Lower 4 Bits) | 0000: No access control 0001: Denies access to DeskTop Binder. |
| 3 | Acc. Ctrl.: Doc. Svr. Print (Lower 4 Bits) | |
| 4 | Acc. Ctrl.: User Directory (Lower 4 Bits) | |
| 5 | Acc. Ctrl.: Delivery Input (Lower 4 Bits) | |
| 7 | Acc. Ctrl Comm. Log Fax (Lower 4 Bits) | Switches access control on and off. 0000: OFF, 0001: ON |
| 9 | Acc. Ctrl.: Job Control (Lower 4 Bits) | |
| 11 | Acc. Ctrl: Device Management (Lower 4 Bits) | |
| 21 | Acc. Ctrl: Delivery (Lower 4 Bits) | |
| 22 | Acc. Ctrl: User Administration (Lower 4 Bits) | |
| 41 | Acc. Ctrl: Security Setting (Lower 4 Bits only) | |
| 100 | Repository: Download Image Max. Size | [1 to 1024/1 K] |
| 201 | Access Ctrl: Regular Trans | |
| | No information is available at this time. 0: Not allowed 1: Allowed | |

SP5xxx: Mode

| | |
|-----|---|
| 210 | Setting: Log Type: Job 1 |
| | No information is available at this time. |
| 211 | Setting: Log Type: Job 2 |
| | No information is available at this time. |
| 212 | Setting: Log Type: Access |
| | No information is available at this time. |
| 213 | Setting: Primary Srv |
| | No information is available at this time. |
| 214 | Setting: Secondary Srv |
| | No information is available at this time. |
| 215 | Setting: Start Time |
| | No information is available at this time. |
| 216 | Setting: Interval Time |
| | No information is available at this time. |
| 217 | Setting: Timing |
| | No information is available at this time. |

| | | |
|------|--|---|
| 5849 | Installation Date | |
| | Displays or prints the installation date of the machine. | |
| 1 | Display | The “Counter Clear Day” has been changed to “Installation Date” or “Inst. Date”. |
| 2 | Switch to Print | Determines whether the installation date is printed on the printout for the total counter. [0 to 1/1] 0: No Print |

SP5xxx: Mode

| | | |
|---|---------------|----------|
| | | 1: Print |
| 3 | Total Counter | |

| | |
|-------|---|
| 5850* | Address Book Function Japan Only |
| | The machine is shipped ready to use with a G3 line. Use this SP to switch all at once to G4 after adding a G4 line. If the G4 line becomes unusable for some reason, you can use this SP to switch easily back to G3. Just touch [Replacement]. |

| | |
|------|--|
| 5851 | Bluetooth Mode |
| | Sets the operation mode for the Bluetooth Unit. Press either key. [0: Public] [1: Private] |

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|------|---|
| 5853 | Stamp Data Download |
| | Push [Execute] to download the fixed stamp data from the machine ROM onto the hard disk. Then these stamps can be used by the system. If this is not done, the user will not have access to the fixed stamps ("Confidential", "Secret", etc.). You must always execute this SP after replacing the HDD or after formatting the HDD. Always switch the machine off and on after executing this SP. |

| | |
|------|---|
| 5856 | Remote ROM Update |
| | When set to "1" allows reception of firmware data via the local port (IEEE 1284) during a remote ROM update. This setting is reset to zero after the machine is cycled off and on. Allows the technician to upgrade the firmware using a parallel cable [0 to 1/1] 0: Not allowed 1: Allowed |

| | |
|------|----------------|
| 5857 | Save Debug Log |
|------|----------------|

SP5xxx: Mode

| | |
|----|---|
| | On/Off (1:ON 0:OFF) |
| 1 | <p>Switches on the debug log feature. The debug log cannot be captured until this feature is switched on.</p> <p>[0 to 1/1]</p> <p>0: OFF 1: ON</p> |
| 2 | <p>Target (2: HDD 3: SD)</p> <p>Selects the destination where the debugging information generated by the event selected by SP5858 will be stored if an error is generated</p> <p>[2 to 3 /1]</p> <p>2: HDD 3: SD Card</p> |
| 5 | <p>Save to HDD</p> <p>Specifies the decimal key number of the log to be written to the hard disk.</p> |
| 6 | <p>Save to SD Card</p> <p>Specifies the decimal key number of the log to be written to the SD Card.</p> |
| 9 | <p>Copy HDD to SD Card (Latest 4 MB)</p> <p>Takes the most recent 4 MB of the log written to the hard disk and copies them to the SD Card.</p> <p>A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card.</p> |
| 10 | <p>Copy HDD to SD Card Latest 4 MB Any Key)</p> <p>Takes the log of the specified key from the log on the hard disk and copies it to the SD Card.</p> <p>A unique file name is generated to avoid overwriting existing file names on the SD Card. Up to 4 MB can be copied to an SD Card. 4 MB segments can be copied one by one to each SD Card. This SP does not execute if there is no log on the HDD with no key specified.</p> |

SP5xxx: Mode

| | |
|----|--|
| 11 | Erase HDD Debug Data |
| | Erases all debug logs on the HDD |
| 12 | Erase SD Card Debug Data |
| | Erases all debug logs on the SD Card. If the card contains only debugging files generated by an event specified by SP5858, the files are erased when SP5857 010 or 011 is executed. To enable this SP, the machine must be cycled off and on. |
| 13 | Free Space on SD Card |
| | Displays the amount of space available on the SD card. |
| 14 | Copy SD to SD (Latest 4MB) |
| | Copies the last 4MB of the log (written directly to the card from shared memory) onto an SD card. |
| 15 | Copy SD to SD (Latest 4MB Any Key) |
| | This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number. |
| 16 | Make HDD Debug |
| | This SP creates a 32 MB file to store a log on the HDD. |
| 17 | Make SD Debug |
| | This SP creates a 4 MB file to store a log on an SD card. |

Service
Tables

| | | |
|-------|---|--|
| 5858* | Debug Save When | |
| | These SPs select the content of the debugging information to be saved to the destination selected by SP5857 002. SP5858 3 stores one SC specified by number. | |
| 1* | Engine SC Error (0:OFF 1:ON) | Stores SC codes generated by copier engine errors. |

SP5xxx: Mode

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|----|-------------------------------------|--|
| 2* | Controller SC Error (0:OFF 1:ON) | Stores SC codes generated by GW controller errors. |
| 3* | Any SC Error (0:OFF 1:ON) | [0 to 65535 / 0 / 1] |
| 4* | Jam (0:OFF 1:ON) | Stores jam errors. |

| | | |
|------|-------------------------|---|
| 5859 | Debug Log Save Function | |
| 1 | Key 1 | These SPs allow you to set up to 10 keys for log files for functions that use common memory on the controller board. [-9999999 to 9999999/1] |
| 2 | Key 2 | |
| 3 | Key 3 | |
| 4 | Key 4 | |
| 5 | Key 5 | |
| 6 | Key 6 | |
| 7 | Key 7 | |
| 8 | Key 8 | |
| 9 | Key 9 | |
| 10 | Key 10 | |

| | | |
|------|--|---|
| 5860 | SMTP/POP3/IMAP4 | |
| 20 | Partial Mail Receive Timeout | [1 to 168/72/1] Sets the amount of time to wait before saving a mail that breaks up during reception. The received mail is discarded if the remaining portion of the mail is not received during this prescribed time. |
| | MDN Response RFC2298 Compliance | |
| 21 | Determines whether RFC2298 compliance is switched on for MDN reply mail. | [0 to 1/1] |
| | | |

SP5xxx: Mode

| | |
|----|--|
| | 0: No 1: Yes |
| 22 | <p>SMTP Auth. From Field Replacement</p> <p>Determines whether the FROM item of the mail header is switched to the validated account after the SMTP server is validated.</p> <p>[0 to 1/1]</p> <p>0: No. "From" item not switched. 1: Yes. "From" item switched.</p> |
| 25 | <p>SMTP Auth Direct Sending</p> <p>Occasionally, SMTP certification may fail with encryption enabled for the SMTP server. This can occur if the SMTP server does not meet RFC standards. In such cases you can use this SP to set the SMTP certification method directly. However, this SP can be used only encryption has been enabled.</p> <p>Bit 0: LOGIN Bit 1: PLAIN Bit 2: CRAM_MD5 Bit 3: DIGEST_MD5 Bit 4 to Bit 7: Not Used</p> |
| 26 | S/MIMI: MIME Header Setting |
| | |

Service
Tables

| | | |
|------|------------------------|---|
| 5866 | E-Mail Report Not Used | |
| 1 | Report Validity | <p>Enables or disables the E-mail alert function.</p> <p>[0 or 1 / 0 / –] 0: Enabled, 1: Disabled</p> |
| 2 | Add Date Field | <p>Adds or does not add the date field to the header of the alert mail.</p> <p>[0 or 1 / 0 / –]</p> <p>0: Not added, 1: Added</p> |

SP5xxx: Mode

| | | |
|------|--|--|
| 5870 | Common Key Info Writing | |
| | Writes to flash ROM the common proof for validating the device for NRS specifications. | |
| 1 | Writing | These SPs are for future use and currently are not used. |
| 3 | Initialize | |

| | | |
|------|---|--|
| 5873 | SD Card Application Move (Merge) | |
| | Allows applications to be moved (merged) from one SD card to another. For more information regarding merging applications onto one SD card see section 1.2.4 of the D383 Printer/Scanner Option SM. | |
| 1 | Move Exec | Executes the move from one SD card to another. |
| 2 | Undo Exec | This is an undo function. It cancels the previous execution. |

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|------|--|---|
| 5875 | SC Auto Reboot | |
| | This SP determines whether the machine reboots automatically when an SC error occurs. Note: The reboot does not occur for Type A SC codes. | |
| 1 | Reboot Setting | [0 to 1 / 0 / 1] 0: The machine reboots automatically after the machine issues an SC error and logs the SC error code. If the same SC occurs again, the machine does not reboot. 1: The machine does not reboot when an SC error occurs. |
| 2 | Reboot Type | [0 to 1 / 0 / 1] 0: Manual reboot, 1: Automatic reboot |

| | | |
|------|---|--|
| 5878 | Option Setup | |
| | Use this SP to enable the Data Overwrite Security option or HDD Encryption Option after installation. | |

SP5xxx: Mode

| | | |
|---|-------------------------|--|
| 1 | Data Overwrite Security | |
| 2 | Encryption Option | |

| | |
|------|--|
| 5879 | Editing Option Setup DFU |
| | This SP is used to install the edit option card. |

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|------|--------------------------------------|
| 5881 | Fixed Phase Block Erasing DFU |
|------|--------------------------------------|

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|------|---------------------|---|
| 5885 | Set WIM Function | |
| | 20 Doc Svr Acc Ctrl | <p>Close or disclose the functions of web image monitor.</p> <p>0: OFF, 1: ON</p> <p>Bit:</p> <ul style="list-style-type: none"> 0: Forbid all document server access 1: Forbid user mode access 2: Forbid print function 3: Forbid Fax 4: Forbid scan sending 5: Forbid download 6: Forbid delete 7: Forbid guest user |
| 50 | DocSvr Format | <p>Selects the display type for the document box list.</p> <p>[0 to 2 / 0 / 1]</p> <p>0: Thumbnail, 1: Icon, 2: Details</p> |
| 51 | DocSvr Trans | <p>Sets the number of documents to be displayed in the document box list.</p> <p>[5 to 20 / 10 / 1]</p> |
| 100 | Set Signature | |
| 101 | Set Encryption | Determines whether the scanned documents |

SP5xxx: Mode

| | | |
|-----|-----------------|---|
| | | with WIM are encrypted when they are transmitted by an e-mail. [0 to 1 / 0 / 1] 0: Not encrypted, 1:Encryption |
| 200 | Detect Mem Leak | |
| 201 | DocSvr Timeout | |

| | |
|-------|--|
| 5886* | Farm (Firmware) Update Procedure |
| | This SP determines whether the ROM can be updated remotely. [0 or 1 / 0 / 1 step] 0: ON, 1: OFF |

| | |
|-------|---|
| 5888* | Personal Information Protect |
| | Selects the protection level for logs. [0 to 1 / 0 / 1} 0: No authentication, No protection for logs 1: No authentication, Protected logs (an administrator can see the logs) |

| | |
|------|--|
| 5907 | Plug & Play Maker/Model Name |
| | Selects the brand name and the production name for Windows Plug & Play. This information is stored in the NVRAM. If the NVRAM is defective, these names should be registered again. After selecting, press the “Original Type” key and “#” key at the same time. When the setting is completed, the beeper sounds five times. |

| | |
|-------|--|
| 5908* | LCT Paper Size |
| | Selects the paper size for the LCT. Use this SP after changing the paper size in the optional LCT (i.e., after changing the side plate position for the LCT). [0 to 1 / 1 / 1] North America 0: A4 |

SP5xxx: Mode

| | |
|--|---|
| | <p>1: LT [0 to 1 / 0 / 1] Other Areas (Europe/Asia) 0: A4 1: LT</p> |
|--|---|

| | | |
|-------|-------------------|--|
| 5912* | PCU Alarm Setting | |
| 1 | Display | |
| 2 | Interval | <p>Sets the PCU alarm interval. When the machine reaches this value, the PCU alarm will be displayed on the LCD to inform the user. [0 to 255 / 60 / 1 k copies/step] The zero setting switches the alarm off.</p> |

| | |
|------|---|
| 5913 | Switchover Permission Time |
| | <p>Sets the length of time to elapse before allowing another application to take control of the display when the application currently controlling the display is not operating because a key has not been pressed. [3 to 30/1 s]</p> |

Service Tables

| | |
|-------|--|
| 5915* | Mechanical Counter Detection |
| | <p>Checks whether the mechanical counter inside the inner cover is connected or not. Display: 0: Not detected 1: Detected 2: Unknown</p> |

| | |
|-------|---|
| 5921* | Exhaust Fan Control |
| | <p>Sets the timing for slowing the exhaust fan motor speed or shutting the motor off for normal operation, depending on the following conditions:</p> |

SP5xxx: Mode

| | |
|---|--|
| | After the machine has entered energy saver mode or stand-by mode, the machine slows the fan speed after this time runs out. After the machine has entered the auto off mode or an error occurs, the machine stops the fan after this time runs out. [30 to 120 / 30 s / 1 s] |
| 1 | Normal |
| 2 | Energy Saver |

| | |
|------|---|
| 5967 | Copy Server: Set Function |
| | Enables and disables the document server. This is a security measure that prevents image data from being left in the temporary area of the HDD. After changing this setting, you must switch the main switch off and on to enable the new setting. [0 to 1/1] 0: ON 1: OFF |

| | |
|------|--|
| 5974 | Cherry Server |
| | Selects which version of the Scan Router application program, "Light" or "Full (Professional)", is installed. [0 to 1 / 0 / 1 /step] 0: Light version (supplied with this machine) 1: Full version (optional) |

| | |
|------|--|
| 5985 | Device Setting |
| | The NIC and USB support features are built into the GW controller. In order to use the NIC and USB functions built into the controller board, these SP codes must be set to "1" (Default: 1 Enabled) |
| 1 | On Board NIC |
| 2 | On Board USB |

SP5xxx: Mode

| | |
|------|--|
| 5987 | Mech. Counter |
| | This SP detects that a mechanical counter device is removed. If it is detected, SC610 occurs. 0: OFF. 1: ON |

| | |
|------|--|
| 5990 | SP Print Mode (SMC Print) |
| | In the SP mode, press Copy Window to move to the copy screen, select the paper size, then press Start. Select A4/LT (Sideways) or larger to ensure that all the information prints. Press SP Window to return to the SP mode, select the desired print, and press Execute. |
| 1 | All (Data List) |
| 2 | SP (Mode Data List) |
| 3 | User Program |
| 4 | Logging Data |
| 5 | Diagnostic Report |
| 6 | Non-Default (Prints only SPs set to values other than defaults.) |
| 7 | NIB Summary |
| 8 | Capture Log |
| 21 | Copier User Program |
| 22 | Scanner SP |
| 23 | Scanner User Program |

Service
Tables

| | | |
|------|--------------|-----|
| 5995 | Factory Mode | DFU |
|------|--------------|-----|

| | | |
|------|-------------------|--|
| 5996 | Machine State DFU | |
|------|-------------------|--|

SP5xxx: Mode

| | | |
|---|-------------|--|
| 1 | Destination | Shows intended destination of the engine board. 0: Japan 1: North America 2: Europe 3: Mainland China 4: Taiwan |
| 2 | SBCU ID | Displays the CPM information for the engine board. For example, 25 (25 cpm), 30 (30 cpm), and so on. |
| 3 | IPU ID | Displays the IPU ID (presently fixed at "30"). |

5.7 SP6XXX: PERIPHERALS

| | | | |
|------|---|---|--|
| 6006 | ADF Registration Adjustment | | |
| 1 | Side-to-Side Registration | | |
| | Adjusts the side-to-side registration of originals with the ARDF. [-3.0 to 3.0 / 0 / 0.1 mm/step] | | |
| 3 | Leading Edge Registration | | |
| | Adjusts the leading registration of originals with the ARDF. [-5.0 to 5.0 / 0 / 0.1 mm/step] | | |
| 5 | Buckle: Duplex Front | Adjust the amount of paper buckle to correct original skew for the front and rear sides. [-5.0 to 5.0 / 0 / 0.1 mm/step] | |
| 6 | Buckle: Duplex Rear | | |
| 7 | Rear Edge Erase | | |
| | Adjusts the erase margin at the original trailing edge. [-5.0 to 5.0 / 0 / 0.1 mm/step] | | |

| | | |
|------|--|--|
| 6007 | ADF Input Check | |
| | Displays the signals received from the sensors and switches of the ARDF. Only Bit 0 is used for ADF input check. | |
| 1 | Original B5 Sensor | 0: Paper not detected 1: Paper detected |
| 2 | Original A4 Sensor | |
| 3 | Original LG Sensor | |
| 4 | Original Width Sensor S | |
| 5 | Original Width Sensor M | |
| 6 | Original Width Sensor L | |
| 7 | Original Width Sensor LL | |

SP6xxx: Peripherals

| | | |
|----|------------------------|--------------------------------|
| 9 | Original Set Sensor | |
| 10 | Rear Edge Detection | |
| 11 | Skew Correction Sensor | |
| 13 | Registration Sensor | |
| 14 | Exit Sensor | |
| 15 | Top Cover Sensor | 0: Cover closed, 1: Cover open |
| 16 | Lift Sensor | 0: ADF closed, 1: ADF open |

| | | |
|------|--|--|
| 6008 | ADF Output Check | |
| | Switches on each electrical component (motors, solenoids, etc.) of the ARDF for testing. | |
| 3 | Feed Motor: Fwd | |
| 4 | Feed Motor: Rev | |
| 5 | Transport Motor: Fwd | |
| 6 | Transport Motor: Rev | |
| 9 | Feed Clutch | |
| 10 | Feed Solenoid | |
| 11 | Junction Gate Solenoid | |
| 12 | Stamp Solenoid | |

| | | |
|------|--|--|
| 6009 | ADF Free Run | |
| | Performs an ARDF free run in duplex mode. Press [ON] to start, press [OFF] to stop. Note: This is a general free run controlled from the copier. | |
| | | |

SP6xxx: Peripherals

| | |
|-------|---|
| 6010* | Stamp Position Adj. |
| | Adjusts the stamp position in the sub-scan direction in fax mode. [-5.0 to +5.0 / 0 / 1 mm/step] |

| 6016* | Original Size Detection Priority | | |
|-------|--|----------------------|------------|
| | Specifies the original size for a size detected by the original sensor, since original sensors cannot recognize all sizes. (7) 0000 0000 (0) Different bits are used for detection, depending on the location as shown below. | | |
| | Bit | Size | Location |
| | 7 | A4 (L)/LT (L) | Japan only |
| | 6 | 11" x 15"/DLT (L) | |
| | 5 | DLT (L)/ 11" x 15" | NA only |
| | 4 | LT (S)/ US Exec (S) | |
| | 3 | LT (L)/ 8" x 10" (L) | |
| | 2 | LG (L)/ F4 (L) | EU/AA only |
| | 1 | A4 (L)/ 16K (L) | |
| | 0 | 8K (L)/ DLT (L) | |

Service
Tables

| | | |
|------|---|--|
| 6017 | Sheet Through Magnification | |
| | Adjusts the magnification in the sub-scan direction for the ARDF. [-5.0 to 5.0 / 0 / 0.1 %/step] | |

| | | |
|------|---|--|
| 6117 | Finisher Input Check | |
| | Displays the signals received from finisher sensors and switches. (See the tables below.) | |

SP6xxx: Peripherals

| | | |
|---|-------------------------|--|
| 1 | Group 1 | |
| 2 | Group 2 | |
| 3 | Group 3 (Only 1000 Fin) | |
| 4 | Group 4 (Only 1000 Fin) | |

Check the status of each item against the 8-digit bit display listed in the table below.

| Number | Bit | Description | Reading | |
|---------|-----|-------------------------------|-----------|-------------|
| | | | 0 | 1 |
| Group 1 | 7 | Stack Feed-out Belt HP Sensor | Activated | Deactivated |
| | 6 | Not Used | | |
| | 5 | Jogger Fence HP Sensor | Activated | Deactivated |
| | 4 | Stapler HP Sensor | Activated | Deactivated |
| | 3 | Stapler Tray Entrance Sensor | Activated | Deactivated |
| | 2 | Not Used | | |
| | 1 | Lower Tray Exit Sensor | Activated | Deactivated |
| | 0 | Entrance Sensor | Activated | Deactivated |

| Number | Bit | Description | Reading | |
|---------|-----|----------------------|-----------|-------------|
| | | | 0 | 1 |
| Group 2 | 7 | Not Used | | |
| | 6 | Not Used | | |
| | 5 | Stapler Ready Signal | Activated | Deactivated |
| | 4 | Not Used | | |

SP6xxx: Peripherals

| Number | Bit | Description | Reading | |
|--------|-----|---------------------------|-----------|-------------|
| | | | 0 | 1 |
| | 3 | Not Used | | |
| | 2 | Staple Sensor | Activated | Deactivated |
| | 1 | Staple Hammer HP Sensor | Activated | Deactivated |
| | 0 | Stapler Tray Paper Sensor | Activated | Deactivated |

| Number | Bit | Description | Reading | |
|---------|-----|-------------------------------|-----------|-------------|
| | | | 0 | 1 |
| Group 3 | 7 | Not Used | | |
| | 6 | Lower Tray Lower Limit Sensor | Activated | Deactivated |
| | 5 | Not used | | |
| | 4 | Stack Height Sensor | Activated | Deactivated |
| | 3 | Not Used | | |
| | 2 | Not Used | | |
| | 1 | Shift HP Sensor | Activated | Deactivated |
| | 0 | Exit Guide HP Sensor | Activated | Deactivated |

| Number | Bit | Description | Reading | |
|---------|-----|-------------|---------|---|
| | | | 0 | 1 |
| Group 4 | 7 | Not Used | | |
| | 6 | Not Used | | |
| | 5 | Not Used | | |

SP6xxx: Peripherals

| Number | Bit | Description | Reading | |
|--------|-----|-------------------------------|-----------|-------------|
| | | | 0 | 1 |
| | 4 | Not Used | | |
| | 3 | Upper Tray Paper Limit Sensor | Activated | Deactivated |
| | 2 | Not Used | | |
| | 1 | Not Used | | |
| | 0 | Not Used | | |

| | | |
|------|--|--|
| 6118 | Finisher Output Check | |
| | Switches on each electrical component of the finisher for testing. Press [1] to switch on or [0] to switch off. | |
| 1 | Upper Transport/Main Motor | |
| 2 | Shift Tray Lift/Tray Motor | |
| 3 | Staple Hammer Motor | |
| 4 | Shift/Jogger Motor | |
| 5 | Lower Transport Motor | |
| 6 | Shift Tray Exit Motor | |
| 7 | Tray Junction Gate Sol | |
| 8 | Jogger Motor | |
| 9 | Stapler Motor | |
| 10 | Stapler Junction Gate Motor | |
| 11 | Positioning Roller Sol | |
| 12 | Stack Feed-Out Motor | |

SP6xxx: Peripherals

| | |
|----|------------------------|
| 13 | Exit Guide Motor |
| 14 | Paddle Sol |
| 15 | Exit Unit Gear Sol |
| 16 | Stack Height Lever Sol |
| 17 | Transport Motor |

| | | |
|------|--|----------------------------------|
| 6128 | Punch Position: Sub Scan | |
| | Adjusts the punching position in the sub scan direction. | |
| 1 | Domestic 2Hole | [-7.5 to 7.5 / 0 / 0.5 mm/step]] |
| | 2 North America 3Hole | |
| | 3 Europe 4Hole | |
| | 4 North Europe 4Hole | |
| | 5 North Europe 2Hole | |

| | | |
|------|---|----------------------------------|
| 6129 | Punch Position: Main Scan | |
| | Adjusts the punching position in the main scan direction. | |
| 1 | Domestic 2Hole | [-2.0 to 2.0 / 0 / 0.4 mm/step]] |
| | 2 North America 3Hole | |
| | 3 Europe 4Hole | |
| | 4 North Europe 4Hole | |
| | 5 North Europe 2Hole | |

| | | |
|------|---|--|
| 6130 | Skew Correction: Buckle Adj. | |
| | Adjusts the paper buckle for each paper size (B793 finisher). | |

SP6xxx: Peripherals

| | | |
|----|-------------|-----------------------------------|
| 1 | A3T (SEF) | |
| 2 | B4T (SEF) | |
| 3 | A4T (SEF) | |
| 4 | A4Y (LEF) | |
| 5 | B5T (SEF) | |
| 6 | B5Y (LEF) | [-5.0 to 5.0 / 0 / 0.25 mm/step]] |
| 7 | DLT-T (SEF) | |
| 8 | LG-T (SEF) | |
| 9 | LT-T (SEF) | |
| 10 | LT-Y (LEF) | |
| 11 | 12" x 18" | |
| 12 | Other | |

| | | |
|------|---|---|
| 6131 | [Skew Correction Control] | |
| | Selects the skew correction control for each paper size. These are only activated for B793. | |
| 1 | A3T (SEF) | [0 to 2 / 1 / 1/step]] 0: No (No skew correction) 1: Roller Stop Skew Correction 2: Roller Reverse Skew Correction |
| 2 | B4T (SEF) | |
| 3 | A4T (SEF) | |
| 4 | A4Y (LEF) | |
| 5 | B5T (SEF) | |
| 6 | B5Y (LEF) | |
| 7 | DLT-T (SEF) | |
| 8 | LG-T (SEF) | |

SP6xxx: Peripherals

| | | |
|----|------------|--|
| 9 | LT-T (SEF) | |
| 10 | LT-Y (LEF) | |
| 11 | 12" x 18" | |
| 12 | Other | |

| | | |
|------|--|-------------|
| 6132 | Jogger Fence Fine Adj | |
| | This SP adjusts the distance between the jogger fences and the sides of the stack on the finisher stapling tray in the Booklet Finisher B793. The adjustment is done perpendicular to the direction of paper feed. | |
| | 1 | A3T (SEF) |
| | 2 | B4T (SEF) |
| | 3 | A4T (SEF) |
| | 4 | A4Y (LEF) |
| | 5 | B5T (SEF) |
| | 6 | B5Y (LEF) |
| | 7 | DLT-T (SEF) |
| | 8 | LG-T (SEF) |
| | 9 | LT-T (SEF) |
| | 10 | LT-Y (LEF) |
| | 11 | 12" x 18" |
| | 12 | Other |

Service
Tables

| | | |
|------|---|--|
| 6133 | Staple Position Adjustment | |
| | Adjusts the staple position for each finisher (B408/B793/D372). + Value: Moves the staple position to the rear side. | |

SP6xxx: Peripherals

| | | |
|---|---|-----------------------------|
| | - Value: Moves the staple position to the front side. | |
| 1 | Finisher 1 (B408/B793) | [-3.5 to 3.5 / 0 / 1/step]] |
| 2 | Finisher 2 (D372) | [-2.0 to 2.0 / 0 / 1/step]] |

| | | |
|------|---|--|
| 6134 | Saddle Stitch Position Adjustment | |
| | Use this SP to adjust the stapling position of the booklet stapler when paper is stapled and folded in the Booklet Finisher B793. | |
| 1 | A3 SEF | [-3.0 to 3.0 / 0 / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease. |
| 2 | B4 SEF | |
| 3 | A4 SEF | |
| 4 | B5 SEF | |
| 5 | DLT-T (SEF) | |
| 6 | LG-T (SEF) | |
| 7 | LT-T (SEF) | |
| 8 | 12" x 18" | |
| 9 | Other | |

| | | |
|------|--|--|
| 6135 | Folder Position Adjustment | |
| | This SP corrects the folding position when paper is stapled and folded in the Booklet Finisher B793. | |
| 1 | A3 SEF | [-3.0 to 3.0 / 0 / 0.2 mm/step] + Value: Shifts staple position toward the crease. - Value: Shifts staple position away from the crease. |
| 2 | B4 SEF | |
| 3 | A4 SEF | |
| 4 | B5 SEF | |
| 5 | DLT-T (SEF) | |

SP6xxx: Peripherals

| | | |
|---|------------|--|
| 6 | LG-T (SEF) | |
| 7 | LT-T (SEF) | |
| 8 | 12" x 18" | |
| 9 | Other | |

| | |
|------|--|
| 6136 | Folding Number |
| | This SP sets the number of times the folding rollers are driven forward and reverse to sharpen the crease of a folded booklet before it exits the folding unit. [2 to 30/2/1 times] |

| | | |
|------|--|--|
| 6137 | Fin. Free Run | |
| | These SPs are used only for B793 finisher. | |
| 1 | Free Run 1 | Free run for paper edge stapling. |
| 2 | Free Run 2 | Free run for booklet stapling. |
| 3 | Free Run 3 | Shipping free run. Simulates standby conditions during shipping. |
| 4 | Free Run 4 | DFU |

Service
Tables

| | | | | |
|------|--|----------|--------------------------|----------|
| 6138 | FIN (TIG) Input Check | | 1000-Sheet Finisher B793 | |
| | Note: The names in parentheses are the names used in the service manuals. | | | |
| | Component | | 0 | 1 |
| 1 | Interference Escape Sensor (Stapler Safety Sensor) | Inactive | Active | |
| 2 | Staple Moving HP Sensor (Staple Unit HP Sensor) | Not HP | At HP | |

SP6xxx: Peripherals

| | | | |
|----|---|----------|----------|
| 3 | Stuck Relay1 Release HP Sensor (Stopper S HP Sensor) | Not HP | At HP |
| 4 | Exit Junction Gate HP Sensor (Stack Feed Out HP Sensor) | At HP | Not HP |
| 5 | Jogger HP Sensor (Jogger Fence HP Sensor) | Not HP | At HP |
| 6 | Staple Tray Paper Sensor (Staple Tray Paper Sensor) | No Paper | Paper |
| 7 | Rear Edge Fence HP Sensor (Paper Stack Stopper HP Sensor) | Not HP | At HP |
| 8 | Saddle Stitch Exit Sensor | Paper | No Paper |
| 9 | Stuck Relay2 Roller HP Sensor (Clamp Roller HP Sensor) | At HP | Not HP |
| 10 | Folder Tray Full Sensor 1 (Bottom Tray HP 1 Sensor) | Full | Not full |
| 11 | Folder Tray Full Sensor 2 (Bottom Tray HP 2 Sensor) | Not full | Full |
| 12 | Folder Plate HP Sensor (Fold Plate HP Sensor) | Not HP | At HP |
| 13 | Saddle Stitch Arrival Sensor (Fold Unit Entrance Sensor) | No Paper | Paper |
| 14 | Folder Cam HP Sensor (Fold Plate Cam HP Sensor) | Not HP | At HP |
| 15 | Staple Exit Sensor (Stapler Tray Exit Sensor) | Paper | No Paper |
| 16 | Shift Tray Paper Sensor (Shift Tray Paper Position Sensor) | No Tray | Tray |
| 17 | Shift Tray Full | Full | Not full |

SP6xxx: Peripherals

| | | | |
|----|--|----------------|--------------|
| 18 | Shift Roller HP Sensor | Not HP | At HP |
| 20 | Entrance Sensor (Finisher Entrance Sensor) | Paper | No Paper |
| 21 | Shift Exit Sensor (Shift Tray Exit Sensor) | No Paper | Paper |
| 22 | Proof Exit Sensor (Proof Tray Exit Sensor) | Paper | No Paper |
| 23 | Exit Guide Plate HP Sensor | Not HP | At HP |
| 24 | Proof Full Sensor (Proof Tray Full Sensor) | Not full | Full |
| 25 | Upper Cover Sensor | Open | Close |
| 26 | Door SW (Front Door Switch) | Close | Open |
| 27 | Clincher Timing Sensor | Encoder | |
| 28 | Clincher HP Sensor | At HP | Not HP |
| 29 | Driver Timing Sensor | Encoder | |
| 30 | Staple Near End | Staples Remain | Staples N.E. |
| 31 | Self Priming | Staples | No Staples |
| 32 | Driver HP Sensor | At HP | Not HP |
| 33 | Punch Registration Detection HP Sensor | Not HP | At HP |
| 34 | Punch Moving HP Sensor (Punch Movement HP Sensor) | Not HP | At HP |
| 35 | Punch HP Sensor (Punch HP Sensor) | At HP | Not HP |
| 36 | Punch Pulse Count Sensor (Punch Encoder Sensor) | Encoder | |

SP6xxx: Peripherals

| | | | |
|----|--|----------|----------|
| 37 | Punch Chad Full Sensor (Punch Hopper Full Sensor) | Not full | Full |
| 38 | Punch Registration Detection Sensor (Paper Position Sensor) | Paper | No Paper |

| | | | |
|------|--|--------------------------|------------|
| 6139 | FIN (KIN) Input Check | 1000-Sheet Finisher B408 | |
| | Note: The names in parentheses are the names used in the service manuals. | | |
| | Component | 0 | 1 |
| 1 | Entrance Sensor | Paper | No Paper |
| 2 | Shift Exit Sensor (Lower Tray Exit Sensor) | No Paper | Paper |
| 3 | Staple Entrance Sensor (Stapler Tray Entrance Sensor) | Paper | No Paper |
| 4 | Staple Moving HP Sensor (Stapler HP Sensor) | Not HP | At HP |
| 5 | Jogger HP Sensor (Jogger Fence HP Sensor) | Not HP | At HP |
| 6 | Stack Feed-out Belt HP Sensor | At HP | Not HP |
| 7 | Staple Tray Paper Sensor | No Paper | Paper |
| 8 | Staple Rotation Sensor (Staple Rotation HP Sensor) | Not HP | At HP |
| 9 | Staple Sensor | Staples | No Staples |
| 10 | Staple READY Detection | Staples | No Staples |
| 11 | Exit Guide Plate HP (Exit Guide Plate HP Sensor) | Not HP | At HP |
| 12 | Shift HP Sensor | Not HP | At HP |

SP6xxx: Peripherals

| | | | |
|----|--|-------------|-----------------|
| 13 | Paper Sensor (Stack Height Sensor) | No Tray | Tray |
| 14 | Tray Lower Sensor (Lower Tray Lower Limit Sensor) | Lower limit | Not Lower Limit |
| 15 | Proof Full Sensor (Paper Limit Sensor) | Not Full | Full |

| 6143 | FIN (TIG) Output Check | 1000-Sheet Finisher B793 | |
|--|--|-----------------------------|--|
| | Displays the signals received from sensors and switches of the booklet finisher. | | |
| Note: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals. | | | |
| Display | Component | | |
| 1 | Shift Motor | Shift Tray Motor | |
| 2 | Entrance Motor | - | |
| 3 | Staple Relay Motor | Stapler Unit Motor | |
| 4 | Knock Solenoid | | |
| 5 | Junction Gate SOL 1 | Proof Tray Gate Solenoid | |
| 6 | Junction Gate SOL 2 | Staple Tray Gate Solenoid | |
| 7 | Folder Roller Rotation Motor | Fold Roller Motor | |
| 8 | Staple Motor | Staple Fold Motor | |
| 10 | Exit Guide Plate Motor | - | |
| 11 | Shift Relay Motor | Upper Transport Motor | |
| 12 | Tray Motor | Shift Tray Motor | |
| 13 | Stack Feed-out Motor | Positioning Roller Solenoid | |
| 14 | Stuck Relay1 Motor | Upper Clamp Roller Motor | |

SP6xxx: Peripherals

| | | |
|----|---------------------------------|-----------------------------------|
| 15 | Stuck Relay1 Release Motor | Upper Retraction Motor |
| 16 | Rear Edge Fence Drive Motor | Bottom Fence Lift Motor |
| 17 | Folder Plate Motor | - |
| 18 | Drive Roller Oscillating Motor | Lower Retraction Motor |
| 19 | Staple Moving Motor | Staple Unit Driver Motor |
| 20 | Jogger Motor | Jogger Motor |
| 21 | Punch Registration Moving Motor | Paper Position Sensor Slide Motor |
| 22 | Punch Motor | - |
| 23 | Punch Moving Motor | Punch Movement Motor |

| 6144 | FIN (KIN) Output Check | 1000-Sheet Finisher B408 | |
|--|--|--------------------------|--------------------------------|
| | Displays the signals received from sensors and switches of the booklet finisher. | | |
| Note: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals. | | | |
| | | Display | Component |
| 1 | | Relay Up Motor | Upper Transport Motor |
| 2 | | Relay Down Motor | Lower Transport Motor |
| 3 | | Exit Motor | - |
| 4 | | Proof Junction Gate SOL | Tray Junction Gate Solenoid |
| 5 | | Tray Up Motor | Lower Tray Lift Motor |
| 6 | | Jogger Motor | Jogger Fence Motor |
| 7 | | Staple Moving Motor | Stapler Motor |
| 8 | | Staple Motor | Stapler Hammer |
| 9 | | Staple Junction Gate SOL | Stapler Junction Gate Solenoid |

SP6xxx: Peripherals

| | | |
|----|-----------------------------|-----------------------------|
| 10 | Positioning Roller Solenoid | Positioning Roller Solenoid |
| 11 | Stack Feed-out Motor | - |
| 12 | Shift Motor | - |
| 13 | Exit Guide Plate Motor | - |

| 6145 | FIN (ELB) Input Check | 500-Sheet Finisher D372 | |
|------|---|-------------------------|----------|
| | Displays the signals received from sensors and switches of the finisher. | | |
| | Note: | | |
| | <ul style="list-style-type: none"> ▪ The names in parentheses below are the names used in the service manuals. ▪ "0" means LOW, "1" means HIGH. | | |
| | Component | 0 | 1 |
| 1 | Entrance Sensor | Paper | No Paper |
| 2 | Hitroll HP Sensor (Positioning Roller HP Sensor) | Not HP | At HP |
| 3 | Front Jogger HP Sensor (Front Fence HP Sensor) | Not HP | At HP |
| 4 | Rear Jogger HP Sensor (Rear Fence HP Sensor) | Not HP | At HP |
| 5 | Staple Tray Paper Sensor | Paper | No Paper |
| 6 | Staple Moving HP Sensor (Stapler HP Sensor) | Not HP | At HP |
| 7 | Stack Feed-Out Belt HP Sensor | Not HP | At HP |
| 8 | Shift Tray Paper Sensor | Not HP | At HP |
| 9 | Upper Cover Sensor | Not HP | At HP |
| 10 | Stapler Rotation Sensor | HP | Not HP |

Service Tables

SP6xxx: Peripherals

| | | | |
|----|--|----------|--------|
| 11 | Staple Near End Sensor | HP | Not HP |
| 12 | Self Priming (Stapler) | HP | Not HP |
| 13 | Shift Tray Limit Sensor (Tray Upper Limit SW) | Not Full | Full |

| 6146 | FIN (ELB) Output Check | 500-Sheet Finisher D372 | |
|------|--|--|--|
| | Displays the signals received from sensors and switches of the booklet finisher. | Note: In the table below, "Display" is what you see on the screen, and "Component" is the name used in the service manuals. | |
| | Display | Component | |
| 1 | Carry Motor | Transport Motor | |
| 2 | Hitroll Motor | Positioning Roller Arm Motor | |
| 3 | Front Jogger Motor | Front Fence Motor | |
| 4 | Rear Jogger Motor | Rear Fence Motor | |
| 5 | Staple Moving Motor | Stapler Movement Motor | |
| 6 | Stack Feed-Out Motor | Feed-Out Belt Motor | |
| 7 | Tray Motor | Tray Lift Motor | |
| 8 | Staple Motor | Stapler Motor | |
| 9 | Stopper Solenoid | Stack Depressor Solenoid | |

5.8 SP7XXX: DATA LOG

| | |
|-------|---|
| 7001* | Main Motor Operation Time |
| | The number of prints and drive time for drum revolutions can be obtained by counting the main motor revolution time. If the amount of the time required for the drum to revolve to print 1 copy increases, this data combined with the number of copies can be used to analyze problems and could be useful for future product development. Display: 0000000 to 9999999 min. |

| | |
|-------|--|
| 7401* | Total SC Counter |
| | Displays the total number of service calls that have occurred. |

| | | |
|-------|------------|--|
| 7403* | SC History | Displays the most recent 10 service calls. |
| 1 | Latest | |
| 2 | Latest 1 | |
| 3 | Latest 2 | |
| 4 | Latest 3 | |
| 5 | Latest 4 | |
| 6 | Latest 5 | |
| 7 | Latest 6 | |
| 8 | Latest 7 | |
| 9 | Latest 8 | |
| 10 | Latest 9 | |

| | |
|-------|-------------------------|
| 7502* | Total Paper Jam Counter |
|-------|-------------------------|

SP7xxx: Data Log

| | |
|-------|---|
| | Displays the total number of paper jams. |
| 7503* | <p>Total Original Jam Counter</p> <p>Displays the total number of original jams.</p> |
| 12 | Trans 2 Sn: Late |
| 7504* | <p>Paper Jam Location</p> <p>These SPs display the total number of paper jams by location. A “Check-in” (paper late) error occurs when the paper fails to activate the sensor at the precise time.</p> <p>Note</p> <ul style="list-style-type: none"> ▪ Lag. Jam occurs when the paper remains at the sensor for longer than the prescribed time. ▪ Late: Jam occurs because paper fails to arrive at the prescribed time. ▪ KIN. 1000-Sheet Finisher (B408) ▪ TIG. 1000-Sheet Finisher (B793) ▪ ELB. 500-Sheet Finisher (D372) |
| 1 | At Power On |
| 3 | Tray 1: No Feed |
| 4 | Tray 2: No Feed |
| 5 | Tray 3: No Feed |
| 6 | Tray 4: No Feed |
| 7 | LCT: No Feed |
| 8 | Bypass PE Sn: Off |
| 9 | Duplex: No Feed |
| 11 | Trans 1 Sn: Late |
| 13 | Bank Trans 1: Late |

SP7xxx: Data Log

| | |
|-----|-------------------------|
| 12 | Trans 2 Sn: Late |
| 17 | Registration Sn: Late |
| 20 | Main Exit Sn: Late |
| 21 | Bridge Exit Sn: Late |
| 22 | Bridge Trans Sn: Late |
| 25 | Junction Gate Sn: Late |
| 26 | Jct Inv Sn: Late |
| 27 | Duplex Ent Sn: Late |
| 51 | Trans 1 Sn: Lag |
| 52 | Trans 2 Sn: Lag |
| 53 | Trans 3 Sn: Lag |
| 57 | Registration Sn: Lag |
| 58 | LCT Trans Sn: Lag |
| 60 | Main Ex Sn: Lag |
| 61 | Bridge Ex Sn: Lag |
| 62 | Bridge Trans Sn: Lag |
| 65 | Jct Gate Sn: Lag |
| 66 | Jct Inv Sn: Lag |
| 67 | Duplex Ent Sn: Lag |
| 100 | FIN Entrance: KIN |
| 101 | FIN Shift Tray Exit:KIN |
| 102 | FIN Staple: KIN |
| 103 | FIN Exit: KIN |

SP7xxx: Data Log

| | |
|-----|--------------------------------|
| 12 | Trans 2 Sn: Late |
| 105 | FIN Tray Lift Motor: KIN |
| 106 | FIN Jogger Motor: KIN |
| 107 | FIN Shift Motor: KIN |
| 108 | FIN Staple Motor: KIN |
| 109 | FIN Exit Motor: KIN |
| 130 | FIN Entrance: TIG |
| 131 | FIN Proof Tray Exit: TIG |
| 132 | FIN Shift Tray: TIG |
| 133 | FIN Staple Exit: TIG |
| 134 | FIN Exit: TIG |
| 135 | FIN Fold: TIG |
| 136 | FIN Fold: TIG |
| 137 | FIN Guide Gate Motor: TIG |
| 138 | FIN Staple Shift Motor: TIG |
| 139 | FIN Paper Punch Motor: TIG |
| 140 | FIN Tray Lift Motor: TIG |
| 141 | FIN Jogger Motor: TIG |
| 142 | FIN Shift Motor: TIG |
| 143 | FIN Staple Motor: TIG |
| 144 | FIN Staple Motor: TIG |
| 145 | FIN Exit Motor: TIG |
| 146 | FIN Stack Release Motor 1: TIG |

SP7xxx: Data Log

| | |
|-----|--------------------------------|
| 12 | Trans 2 Sn: Late |
| 147 | FIN Stack Release Motor 2: TIG |
| 148 | FIN Stopper Motor: TIG |
| 160 | Entrance Sensor On: ELB |
| 161 | Entrance Sensor Off: ELB |
| 162 | FIN Entrance: ELB |
| 163 | Positioning Roller: ELB |
| 164 | Front Jogger Motor: ELB |
| 165 | Rear Jogger Motor: ELB |
| 166 | Exit Motor: ELB |
| 167 | FIN Staple Shift Motor: ELB |
| 168 | FIN Staple Motor: ELB |
| 169 | FIN Tray Lift Motor: ELB |
| 170 | FIN Stack Height SOL: ELB |

Service
Tables

| | |
|------|---|
| 7505 | Original Jam Location |
| | Displays the total number of original jams by location. These jams occur when the original does not activate the sensors. |
| | Note <ul style="list-style-type: none"> ▪ Lag: Jam occurs when the paper remains at the sensor for longer than the prescribed time. ▪ Late: Jam occurs because paper fails to arrive at the prescribed time. |
| 1 | At Power On |
| 3 | Skew Correction Sn: Late |
| 4 | Registration Sn: Late |

SP7xxx: Data Log

| | |
|----|-------------------------|
| 5 | Exit Sn: Late |
| 53 | Skew Correction Sn: Lag |
| 54 | Registration Sn: Lag |
| 55 | Exit Sn: Lag |

| | |
|-------|-------------------------|
| 7506* | Jam Count by Paper Size |
| 5 | A4 LEF |
| 6 | A5 LEF |
| 14 | B5 LEF |
| 38 | LT LEF |
| 44 | HLT LEF |
| 132 | A3 SEF |
| 133 | A4 SEF |
| 134 | A5 SEF |
| 141 | B4 SEF |
| 142 | B5 SEF |
| 160 | DLT SEF |
| 164 | LG SEF |
| 166 | LT SEF |
| 172 | HLT SEF |
| 255 | Others |

Displays the total number of copy jams by paper size.

| | | |
|--------|---------------------|---|
| 7507* | Plotter Jam History | |
| 7507 1 | Last | Displays the copy jam history (the most recent 10 jams) |

SP7xxx: Data Log

| 7507 2 | Latest 1 | <p>Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE: Mon Mar 15 11:44:50 2000 where: CODE is the SP7504-*** number (see above). SIZE is the ASAP paper size code in hex. TOTAL is the total jam error count (SP7502) DATE is the date the jams occurred.</p> | | | |
|---------|----------|--|------|---------|------|
| 7507 3 | Latest 2 | | | | |
| 7507 4 | Latest 3 | | | | |
| 7507 5 | Latest 4 | | | | |
| 7507 6 | Latest 5 | | | | |
| 7507 7 | Latest 6 | | | | |
| 7507 8 | Latest 7 | | | | |
| 7507 9 | Latest 8 | | | | |
| 7507 10 | Latest 9 | | | | |
| Size | Code | Size | Code | Size | Code |
| A4 (S) | 05 | A3 (L) | 84 | DLT (L) | A0 |
| A5 (S) | 06 | A4 (L) | 85 | LG (L) | A4 |
| B5 (S) | 0E | A5 (L) | 86 | LT (L) | A6 |
| LT (S) | 26 | B4 (L) | 8D | HLT (L) | AC |
| HLT (S) | 2C | B5 (L) | 8E | Others | FF |

Service
Tables

| | | |
|-------|----------------------|---|
| 7508* | Original Jam History | |
| 1 | Last | <p>Displays the original jam history (the most recent 10 jams). Sample Display: CODE:007 SIZE:05h TOTAL:0000334 DATE: Mon Mar 15 11:44:50 2000 where: CODE is the SP7505-*** number (see above). SIZE is the ASAP paper size code in hex. TOTAL is the total error count (SP7503)</p> |
| 2 | Last 1 | |
| 3 | Last 2 | |
| 4 | Last 3 | |
| 5 | Last 4 | |
| 6 | Last 5 | |
| 7 | Last 6 | |

SP7xxx: Data Log

| | | |
|----|--------|-------------------------------------|
| 8 | Last 7 | DATE is the date the jams occurred. |
| 9 | Last 8 | |
| 10 | Last 9 | |

| | |
|------|---|
| 7801 | ROM No./Firmware Version |
| | This SP codes display the firmware versions of all ROMs in the system, including the mainframe, the ARDF, and peripheral devices. |

| | | |
|-------|--|--|
| 7803* | PM Counter Display | |
| | Displays the PM counter since the last PM. | |
| 1 | Paper | |
| 2 | Sheets 60K Part | |
| 3 | Sheets 120K Part | |
| 4 | Distance (m) 60 K | |
| 5 | Distance (m) 120 | |
| 6 | Distance 60K | |
| 7 | Distance 120K | |

| | | |
|------|--|--|
| 7804 | PM Counter Resets | |
| | Resets the PM counter. To reset, press Execute on the touch panel. | |
| 1 | Paper | |
| 2 | Sheets 60K | |
| 3 | Sheets 120K | |

| | |
|------|----------------------|
| 7807 | SC/Jam Counter Reset |
|------|----------------------|

SP7xxx: Data Log

| | |
|--|--|
| | <p>Resets the SC and jam counters. To reset, press Execute on the touch panel.</p> <p>This SP does not reset the jam history counters: SP7507, SP7508.</p> |
|--|--|

| | | |
|------|--|---|
| 7826 | MF Error Counter Japan Only | |
| | Displays the number of counts requested of the card/key counter. | |
| 1 | Error Total | A request for the count total failed at power on. This error will occur if the device is installed but disconnected. |
| 2 | Error Staple | The request for a staple count failed at power on. This error will occur if the device is installed but disconnected. |

| | | |
|------|---|--|
| 7827 | MF Error Counter Clear Japan Only | |
| | Press Execute to reset to 0 the values of SP7826. Japan Only | |

| | | |
|------|--|--|
| 7832 | Self-Diagnose Result Display | |
| | Execute to open the “Self-Diagnostics Result Display” to view details about errors. Use the keys in the display on the touch-panel to scroll through all the information. If no errors have occurred, you will see the “No Error” message on the screen. | |

Service
Tables

| | | |
|------|---|--|
| 7834 | Coverage Data Clear | |
| | These SPs clear the counters for the following items. | |
| 1 | Last & Average | |
| 2 | No. of Toner Bottles | |
| 3 | Page Count: Bottle | |
| 4 | Dot Coverage Clear | |
| 255 | All Coverage Data | |

SP7xxx: Data Log

| | |
|------|--|
| 7836 | Total Memory Size |
| | Displays the memory capacity of the controller system. |

| | | |
|-------|---|---|
| 7852* | ADF Exposure Glass | |
| | Counts the number of occurrences (0 to 65,535) when dust was detected on the scanning glass of the ADF. | |
| 1* | Dust Check Counter | Counts the occurrences. Counting is done only if SP4020 1 (ADF Scan Glass Dust Check) is switched on. |
| 2* | Dust Check Counter Clear | Clears the count. Memory All Clear (SP5801) resets this counter to zero. |

| | | |
|------|--|--|
| 7856 | Zero Cross | |
| | Stores and displays the detected zero cross frequency for main power ac. | |

| | | |
|-------|---|---|
| 7901* | Assert Info. DFU | |
| | These SP numbers display the results of the occurrence of the most recent SC code generated by the machine. | |
| 1* | File Name | Module name |
| 2* | Number of Lines | Number of the lines where error occurred. |
| 3* | Location | Value |

| | | |
|------|---|--|
| 7906 | Last PM Count | |
| | Displays the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life). | |
| 1 | Paper | |

SP7xxx: Data Log

| | | |
|---|-------------------|--|
| 2 | Sheets 60K Part | |
| 3 | Sheets 120K Part | |
| 4 | Distance (m) 60 K | |
| 5 | Distance (m) 120 | |
| 6 | Distance 60K | |
| 7 | Distance 120K | |

| | | |
|------|---|--|
| 7907 | Before 2 PM Count | |
| | Displays the PM count before the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life). | |
| 1 | Paper | |
| 2 | Sheets 60K Part | |
| 3 | Sheets 120K Part | |
| 4 | Distance (m) 60 K | |
| 5 | Distance (m) 120 K | |
| 6 | Distance 60K | |
| 7 | Distance 120K | |

Service
Tables

| | | |
|------|---|--|
| 7908 | Before 3 PM Count | |
| | Displays the PM count two counts the most recent PM count for 60K and 120K service parts ("60K" and "120" refer to service life). | |
| 1 | Paper | |
| 2 | Sheets 60K Part | |
| 3 | Sheets 120K Part | |
| 4 | Distance (m) 60 K | |

SP7xxx: Data Log

| | | |
|---|--------------------|--|
| 5 | Distance (m) 120 K | |
| 6 | Distance 60K | |
| 7 | Distance 120K | |

| | |
|------|---|
| 7909 | PCU Counter Display |
| | Displays the value of the PCU counter (number of copies since the last PCU change). |

| | | | | |
|------|---|---------------|-------|---------------|
| 7999 | Engine Debug Log Switch | | | |
| | This SP switches the contents of the debug log. | | | |
| | 0 | RHM log (all) | 4 | Scanner log 2 |
| | 1 | Plotter log | 5 | Scanner log 3 |
| | 2 | Print log | 6 | Scanner log 4 |
| | 3 | Scanner log 1 | 7-255 | RHM log (all) |

5.9 SP8XXX: DATA LOG 2

Many of these counters are provided for features that are currently not available, such as sending color faxes, and so on. However, here are some Group 8 codes that when used in combination with others, can provide useful information.

| SP Numbers | What They Do |
|-----------------|--|
| SP8211 - SP8216 | The number of pages scanned to the document server. |
| SP841 - SP8406 | The number of pages printed from the document server |
| SP8691 - SP8696 | The number of pages sent from the document server |

Specifically, the following questions can be answered:

- How is the document server actually being used?
- What application is using the document server most frequently?
- What data in the document server is being reused?

Most of the SPs in this group are prefixed with a letter that indicates the mode of operation (the mode of operation is referred to as an ‘application’). Before reading the Group 8 Service Table, make sure that you understand what these prefixes mean.

| Prefixes | What It Means | |
|----------|---------------------------------|---|
| T: | Total: (Grand Total). | Grand total of the items counted for all applications (C, F, P, etc.). |
| C: | Copy application. | |
| F: | Fax application. | |
| P: | Print application. | |
| S: | Scan application. | |
| L: | Local storage (document server) | Totals (jobs, pages, etc.) for the document server. The L: counters work differently case by case. Sometimes, they count jobs/pages stored on the document server; this can be in |

SP8xxx: Data Log 2

| Prefixes | What It Means | |
|----------|--|--|
| | | document server mode (from the document server window), or from another mode, such as from a printer driver or by pressing the Store File button in the Copy mode window. Sometimes, they include occasions when the user uses a file that is already on the document server. Each counter will be discussed case by case. |
| O: | Other applications (external network applications, for example) | Refers to network applications such as Web Image Monitor. Utilities developed with the SDK (Software Development Kit) will also be counted with this group in the future. |

The Group 8 SP codes are limited to 17 characters, forced by the necessity of displaying them on the small LCDs of printers and faxes that also use these SPs. Read over the list of abbreviations below and refer to it again if you see the name of an SP that you do not understand.

Key for Abbreviations

| Abbreviation | What It Means |
|--------------|---|
| / | “By”, e.g. “T:Jobs/Apl” = Total Jobs “by” Application |
| > | More (2> “2 or more”, 4> “4 or more” |
| AddBook | Address Book |
| Apl | Application |
| B/W | Black & White |
| Bk | Black |
| C | Cyan |
| ColCr | Color Create |

SP8xxx: Data Log 2

| Abbreviation | What It Means |
|---------------------|--|
| ColMode | Color Mode |
| Comb | Combine |
| Comp | Compression |
| Deliv | Delivery |
| DesApl | Designated Application. The application (Copy, Fax, Scan, Print) used to store the job on the document server, for example. |
| Dev Counter | Development Count, no. of pages developed. |
| Dup, Duplex | Duplex, printing on both sides |
| Emul | Emulation |
| FC | Full Color |
| FIN | Post-print processing, i.e. finishing (punching, stapling, etc.) |
| Full Bleed | No Margins |
| GenCopy | Generation Copy Mode |
| GPC | Get Print Counter. For jobs 10 pages or less, this counter does not count up. For jobs larger than 10 pages, this counter counts up by the number that is in excess of 10 (e.g., for an 11-page job, the counter counts up 11-10 =1) |
| IFax | Internet Fax |
| ImgEdt | Image Edit performed on the original with the copier GUI, e.g. border removal, adding stamps, page numbers, etc. |
| K | Black (YMCK) |
| LS | Local Storage. Refers to the document server. |
| LSize | Large (paper) Size |
| Mag | Magnification |

SP8xxx: Data Log 2

| Abbreviation | What It Means |
|--------------|---|
| MC | One color (monochrome) |
| NRS | New Remote Service, which allows a service center to monitor machines remotely. "NRS" is used overseas, "CSS" is used in Japan. |
| Org | Original for scanning |
| OrgJam | Original Jam |
| Palm 2 | Print Job Manager/Desktop Editor: A pair of utilities that allows print jobs to be distributed evenly among the printers on the network, and allows files to be moved around, combined, and converted to different formats. |
| PC | Personal Computer |
| PGS | Pages. A page is the total scanned surface of the original. Duplex pages count as two pages, and A3 simplex count as two pages if the A3/DLT counter SP is switched ON. |
| PJob | Print Jobs |
| Ppr | Paper |
| PrtJam | Printer (plotter) Jam |
| PrtPGS | Print Pages |
| R | Red (Toner Remaining). Applies to the wide format model A2 only. This machine is under development and currently not available. |
| Rez | Resolution |
| SC | Service Code (Error SC code displayed) |
| Scn | Scan |
| Sim, Simplex | Simplex, printing on 1 side. |
| S-to-Email | Scan-to-E-mail |
| SMC | SMC report printed with SP5990. All of the Group 8 counters are |

SP8xxx: Data Log 2

| Abbreviation | What It Means |
|--------------|------------------------------|
| | recorded in the SMC report. |
| Svr | Server |
| TonEnd | Toner End |
| TonSave | Toner Save |
| TXJob | Send, Transmission |
| YMC | Yellow, Magenta, Cyan |
| YMCK | Yellow, Magenta, Cyan, Black |

 Note

- All of the Group 8 SPs are reset with SP5 801 1 Memory All Clear, or the Counter Reset SP7 808.

| | | |
|------|--------------|--|
| 8001 | T:Total Jobs | These SPs count the number of times each application is used to do a job. [0 to 9999999/ 0 / 1] Note: The L: counter is the total number of times the other applications are used to send a job to the document server, plus the number of times a file already on the document server is used. |
| 8002 | C:Total Jobs | |
| 8003 | F:Total Jobs | |
| 8004 | P:Total Jobs | |
| 8005 | S:Total Jobs | |
| 8006 | L:Total Jobs | |

Service
Tables

- These SPs reveal the number of times an application is used, not the number of pages processed.
- When an application is opened for image input or output, this counts as one job.
- Interrupted jobs (paper jams, etc.) are counted, even though they do not finish.
- Only jobs executed by the customer are counted. Jobs executed by the customer engineer using the SP modes are not counted.
- When using secure printing (when a password is required to start the print job), the job is counted at the time when either "Delete Data" or "Specify Output" is specified.
- A job is counted as a fax job when the job is stored for sending.

SP8xxx: Data Log 2

- When a fax is received to fax memory, the F: counter increments but the L: counter does not (the document server is not used).
- A fax broadcast counts as one job for the F: counter (the fax destinations in the broadcast are not counted separately).
- A fax broadcast is counted only after all the faxes have been sent to their destinations. If one transmission generates an error, then the broadcast will not be counted until the transmission has been completed.
- A printed fax report counts as one job for the F: counter.
- The F: counter does not distinguish between fax sending or receiving.
- When a copy job on the document server is printed, SP8022 also increments, and when a print job stored on the document server is printed, SP8024 also increments.
- When an original is both copied and stored on the document server, the C: and L: counters both increment.
- When a print job is stored on the document server, only the L: counter increments.
- When the user presses the Document Server button to store the job on the document server, only the L: counter increments.
- When the user enters document server mode and prints data stored on the document server, only the L: counter increments.
- When an image received from Palm 2 is received and stored, the L: counter increments.
- When the customer prints a report (user code list, for example), the O: counter increments. However, for fax reports and reports executed from the fax application, the F: counter increments.

| | | |
|------|-----------|--|
| 8011 | T:Jobs/LS | These SPs count the number of jobs stored to the document server by each application, to reveal how local storage is being used for input. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. |
| 8012 | C:Jobs/LS | |
| 8013 | F:Jobs/LS | |
| 8014 | P:Jobs/LS | |
| 8015 | S:Jobs/LS | |
| 8016 | L:Jobs/LS | |
| 8017 | O:Jobs/LS | |

SP8xxx: Data Log 2

- When a scan job is sent to the document server, the S: counter increments. When you enter document server mode and then scan an original, the L: counter increments.
- When a print job is sent to the document server, the P: counter increments.
- When a network application sends data to the document server, the O: counter increments.
- When an image from Palm 2 is stored on the document server, the O: counter increments.
- When a fax is sent to the document server, the F: counter increments.

| | | |
|------|-----------|---|
| 8021 | T:Pjob/LS | |
| 8022 | C:Pjob/LS | These SPs reveal how files printed from the document server were stored on the document server originally. [0 to 9999999/ 0 / 1] |
| 8023 | F:Pjob/LS | |
| 8024 | P:Pjob/LS | |
| 8025 | S:Pjob/LS | The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel. |
| 8026 | L:Pjob/LS | |
| 8027 | O:Pjob/LS | |

- When a copy job stored on the document server is printed with another application, the C: counter increments.
- When an application like DeskTopBinder merges a copy job that was stored on the document server with a print job that was stored on the document server, the C: and P: counters both increment.
- When a job already on the document server is printed with another application, the L: counter increments.
- When a scanner job stored on the document server is printed with another application, the S: counter increments. If the original was scanned from within document server mode, then the L: counter increments.
- When images stored on the document server by a network application (including Palm 2), are printed with another application, the O: counter increments.
- When a copy job stored on the document server is printed with a network application (Web Image Monitor, for example), the C: counter increments.
- When a fax on the document server is printed, the F: counter increments.

SP8xxx: Data Log 2

| | | |
|------|---------------|---|
| 8031 | T:Pjob/DesApl | <p>These SPs reveal what applications were used to output documents from the document server. [0 to 9999999/ 0 / 1]</p> <p>The L: counter counts the number of jobs printed from within the document server mode screen at the operation panel.</p> |
| 8032 | C:Pjob/DesApl | |
| 8033 | F:Pjob/DesApl | |
| 8034 | P:Pjob/DesApl | |
| 8035 | S:Pjob/DesApl | |
| 8036 | L:Pjob/DesApl | |
| 8037 | O:Pjob/DesApl | |

- When documents already stored on the document server are printed, the count for the application that started the print job is incremented.
- When the print job is started from a network application (Desk Top Binder, Web Image Monitor, etc.) the L: counter increments.

| | | |
|------|--------------|---|
| 8041 | T:TX Jobs/LS | <p>These SPs count the applications that stored files on the document server that were later accessed for transmission over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). [0 to 9999999/ 0 / 1]</p> <p>Note:</p> <ul style="list-style-type: none"> ▪ Jobs merged for sending are counted separately. ▪ The L: counter counts the number of jobs scanned from within the document server mode screen at the operation panel. |
| 8042 | C:TX Jobs/LS | |
| 8043 | F:TX Jobs/LS | |
| 8044 | P:TX Jobs/LS | |
| 8045 | S:TX Jobs/LS | |
| 8046 | L:TX Jobs/LS | |
| 8047 | O:TX Jobs/LS | |

- When a stored copy job is sent from the document server, the C: counter increments.
- When images stored on the document server by a network application or Palm2 are sent as an e-mail, the O: counter increments.

SP8xxx: Data Log 2

| | | |
|------|------------------|---|
| 8051 | T:TX Jobs/DesApl | These SPs count the applications used to send files from the document server over the telephone line or over a network (attached to an e-mail, or as a fax image by I-Fax). Jobs merged for sending are counted separately. [0 to 9999999/ 0 / 1] The L: counter counts the number of jobs sent from within the document server mode screen at the operation panel. |
| 8052 | C:TX Jobs/DesApl | |
| 8053 | F:TX Jobs/DesApl | |
| 8054 | P:TX Jobs/DesApl | |
| 8055 | S:TX Jobs/DesApl | |
| 8056 | L:TX Jobs/DesApl | |
| 8057 | O:TX Jobs/DesApl | |

- If the send is started from Desk Top Binder or Web Image Monitor, for example, then the O: counter increments.

| | | |
|------|--|-----------------------|
| 8061 | T:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total the finishing methods. The finishing method is specified by the application. | |
| 8062 | C:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for copy jobs only. The finishing method is specified by the application. | |
| 8063 | F:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for fax jobs only. The finishing method is specified by the application. Note: Finishing features for fax jobs are not available at this time. | |
| 8064 | P:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for print jobs only. The finishing method is specified by the application. | |
| 8065 | S:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for scan jobs only. The finishing method is specified by the application. | |

SP8xxx: Data Log 2

| | | |
|--------|--|---|
| | Note: Finishing features for scan jobs are not available at this time. | |
| 8066 | L:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for jobs output from within the document server mode screen at the operation panel. The finishing method is specified from the print window within document server mode. | |
| 8067 | O:FIN Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs total finishing methods for jobs executed by an external application, over the network. The finishing method is specified by the application. | |
| 806x 1 | Sort | Number of jobs started in Sort mode. When a stored copy job is set for Sort and then stored on the document server, the L: counter increments. (See SP8066 1) |
| 806x 2 | Stack | Number of jobs started out of Sort mode. |
| 806x 3 | Staple | Number of jobs started in Staple mode. |
| 806x 4 | Booklet | Number of jobs started in Booklet mode. If the machine is in staple mode, the Staple counter also increments. |
| 806x 5 | Z-Fold | Number of jobs started in any mode other than the Booklet mode and set for folding (Z-fold). |
| 806x 6 | Punch | Number of jobs started in Punch mode. When Punch is set for a print job, the P: counter increments. (See SP8064 6.) |
| 806x 7 | Other | Reserved. Not used. |

| | | |
|------|---|-----------------------|
| 8071 | T:Jobs/PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of jobs broken down by the number of pages in the job, regardless of which application was used. | |
| 8072 | C:Jobs/PGS | [0 to 9999999/ 0 / 1] |

SP8xxx: Data Log 2

| | | | |
|--------|---|-----------------------|----------------------|
| | These SPs count and calculate the number of copy jobs by size based on the number of pages in the job. | | |
| 8073 | F:Jobs/PGS | [0 to 9999999/ 0 / 1] | |
| | These SPs count and calculate the number of fax jobs by size based on the number of pages in the job. | | |
| 8074 | P:Jobs/PGS | [0 to 9999999/ 0 / 1] | |
| | These SPs count and calculate the number of print jobs by size based on the number of pages in the job. | | |
| 8075 | S:Jobs/PGS | [0 to 9999999/ 0 / 1] | |
| | These SPs count and calculate the number of scan jobs by size based on the number of pages in the job. | | |
| 8076 | L:Jobs/PGS | [0 to 9999999/ 0 / 1] | |
| | These SPs count and calculate the number of jobs printed from within the document server mode window at the operation panel, by the number of pages in the job. | | |
| 8077 | O:Jobs/PGS | [0 to 9999999/ 0 / 1] | |
| | These SPs count and calculate the number of "Other" application jobs (Web Image Monitor, Palm 2, etc.) by size based on the number of pages in the job. | | |
| 807x 1 | 1 Page | 807x 8 | 21 to 50 Pages |
| 807x 2 | 2 Pages | 807x 9 | 51 to 100 Pages |
| 807x 3 | 3 Pages | 807x 10 | 101 to 300 Pages |
| 807x 4 | 4 Pages | 807x 11 | 301 to 500 Pages |
| 807x 5 | 5 Pages | 807x 12 | 501 to 700 Pages |
| 807x 6 | 6to10 Pages | 807x 13 | 701 to 1000 Pages |
| 807x 7 | 11 to 20 Pages | 807x 14 | More than 1001 Pages |

SP8xxx: Data Log 2

- For example: When a copy job stored on the document server is printed in document server mode, the appropriate L: counter (SP8076 0xx) increments.
- Printing a fax report counts as a job and increments the F: counter (SP 8073).
- Interrupted jobs (paper jam, etc.) are counted, even though they do not finish.
- If a job is paused and re-started, it counts as one job.
- If the finisher runs out of staples during a print and staple job, then the job is counted at the time the error occurs.
- For copy jobs (SP 8072) and scan jobs (SP 8075), the total is calculated by multiplying the number of sets of copies by the number of pages scanned. (One duplex page counts as 2.)
- The first test print and subsequent test prints to adjust settings are added to the number of pages of the copy job (SP 8072).
- When printing the first page of a job from within the document server screen, the page is counted.

| | | |
|------|--|-----------------------|
| | T:FAX TX Jobs | [0 to 9999999/ 0 / 1] |
| 8111 | These SPs count the total number of jobs (color or black-and-white) sent by fax, either directly or using a file stored on the document server, on a telephone line. | |
| 8113 | F:FAX TX Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of jobs (color or black-and-white) sent by fax directly on a telephone line. | |

- These counters count jobs, not pages.
- This SP counts fax jobs sent over a telephone line with a fax application, including documents stored on the document server.
- If the mode is changed during the job, the job will count with the mode set when the job started.
- If the same document is faxed to both a public fax line and an I-Fax at a destination where both are available, then this counter increments, and the I-Fax counter (812x) also increments.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

SP8xxx: Data Log 2

| | | |
|------|---|-----------------------|
| | T:IFAX TX Jobs | [0 to 9999999/ 0 / 1] |
| 8121 | These SPs count the total number of jobs (color or black-and-white) sent, either directly or using a file stored on the document server, as fax images using I-Fax. | |
| 8123 | F:IFAX TX Jobs | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of jobs (color or black-and-white) sent (not stored on the document server), as fax images using I-Fax. | |

- These counters count jobs, not pages.
- The counters for color are provided for future use; the color fax feature is not available at this time.
- The fax job is counted when the job is scanned for sending, not when the job is sent.

| | | |
|--------|--|---------------------------|
| | T:S-to-Email Jobs | [0 to 9999999/ 0 / 1] |
| 8131 | These SPs count the total number of jobs scanned and attached to an e-mail, regardless of whether the document server was used or not. | |
| 8135 | S:S-to-Email Jobs | |
| | These SPs count the number of jobs scanned and attached to an e-mail, without storing the original on the document server. | |
| 813x 1 | B/W | Monochrome |
| 813x 2 | Color | Color |
| 813x 3 | ACS | Automatic Color Selection |

- These counters count jobs, not pages.
- If the job is stored on the document server, after the job is stored it is determined to be color or black-and-white then counted.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.

SP8xxx: Data Log 2

- If several jobs are combined for sending to the Scan Router, Scan-to-Email, or Scan-to-PC, or if one job is sent to more than one destination, each send is counted separately. For example, if the same document is sent by Scan-to-Email as well as Scan-to-PC, then it is counted twice (once for Scan-to-Email and once for Scan-to-PC).

| | | |
|--------|--|---------------------------|
| 8141 | T:Deliv Jobs/Svr | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of jobs scanned and sent to a Scan Router server. | |
| 8145 | S:Deliv Jobs/Svr | |
| | These SPs count the number of jobs scanned in scanner mode and sent to a Scan Router server. | |
| 814x 1 | B/W | Monochrome |
| 814x 2 | Color | Color |
| 814x 3 | ACS | Automatic Color Selection |

- The jobs are counted even though the arrival and reception of the jobs at the Scan Router server cannot be confirmed.
- If even one color image is mixed with black-and-white images, then the job is counted as a "Color" job.
- If the job is cancelled during scanning, or if the job is cancelled while the document is waiting to be delivered, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

| | | |
|------|---|-----------------------|
| 8151 | T:Deliv Jobs/PC | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of jobs scanned and sent to a folder on a PC (Scan-to-PC). | |
| 8155 | S:Deliv Jobs/PC | |

SP8xxx: Data Log 2

| | | |
|--------|--|---------------------------|
| | These SPs count the total number of jobs scanned and sent with Scan-to-PC. | |
| 815x 1 | B/W | Monochrome |
| 815x 2 | Color | Color |
| 815x 3 | ACS | Automatic Color Selection |

- These counters count jobs, not pages.
- If the job is cancelled during scanning, it is not counted.
- If the job is cancelled while it is waiting to be sent, the job is not counted.
- If the job is cancelled during sending, it may or may not be counted, depending on what stage of the process had been reached when the job was cancelled.
- Even if several files are combined for sending, the transmission counts as one job.

| | | |
|------|-----------------|--|
| 8161 | T:PCFAX TX Jobs | These SPs count the number of PC Fax transmission jobs. A job is counted from when it is registered for sending, not when it is sent. [0 to 9999999/ 0 / 1] |
| 8163 | F:PCFAX TX Jobs | |

- This counts fax jobs started from a PC using a PC fax application, and sending the data out to the destination from the PC through the copier.

Service
Tables

| | | |
|------|------------------|--|
| 8191 | T:Total Scan PGS | These SPs count the pages scanned by each application that uses the scanner to scan images. [0 to 9999999/ 0 / 1] |
| 8192 | C:Total Scan PGS | |
| 8193 | F:Total Scan PGS | |
| 8195 | S:Total Scan PGS | |
| 8196 | L:Total Scan PGS | |

- SP 8191 to 8196 count the number of scanned sides of pages, not the number of physical pages.
- These counters do not count reading user stamp data, or reading color charts to adjust color.

SP8xxx: Data Log 2

- Previews done with a scanner driver are not counted.
- A count is done only after all images of a job have been scanned.
- Scans made in SP mode are not counted.

Examples:

- If 3 B5 pages and 1 A3 page are scanned with the scanner application but not stored, the S: count is 4.
- If both sides of 3 A4 sheets are copied and stored to the document server using the Store File button in the Copy mode window, the C: count is 6 and the L: count is 6.
- If both sides of 3 A4 sheets are copied but not stored, the C: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

| | | |
|------|---|-----------------------|
| 8201 | T:LSize Scan PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of large pages input with the scanner for scan and copy jobs. Large size paper (A3/DLT) scanned for fax transmission are not counted. Note: These counters are displayed in the SMC Report, and in the User Tools display. | |
| 8205 | S:LSize Scan PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of large pages input with the scanner for scan jobs only. Large size paper (A3/DLT) scanned for fax transmission are not counted. Note: These counters are displayed in the SMC Report, and in the User Tools display. | |

| | | |
|------|---------------|---|
| 8211 | T:Scan PGS/LS | These SPs count the number of pages scanned into the document server . [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen |
| 8212 | C:Scan PGS/LS | |
| 8213 | F:Scan PGS/LS | |
| 8215 | S:Scan PGS/LS | |
| 8216 | L:Scan PGS/LS | |

SP8xxx: Data Log 2

- Reading user stamp data is not counted.
- If a job is cancelled, the pages output as far as the cancellation are counted.
- If the scanner application scans and stores 3 B5 sheets and 1 A4 sheet, the S: count is 4.
- If pages are copied but not stored on the document server, these counters do not change.
- If both sides of 3 A4 sheets are copied and stored to the document server, the C: count is 6 and the L: count is 6.
- If you enter document server mode then scan 6 pages, the L: count is 6.

| | | |
|--------|---|---|
| 8221 | ADF Org Feeds | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of pages fed through the ADF for front and back side scanning. | |
| 8221 1 | Front | <p>Number of front sides fed for scanning:</p> <p>With an ADF that can scan both sides simultaneously, the Front side count is the same as the number of pages fed for either simplex or duplex scanning.</p> <p>With an ADF that cannot scan both sides simultaneously, the Front side count is the same as the number of pages fed for duplex front side scanning. (The front side is determined by which side the user loads face up.)</p> |
| 8221 2 | Back | <p>Number of rear sides fed for scanning:</p> <p>With an ADF that can scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex scanning.</p> <p>With an ADF that cannot scan both sides simultaneously, the Back count is the same as the number of pages fed for duplex rear-side scanning.</p> |

Service
Tables

- When 1 sheet is fed for duplex scanning the Front count is 1 and the Back count is 1.
- If a jam occurs during the job, recovery processing is not counted to avoid double counting. Also, the pages are not counted if the jam occurs before the first sheet is output.

SP8xxx: Data Log 2

| | | |
|------|---|---|
| 8231 | Scan PGS/Mode | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of pages scanned by each ADF mode to determine the work load on the ADF. | |
| 1 | Large Volume | Selectable. Large copy jobs that cannot be loaded in the ADF at one time. |
| 2 | SADF | Selectable. Feeding pages one by one through the ADF. |
| 3 | Mixed Size | Selectable. Select "Mixed Sizes" on the operation panel. |
| 4 | Custom Size | Selectable. Originals of non-standard size. |
| 5 | Platen | Book mode. Raising the ADF and placing the original directly on the platen. |
| 6 | Simplex/Duplex | Single-side, double-side scanning. |

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.
- The user cannot select mixed sizes or non-standard sizes with the fax application so if the original's page sizes are mixed or non-standard, these are not counted.
- If the user selects "Mixed Sizes" for copying in the platen mode, the Mixed Size count is enabled.
- In the SADF mode if the user copies 1 page in platen mode and then copies 2 pages with SADF, the Platen count is 1 and the SADF count is 3.

| | | |
|------|--|-----------------------|
| 8241 | T:Scan PGS/Org | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of scanned pages by original type for all jobs, regardless of which application was used. | |
| 8242 | C:Scan PGS/Org | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of pages scanned by original type for Copy jobs. | |

SP8xxx: Data Log 2

| | F:Scan PGS/Org | | [0 to 9999999/ 0 / 1] | | | |
|-----------------------|--|-------------|-----------------------|-------------|-------------|-------------|
| 8243 | These SPs count the number of pages scanned by original type for Fax jobs. | | | | | |
| 8245 | S:Scan PGS/Org | | [0 to 9999999/ 0 / 1] | | | |
| | These SPs count the number of pages scanned by original type for Scan jobs. | | | | | |
| 8246 | L:Scan PGS/Org | | [0 to 9999999/ 0 / 1] | | | |
| | These SPs count the number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen | | | | | |
| | 8241 | 8242 | | 8243 | 8245 | 8246 |
| 824x 1: Text | Yes | Yes | | Yes | Yes | Yes |
| 824x 2: Text/Photo | Yes | Yes | | Yes | Yes | Yes |
| 824x 3: Photo | Yes | Yes | | Yes | Yes | Yes |
| 824x 4: GenCopy, Pale | Yes | Yes | No | Yes | Yes | |
| 824x 5: Map | Yes | Yes | No | Yes | Yes | |
| 824x 11: Other | Yes | Yes | Yes | Yes | Yes | |

Service
Tables

- If the scan mode is changed during the job, for example, if the user switches from ADF to Platen mode, the count is done for the last selected mode.

| | | |
|------|-------------------|--|
| 8251 | T:Scan PGS/ImgEdt | These SPs show how many times Image Edit features have been selected at the operation panel for each application. Some examples of these editing features are: <ul style="list-style-type: none"> ▪ Erase> Border ▪ Erase> Center ▪ Image Repeat ▪ Centering |
| 8252 | C:Scan PGS/ImgEdt | |
| 8255 | S:Scan PGS/ImgEdt | |
| 8256 | L:Scan PGS/ImgEdt | |
| 8257 | O:Scan PGS/ImgEdt | |

SP8xxx: Data Log 2

| | | |
|--|--|---|
| | | <ul style="list-style-type: none"> ▪ Positive/Negative <p>[0 to 9999999/ 0 / 1]</p> <p>Note: The count totals the number of times the edit features have been used. A detailed breakdown of exactly which features have been used is not given.</p> |
|--|--|---|

- The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen.

| | | |
|------|------------------|---|
| 8281 | T:Scan PGS/TWAIN | These SPs count the number of pages scanned using a TWAIN driver. These counters reveal how the TWAIN driver is used for delivery functions. [0 to 9999999/ 0 / 1] |
| 8285 | S:Scan PGS/TWAIN | |

| | | |
|------|------------------|--|
| 8291 | T:Scan PGS/Stamp | These SPs count the number of pages stamped with the stamp in the ADF unit. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen |
| 8293 | F:Scan PGS/Stamp | |
| 8295 | S:Scan PGS/Stamp | |

| | | |
|------|--|-----------------------|
| 8301 | T:Scan PGS/Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by size the total number of pages scanned by all applications. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-441]. | |
| 8302 | C:Scan PGS/Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by size the total number of pages scanned by the | |

SP8xxx: Data Log 2

| | | |
|---------|--|-----------------------|
| | Copy application. Use these totals to compare original page size (scanning) and output (printing) page size [SP 8-442]. | |
| | F:Scan PGS/Size | [0 to 9999999/ 0 / 1] |
| 8303 | These SPs count by size the total number of pages scanned by the Fax application. Use these totals to compare original page size (scanning) and output page size [SP 8-443]. | |
| 8305 | S:Scan PGS/Size | [0 to 9999999/ 0 / 1] |
| 8305 | These SPs count by size the total number of pages scanned by the Scan application. Use these totals to compare original page size (scanning) and output page size [SP 8-445]. | |
| 8306 | L:Scan PGS/Size | [0 to 9999999/ 0 / 1] |
| 8306 | These SPs count by size the total number of pages scanned and stored from within the document server mode screen at the operation panel, and with the Store File button from within the Copy mode screen. Use these totals to compare original page size (scanning) and output page size [SP 8-446]. | |
| 830x 1 | A3 | |
| 830x 2 | A4 | |
| 830x 3 | A5 | |
| 830x 4 | B4 | |
| 830x 5 | B5 | |
| 830x 6 | DLT | |
| 830x 7 | LG | |
| 830x 8 | LT | |
| 830x 9 | HLT | |
| 830x 10 | Full Bleed | |

SP8xxx: Data Log 2

| | | | |
|----------|------------------|--|--|
| 830x 254 | Other (Standard) | | |
| 830x 255 | Other (Custom) | | |

| | | | |
|--------|---|-----------------------|--|
| 8311 | T:Scan PGS/Rez | [0 to 9999999/ 0 / 1] | |
| | These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. | | |
| 8315 | S:Scan PGS/Rez | [0 to 9999999/ 0 / 1] | |
| | These SPs count by resolution setting the total number of pages scanned by applications that can specify resolution settings. Note: At the present time, 8311 and 8315 perform identical counts. | | |
| 831x 1 | 1200dpi to | | |
| 831x 2 | 600dpito1199dpi | | |
| 831x 3 | 400dpito599dpi | | |
| 831x 4 | 200dpito399dpi | | |
| 831x 5 | to199dpi | | |

- Copy resolution settings are fixed so they are not counted.
- The Fax application does not allow finely-adjusted resolution settings so no count is done for the Fax application.

| | | |
|------|----------------|---|
| 8381 | T:Total PrtPGS | These SPs count the number of pages printed by the customer. The counter for the application used for storing the pages increments. [0 to 9999999/ 0 / 1] |
| 8382 | C:Total PrtPGS | |
| 8383 | F:Total PrtPGS | The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy |
| 8384 | P:Total PrtPGS | |
| 8385 | S:Total PrtPGS | |
| 8386 | L:Total PrtPGS | |

SP8xxx: Data Log 2

| | | |
|------|----------------|-----------------------------------|
| 8387 | O:Total PrtPGS | mode screen go to the C: counter. |
|------|----------------|-----------------------------------|

- When the A3/DLT double count function is switched on with SP5104, 1 A3/DLT page is counted as 2.
- When several documents are merged for a print job, the number of pages stored are counted for the application that stored them.
- These counters are used primarily to calculate charges on use of the machine, so the following pages are not counted as printed pages:
 - Blank pages in a duplex printing job.
 - Blank pages inserted as document covers, chapter title sheets, and slip sheets.
 - Reports printed to confirm counts.
 - All reports done in the service mode (service summaries, engine maintenance reports, etc.)
 - Test prints for machine image adjustment.
 - Error notification reports.
 - Partially printed pages as the result of a copier jam.

| | | |
|------|--|-----------------------|
| 8391 | LSize PrtPGS | [0 to 9999999/ 0 / 1] |
| | These SPs count pages printed on paper sizes A3/DLT and larger. Note: In addition to being displayed in the SMC Report, These counters appear in the SMC report as well as on the machine display. | |

Service
Tables

| | | |
|------|-------------|--|
| 8401 | T:PrtPGS/LS | <p>These SPs count the number of pages printed from the document server. The counter for the application used to print the pages is incremented.</p> <p>The L: counter counts the number of jobs stored from within the document server mode screen at the operation panel.</p> <p style="text-align: center;">[0 to 9999999/ 0 / 1]</p> |
| 8402 | C:PrtPGS/LS | |
| 8403 | F:PrtPGS/LS | |
| 8404 | P:PrtPGS/LS | |
| 8405 | S:PrtPGS/LS | |
| 8406 | L:PrtPGS/LS | |

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the L: count.

SP8xxx: Data Log 2

- Fax jobs done with Web Image Monitor and Desk Top Binder are added to the F: count.

| | | |
|------|--|-----------------------|
| 8411 | Prints/Duplex | |
| | <p>This SP counts the amount of paper (front/back counted as 1 page) used for duplex printing. Last pages printed only on one side are not counted.</p> <p>[0 to 9999999/ 0 / 1]</p> | |
| 8421 | T:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing. This is the total for all applications.</p> | |
| 8422 | C:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the copier application.</p> | |
| 8423 | F:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the fax application.</p> | |
| 8424 | P:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the printer application.</p> | |
| 8425 | S:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by the scanner application.</p> | |
| 8426 | L:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by binding and combine, and n-Up settings the number of pages processed for printing from within the document server mode window at the operation panel.</p> | |

SP8xxx: Data Log 2

| | | | |
|---------|--|----------------------------|--|
| 8427 | O:PrtPGS/Dup Comb | [0 to 9999999/ 0 / 1] | |
| | These SPs count by binding and combine, and n-Up settings the number of pages processed for printing by Other applications | | |
| 842x 1 | Simplex> Duplex | | |
| 842x 2 | Duplex> Duplex | | |
| 842x 3 | Book> Duplex | | |
| 842x 4 | Simplex Combine | | |
| 842x 5 | Duplex Combine | | |
| 842x 6 | 2> | 2 pages on 1 side (2-Up) | |
| 842x 7 | 4> | 4 pages on 1 side (4-Up) | |
| 842x 8 | 6> | 6 pages on 1 side (6-Up) | |
| 842x 9 | 8> | 8 pages on 1 side (8-Up) | |
| 842x 10 | 9> | 9 pages on 1 side (9-Up) | |
| 842x 11 | 16> | 16 pages on 1 side (16-Up) | |
| 842x 12 | Booklet | | |
| 842x 13 | Magazine | | |

Service
Tables

- These counts (SP8421 to SP8427) are especially useful for customers who need to improve their compliance with ISO standards for the reduction of paper consumption.
- Pages that are only partially printed with the n-Up functions are counted as 1 page.

Here is a summary of how the counters work for Booklet and Magazine modes:

| Booklet | | Magazine | |
|----------------|-------|----------------|-------|
| Original Pages | Count | Original Pages | Count |
| 1 | 1 | 1 | 1 |

SP8xxx: Data Log 2

| Booklet | | Magazine | |
|----------------|-------|----------------|-------|
| Original Pages | Count | Original Pages | Count |
| 2 | 2 | 2 | 2 |
| 3 | 2 | 3 | 2 |
| 4 | 2 | 4 | 2 |
| 5 | 3 | 5 | 4 |
| 6 | 4 | 6 | 4 |
| 7 | 4 | 7 | 4 |
| 8 | 4 | 8 | 4 |

| | | |
|------|--|-----------------------|
| 8431 | T:PrtPGS/ImgEdt | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below, regardless of which application was used. | |
| 8432 | C:PrtPGS/ImgEdt | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below with the copy application. | |
| 8434 | P:PrtPGS/ImgEdt | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three features below with the print application. | |
| 8436 | L:PrtPGS/ImgEdt | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of pages output from within the document server mode window at the operation panel with the three features below. | |
| 8437 | O:PrtPGS/ImgEdt | [0 to 9999999/ 0 / 1] |
| | These SPs count the total number of pages output with the three | |

SP8xxx: Data Log 2

| | | |
|--------|---|---|
| | features below with Other applications. | |
| 843x 1 | Cover/Slip Sheet | Total number of covers or slip sheets inserted. The count for a cover printed on both sides counts 2. |
| 843x 2 | Series/Book | The number of pages printed in series (one side) or printed as a book with booklet right/left pagination. |
| 843x 3 | User Stamp | The number of pages printed where stamps were applied, including page numbering and date stamping. |

| | | |
|------|---|-----------------------|
| 8441 | T:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by all applications. | |
| 8442 | C:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the copy application. | |
| 8443 | F:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the fax application. | |
| 8444 | P:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the printer application. | |
| 8445 | S:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by the scanner application. | |
| 8446 | L:PrtPGS/Ppr Size | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed from | |

SP8xxx: Data Log 2

| | | | |
|----------|--|--|-----------------------|
| | within the document server mode window at the operation panel. | | |
| 8447 | O:PrtPGS/Ppr Size | | [0 to 9999999/ 0 / 1] |
| | These SPs count by print paper size the number of pages printed by Other applications. | | |
| 844x 1 | A3 | | |
| 844x 2 | A4 | | |
| 844x 3 | A5 | | |
| 844x 4 | B4 | | |
| 844x 5 | B5 | | |
| 844x 6 | DLT | | |
| 844x 7 | LG | | |
| 844x 8 | LT | | |
| 844x 9 | HLT | | |
| 844x 10 | Full Bleed | | |
| 844x 254 | Other (Standard) | | |
| 844x 255 | Other (Custom) | | |

- These counters do not distinguish between LEF and SEF.

| | | | |
|------|--|-------------|-----------------------|
| 8451 | PrtPGS/Ppr Tray | | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of sheets fed from each paper feed station. | | |
| 1 | Bypass | Bypass Tray | |
| 2 | Tray 1 | Copier | |
| 3 | Tray 2 | Copier | |

SP8xxx: Data Log 2

| | | |
|----|---------|--------------------------|
| 4 | Tray 3 | Paper Tray Unit (Option) |
| 5 | Tray 4 | Paper Tray Unit (Option) |
| 6 | Tray 5 | LCT (Option) |
| 7 | Tray 6 | 500-Sheet Finisher |
| 8 | Tray 7 | Currently not used. |
| 9 | Tray 8 | Currently not used. |
| 10 | Tray 9 | Currently not used. |
| 11 | Tray 10 | Currently not used. |
| 12 | Tray 11 | Currently not used. |

| | | |
|-------------|---|-----------------------|
| 8461 | T:PrtPGS/Ppr Type [0 to 9999999/ 0 / 1] | |
| | <p>These SPs count by paper type the number pages printed by all applications.</p> <ul style="list-style-type: none"> ▪ These counters are not the same as the PM counter. The PM counter is based on feed timing to accurately measure the service life of the feed rollers. However, these counts are based on output timing. ▪ Blank sheets (covers, chapter covers, slip sheets) are also counted. ▪ During duplex printing, pages printed on both sides count as 1, and a page printed on one side counts as 1. | |
| 8462 | C:PrtPGS/Ppr Type | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by paper type the number pages printed by the copy application.</p> | |
| 8463 | F:PrtPGS/Ppr Type | [0 to 9999999/ 0 / 1] |
| | <p>These SPs count by paper type the number pages printed by the fax application.</p> | |

SP8xxx: Data Log 2

| | | |
|--------|--|-----------------------|
| 8464 | P:PrtPGS/Ppr Type | [0 to 9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed by the printer application. | |
| 8466 | L:PrtPGS/Ppr Type | [0 to 9999999/ 0 / 1] |
| | These SPs count by paper type the number pages printed from within the document server mode window at the operation panel. | |
| 846x 1 | Normal | |
| 846x 2 | Recycled | |
| 846x 3 | Special | |
| 846x 4 | Thick | |
| 846x 5 | Normal (Back) | |
| 846x 6 | Thick (Back) | |
| 846x 7 | OHP | |
| 846x 8 | Other | |

| | | |
|------|--|-----------------------|
| 8471 | PrtPGS/Mag | [0 to 9999999/ 0 / 1] |
| | These SPs count by magnification rate the number of pages printed. | |
| 1 | to49% | |
| 2 | 50%to99% | |
| 3 | 100% | |
| 4 | 101%to200% | |
| 5 | 201% to | |

- Counts are done for magnification adjusted for pages, not only on the operation panel but performed remotely with an external network application capable of performing magnification adjustment as well.

SP8xxx: Data Log 2

- Magnification adjustments done with printer drivers with PC applications such as Excel are also counted.
- Magnification adjustments done for adjustments after they have been stored on the document server are not counted.
- Magnification adjustments performed automatically during Auto Reduce/Enlarge copying are counted.
- The magnification rates of blank cover sheets, slip sheets, etc. are automatically assigned a rate of 100%.

| | | |
|------|---|--|
| 8481 | T:PrtPGS/TonSave | |
| | P:PrtPGS/TonSave | |
| 8484 | <p>These SPs count the number of pages printed with the Toner Save feature switched on.</p> <p>Note: These SPs return the same results because this SP is limited to the Print application.</p> <p>[0 to 9999999/ 0 / 1]</p> | |

| | | | |
|--------|--|-----------------------|--|
| 8511 | T:PrtPGS/Emul | [0 to 9999999/ 0 / 1] | |
| | These SPs count by printer emulation mode the total number of pages printed. | | |
| 8514 | P:PrtPGS/Emul | [0 to 9999999/ 0 / 1] | |
| | These SPs count by printer emulation mode the total number of pages printed. | | |
| 8514 1 | RPCS | | |
| 8514 2 | RPDL | | |
| 8514 3 | PS3 | | |
| 8514 4 | R98 | | |
| 8514 5 | R16 | | |
| 8514 6 | GL/GL2 | | |

SP8xxx: Data Log 2

| | | | |
|---------|----------|-------------------|--|
| 8514 7 | R55 | | |
| 8514 8 | RTIFF | | |
| 8514 9 | PDF | | |
| 8514 10 | PCL5e/5c | | |
| 8514 11 | PCL XL | | |
| 8514 12 | IPDL-C | | |
| 8514 13 | BM-Links | Japan Only | |
| 8514 14 | Other | | |

- SP8511 and SP8514 return the same results because they are both limited to the Print application.
- Print jobs output to the document server are not counted.¶

| | | |
|------|---|-----------------------|
| 8521 | T:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by all applications. | |
| 8522 | C:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Copy application. | |
| 8523 | F:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Fax application. | |
| 8524 | P:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |
| | These SPs count by finishing mode the total number of pages printed by the Print application. | |
| 8525 | S:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |

SP8xxx: Data Log 2

| | | |
|--------|---|-----------------------|
| | These SPs count by finishing mode the total number of pages printed by the Scanner application. | |
| | L:PrtPGS/FIN | [0 to 9999999/ 0 / 1] |
| 8526 | These SPs count by finishing mode the total number of pages printed from within the document server mode window at the operation panel. Note: <ul style="list-style-type: none"> ▪ If stapling is selected for finishing and the stack is too large for stapling, the unstapled pages are still counted. ▪ The counts for staple finishing are based on output to the staple tray, so jam recoveries are counted. | |
| 852x 1 | Sort | |
| 852x 2 | Stack | |
| 852x 3 | Staple | |
| 852x 4 | Booklet | |
| 852x 5 | Z-Fold | |
| 852x 6 | Punch | |
| 852x 7 | Other | |

Service
Tables

| | | |
|------|---------|--|
| 8531 | Staples | This SP counts the amount of staples used by the machine. [0 to 9999999/ 0 / 1] |
|------|---------|--|

| | | |
|------|--|-----------------------|
| | T:Counter | [0 to 9999999/ 0 / 1] |
| 8581 | These SPs count the total output broken down by color output, regardless of the application used. In addition to being displayed in the SMC Report, these counters are also displayed in the User Tools display on the copy machine. | |

SP8xxx: Data Log 2

| | | |
|------|---|-----------------------|
| | O:Counter | [0 to 9999999/ 0 / 1] |
| 8591 | These SPs count the totals for A3/DLT paper use, number of duplex pages printed, and the number of staples used. These totals are for Other (O:) applications only. | |
| 1 | A3/DLT | |
| 2 | Duplex | |

| | | |
|------|--------------------|--|
| | Coverage Counter | |
| 8601 | | |
| 1 | B/W | |
| 2 | B/W Printing Pages | |

| | | |
|------|--|-----------------------|
| | T:FAX TX PGS | [0 to 9999999/ 0 / 1] |
| 8631 | These SPs count by color mode the number of pages sent by fax to a telephone number. | |
| | F:FAX TX PGS | [0 to 9999999/ 0 / 1] |
| 8633 | These SPs count by color mode the number of pages sent by fax to a telephone number. | |

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8631 and SP8633 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions are counted for each destination.

SP8xxx: Data Log 2

| | | |
|------|---|-----------------------|
| 8641 | T:FAX TX PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the number of pages sent by fax to as fax images using I-Fax. | |
| 8643 | F:FAX TX PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the number of pages sent by Fax as fax images using I-Fax. | |

- If a document has color and black-and-white pages mixed, the pages are counted separately as B/W or Color.
- At the present time, this feature is provided for the Fax application only so SP8641 and SP8643 are the same.
- The counts include error pages.
- If a document is sent to more than one destination with a Group transmission, the count is done for each destination.
- Polling transmissions are counted but polling RX are not.
- Relay, memory, and confidential mailbox transmissions are counted for each destination.

| | | |
|------|---|-----------------------|
| 8651 | T:S-to-Email PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages attached to an e-mail for both the Scan and document server applications. | |
| 8655 | S:S-to-Email PGS | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages attached to an e-mail for the Scan application only. | |
| 1 | B/W | |
| 2 | Color | |

Note

- The count for B/W and Color pages is done after the document is stored on the HDD. If the job is cancelled before it is stored, the pages are not counted.
- If Scan-to-Email is used to send a 10-page document to 5 addresses, the count is 10

SP8xxx: Data Log 2

(the pages are sent to the same SMTP server together).

- If Scan-to-PC is used to send a 10-page document to 5 folders, the count is 50 (the document is sent to each destination of the SMB/FTP server).
- Due to restrictions on some devices, if Scan-to-Email is used to send a 10-page document to a large number of destinations, the count may be divided and counted separately. For example, if a 10-page document is sent to 200 addresses, the count is 10 for the first 100 destinations and the count is also 10 for the second 100 destinations, for a total of 20.

| | | |
|------|--|-----------------------|
| 8661 | T:Deliv PGS/Svr | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages sent to a Scan Router server by both Scan and LS applications. | |
| 8665 | S:Deliv PGS/Svr | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages sent to a Scan Router server by the Scan application. | |
| 1 | B/W | |
| 2 | Color | |

Note

- The B/W and Color counts are done after the document is stored on the HDD of the Scan Router server.
- If the job is canceled before storage on the Scan Router server finishes, the counts are not done.
- The count is executed even if regardless of confirmation of the arrival at the Scan Router server.

| | | |
|------|--|-----------------------|
| 8671 | T:Deliv PGS/PC | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages sent to a folder on a PC (Scan-to-PC) with the Scan and LS applications. | |
| 8675 | S:Deliv PGS/PC | [0 to 9999999/ 0 / 1] |
| | These SPs count by color mode the total number of pages sent with | |

SP8xxx: Data Log 2

| | | | |
|---|---------------------------------------|--|--|
| | Scan-to-PC with the Scan application. | | |
| 1 | B/W | | |
| 2 | Color | | |

| | | |
|------|---------------|---|
| 8681 | T:PCFAX TXPGS | These SPs count the number of pages sent by PC Fax. These SPs are provided for the Fax application only, so the counts for SP8681 and SP8683 are the same. [0 to 9999999/ 0 / 1] |
| 8683 | F:PCFAX TXPGS | |

- This counts pages sent from a PC using a PC fax application, from the PC through the copier to the destination.
- When sending the same message to more than one place using broadcasting, the pages are only counted once. (For example, a 10-page fax is sent to location A and location B. The counter goes up by 10, not 20.)

| | | |
|------|-------------|---|
| 8691 | T:TX PGS/LS | These SPs count the number of pages sent from the document server. The counter for the application that was used to store the pages is incremented. [0 to 9999999/ 0 / 1] The L: counter counts the number of pages stored from within the document server mode screen at the operation panel. Pages stored with the Store File button from within the Copy mode screen go to the C: counter. |
| 8692 | C:TX PGS/LS | |
| 8693 | F:TX PGS/LS | |
| 8694 | P:TX PGS/LS | |
| 8695 | S:TX PGS/LS | |
| 8696 | L:TX PGS/LS | |

Service
Tables

Note

- Print jobs done with Web Image Monitor and Desk Top Binder are added to the count.
- If several documents are merged for sending, the number of pages stored are counted for the application that stored them.
- When several documents are sent by a Fax broadcast, the F: count is done for the number of pages sent to each destination.

SP8xxx: Data Log 2

| | | |
|--------|--|-----------------------|
| | TX PGS/Port | [0 to 9999999/ 0 / 1] |
| 8701 | These SPs count the number of pages sent by the physical port used to send them. For example, if a 3-page original is sent to 4 destinations via ISDN G4, the count for ISDN (G3, G4) is 12. | |
| 8701 1 | PSTN-1 | |
| 8701 2 | PSTN-2 | |
| 8701 3 | PSTN-3 | |
| 8701 4 | ISDN (G3,G4) | |
| 8701 5 | Network | |

| | | |
|--------|---|-------------------|
| | T:Scan PGS/Comp | [0 to 9999999/ 1] |
| 8711 | These SPs count the number of compressed pages scanned into the document server, counted by the formats listed below. | |
| 8711 1 | JPEG/JPEG2000 | |
| 8711 2 | TIFF (Multi/Single) | |
| 8711 3 | PDF | |
| 8711 4 | Other | |

| | | |
|--------|--|-------------------|
| | S:Scan PGS/Comp | [0 to 9999999/ 1] |
| 8 715 | These SPs count the number of compressed pages scanned by the scan application, counted by the formats listed below. | |
| 8715 1 | JPEG/JPEG2000 | |
| 8715 2 | TIFF (Multi/Single) | |
| 8715 3 | PDF | |
| 8715 4 | Other | |

SP8xxx: Data Log 2

| | | |
|--------|---|-----------------------|
| 8741 | RX PGS/Port | [0 to 9999999/ 0 / 1] |
| | These SPs count the number of pages received by the physical port used to receive them. | |
| 8741 1 | PSTN-1 | |
| 8741 2 | PSTN-2 | |
| 8741 3 | PSTN-3 | |
| 8741 4 | ISDN (G3,G4) | |
| 8741 5 | Network | |

| | | |
|------|---|-----------------------|
| 8771 | Dev Counter | [0 to 9999999/ 0 / 1] |
| | These SPs count the frequency of use (number of rotations of the development rollers) for black and other color toners. | |

| | | |
|------|---|--|
| 8781 | Pixel Coverage Ratio | |
| | This SP displays the number of toner bottles used. The count is done based on the equivalent of 1,000 pages per bottle. | |

Service
Tables

| | | |
|------|------------------|--|
| 8791 | LS Memory Remain | This SP displays the percent of space available on the document server for storing documents. [0 to 100/ 0 / 1] |
| | | |

| | | |
|------|--|-------------------|
| 8801 | Toner Remain | [0 to 100/ 0 / 1] |
| | This SP displays the percent of toner remaining for each color. This SP allows the user to check the toner supply at any time. Note <ul style="list-style-type: none">▪ This precise method of measuring remaining toner supply (1% steps) is better than other machines in the market that can only | |

SP8xxx: Data Log 2

| | | |
|--|---|--|
| | measure in increments of 10 (10% steps). <ul style="list-style-type: none"> ▪ This SP is expanded for color MFP and color LP machines. For this machine, the count is done for black only. | |
|--|---|--|

| | | | |
|------|--|---------------|----------------------------------|
| 8851 | Cover Cnt: 0-10% | | [0 to 9999999] |
| | These SPs count the percentage of dot coverage for black other color toners. | | |
| 1 | K | Black toner | |
| 2 | M | Magenta toner | |
| 3 | C | Cyan toner | Do not display for this machine. |
| 4 | Y | Yellow toner | |

| | | | |
|------|--|---------------|----------------------------------|
| 8861 | Cover Cnt: 11-20% | | [0 to 9999999] |
| | These SPs count the percentage of dot coverage for black other color toners. | | |
| 1 | K | Black toner | |
| 2 | M | Magenta toner | |
| 3 | C | Cyan toner | Do not display for this machine. |
| 4 | Y | Yellow toner | |

| | | | |
|------|--|---------------|----------------------------------|
| 8871 | Cover Cnt: 21-30% | | [0 to 9999999] |
| | These SPs count the percentage of dot coverage for black other color toners. | | |
| 1 | K | Black toner | |
| 2 | M | Magenta toner | Do not display for this machine. |
| 3 | C | Cyan toner | |

SP8xxx: Data Log 2

| | | | |
|---|---|--------------|--|
| 4 | Y | Yellow toner | |
|---|---|--------------|--|

| | | | |
|------|--|---------------|----------------------------------|
| 8881 | Cover Cnt: 31 -% [0 to 9999999] | | |
| | These SPs count the percentage of dot coverage for black other color toners. | | |
| 1 | K | Black toner | |
| 2 | M | Magenta toner | |
| 3 | C | Cyan toner | Do not display for this machine. |
| 4 | Y | Yellow toner | |

| | |
|------|------------------------------|
| 8891 | Page/Toner Bottle DFU |
| 8901 | Page/Toner_Prev1 DFU |
| 8911 | Page/Toner_Prev2 DFU |

| | | | |
|------|--------------------|--|--|
| 8921 | Cvr Cnt/Total | | |
| | | | |
| 1 | Coverage (%) BK | | |
| 11 | Cover/Page (%): BK | | |

| | | | |
|------|--|--|--|
| 8941 | Machine Status [0 to 9999999/ 0 / 1] | | |
| | These SPs count the amount of time the machine spends in each operation mode. These SPs are useful for customers who need to investigate machine operation for improvement in their compliance with ISO Standards. | | |
| 1 | Operation Time | Engine operation time. Does not include time while controller is saving data to HDD (while engine is not operating). | |

SP8xxx: Data Log 2

| | | |
|---|--------------------|--|
| 2 | Standby Time | Engine not operating. Includes time while controller saves data to HDD. Does not include time spent in Energy Save, Low Power, or Off modes. |
| 3 | Energy Save Time | Includes time while the machine is performing background printing. |
| 4 | Low Power Time | Includes time in Energy Save mode with Engine on. Includes time while machine is performing background printing. |
| 5 | Off Mode Time | Includes time while machine is performing background printing. Does not include time machine remains powered off with the power switches. |
| 6 | SC | Total down time due to SC errors. |
| 7 | PrtJam | Total down time due to paper jams during printing. |
| 8 | OrgJam | Total down time due to original jams during scanning. |
| 9 | Supply PM Wait End | Total down time due to toner end. |

| | | | |
|------|--|------------------|--|
| 8951 | AddBook Register | | |
| | These SPs count the number of events when the machine manages data registration. | | |
| | 1 | User Code | User code registrations. [0 to 9999999 / 0 / 1] |
| | 2 | Mail Address | Mail address registrations. |
| | 3 | Fax Destination | Fax destination registrations. |
| | 4 | Group | Group destination registrations. |
| | 5 | Transfer Request | Fax relay destination registrations for relay TX. |

SP8xxx: Data Log 2

| | | | |
|----|-----------------|--|----------------------|
| 6 | F-Code | F-Code box registrations. | |
| 7 | Copy Program | Copy application registrations with the Program (job settings) feature. | |
| 8 | Fax Program | Fax application registrations with the Program (job settings) feature. | |
| 9 | Printer Program | Printer application registrations with the Program (job settings) feature. | [0 to 255 / 0 / 255] |
| 10 | Scanner Program | Scanner application registrations with the Program (job settings) feature. | |

| | | |
|------|---|------------------------------|
| 8999 | Admin. Counter List | [0 to 9999999/ 0 / 1] |
| | Displays the total coverage and total printout number for each color. | |
| 1 | Total | |
| 3 | Copy: BW | |
| 7 | Printer BW | |
| 10 | Fax Print: BW | |
| 12 | A3/DLT | |
| 13 | Duplex | |
| 15 | Coverage: BW (%) | |
| 101 | Transmission Total: Color | |

SP8xxx: Data Log 2

| | | |
|-----|-----------------------------|--|
| 102 | Transmission Total: BW | |
| 103 | FAX Transmission | |
| 104 | Scanner Transmission: Color | |
| 105 | Scanner Transmission: BW | |

5.10 FIRMWARE UPDATE

The procedure is the same for all firmware modules.

 Note

- If you will change scanner firmware, print 5-990-22 and -23 (SMC reports for scanner settings) before you start this procedure.
1. Turn off the main power switch.
 2. Remove the SD card slot cover ( x 2).
 3. Insert the SD card [B] containing the software you wish to download into SD card slot C3.
 4. Open the front cover.
 5. Turn on the main power.
 6. Follow the instructions on the operation panel
 7. Monitor the downloading status on the operation panel.
 - While downloading is in progress, the panel displays "Writing". When downloading has been completed, the panel displays "Completed".
 - The Start key lights red during downloading, then lights green after downloading is completed. (only for "Operation Panel" downloading)

 **CAUTION**

- Never switch off the power while downloading. Switching off the power while the new software is being downloaded will damage the boot files in the controller.
8. After confirming that downloading is completed, turn off the main power and remove the SD card.
 9. If more software needs to be downloaded, repeat steps 1 to 7.
 10. Turn the main power on and confirm that the new software loads and that the machine starts normally.
 11. After installing new scanner firmware, do SP5-801-9 (Memory All Clear – Scanner Application). Then input scanner settings that are different from the defaults (see the SMC prints of 5-990-22 and -23 that you made earlier).
If the download failed, an error message appears on the panel. Do the download procedure again. If the second download fails:
 - For the controller module, set bit 1 of DIP switch 1 on the controller board to OFF, then switch on the machine. The machine boots from the SD card.
 - Other modules. Replace the appropriate PCB.

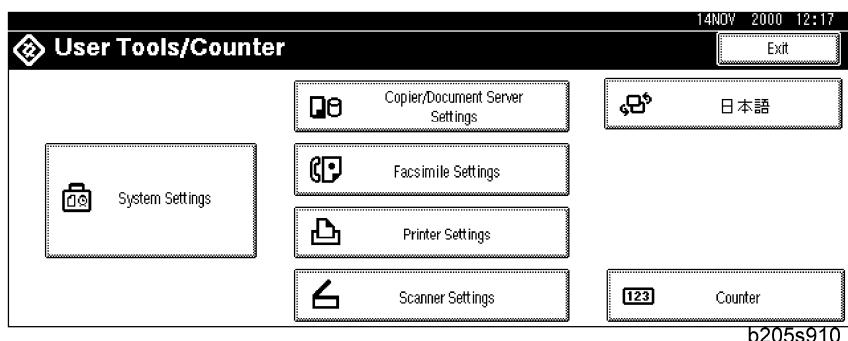
User Tools

5.11 USER TOOLS

The user program (UP) mode can be accessed by users and operators, and by sales and service staff. UP mode is used to input the copier's default settings. The user can reset the default settings at any time. (See 'System Setting and Copy Setting Reset'.)

5.11.1 UP MODE INITIAL SCREEN: USER TOOLS/COUNTER DISPLAY

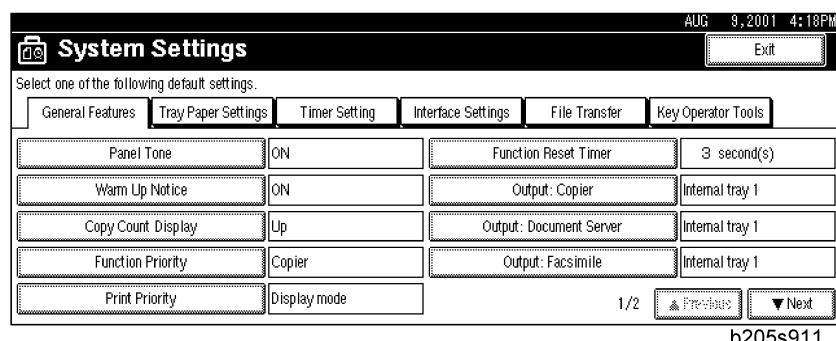
To enter the UP mode, press User Tools/Counter.



5.11.2 SYSTEM SETTINGS

In the User Tools/Counter display, press System Settings.

- Click a tab to display the settings.
- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.



5.11.3 COPIER/DOCUMENT SERVER FEATURES

In the User/Tools Counter display, press Copy/Document Server Settings.

- Click a tab to display the settings.

User Tools

- If the Next button is lit in the lower right corner, press it to display more options.
- Make the settings, press Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

5.11.4 PRINTER, FACSIMILE, SCANNER SETTINGS

In the User/Tools Counter display, press Printer Settings, Facsimile, or Scanner Settings to open the appropriate screen and then click the tab to display more settings.

5.11.5 INQUIRY

In the User/Tools Counter display, press Inquiry.

The following SP mode settings will be displayed.

- Consumables Telephone Number.
- Service Telephone Number
- Serial Number of Machine
- Sales Representative Telephone No.

The Inquiry screen displays the following information:

| Consumables | | Machine Maintenance/Repair | |
|------------------------|-----------|----------------------------|-------------|
| Telephone No. to order | 012345678 | Telephone No. | 12345678 |
| | | Serial No. of Machine | 00000010156 |
| Sales Representative | | | |
| | | Telephone No. | 01234568 |

Print Inquiry List

b205s913

Service
Tables

5.11.6 COUNTER

In the User/Tools Counter display, press [Counter].

The Counter screen displays the following information:

| Total | 9 9 9 8 1 6 0 |
|---------|---------------|
| Copier | 9 9 9 8 0 2 1 |
| Printer | 9 9 9 8 1 3 9 |
| A3/DLT | 9 9 9 8 0 0 0 |

Print Counter List

b205s914

View the settings, press Print Counter Exit to return to the User Tools/Counter display, and then press Exit to return to the copy window.

LED and DIP Switches

5.12 LED AND DIP SWITCHES

5.12.1 LEDs

Controller

| Number | Normal | Controller Software Download | Error |
|--------|----------|------------------------------|------------|
| LED 1 | Off | Blinking | Off |
| LED 2 | Blinking | Blinking | Lit or Off |

SBCU

| Number | Normal | Controller Software Download | Error |
|--------|----------|------------------------------|---------------------------------|
| LED 1 | Lit | Lit | Off or Blinking |
| LED 2 | Blinking | Lit | Lit (except downloading) or Off |

5.12.2 DIP SWITCHES

Controller

SW1

| Number | OFF | ON |
|--------|-------------------|------------------------------|
| 1 | Boot from SD card | Default: Boot from Flash ROM |
| 2 to 7 | Default: OFF DFU | --- |
| 8 | --- | Default DFU |

LED and DIP Switches

SBCU

SW102

| Destination | Bit | | | |
|-------------|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 |
| Japan | OFF | OFF | OFF | OFF |
| NA | ON | OFF | OFF | OFF |
| EU/ASIA | OFF | ON | OFF | OFF |

SW103

DFU. Do not change these settings.

Using the Debug Log

5.13 USING THE DEBUG LOG

This machine provides a Save Debug Log feature that allows the Customer Engineer to save and retrieve error information for analysis.

Every time an error occurs, debug information is recorded in volatile memory but this information is lost when the machine is switched off and on.

To capture this debug information, the Save Debug Log feature provides two main features:

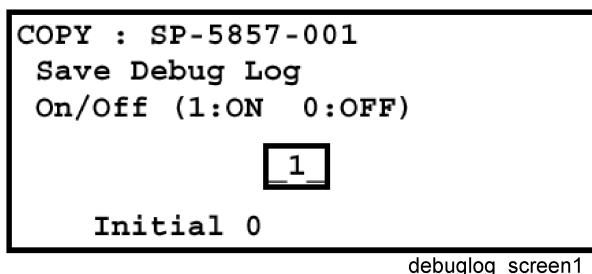
- Switching on the debug feature so error information is saved directly to the HDD for later retrieval.
- Copying the error information from the HDD to an SD card.

When a user is experiencing problems with the machine, follow the procedure below to set up the machine so the error information is saved automatically to the HDD. Then ask the user to reproduce the problem.

5.13.1 SWITCHING ON AND SETTING UP ‘SAVE DEBUG LOG’

The debug information cannot be saved until the “Save Debug Log” function is switched on and a target is selected.

1. Enter the SP mode.
 - Press  (Clear Modes), then use the 10-key pad to input ‘107’.
 - Press and hold down  (Clear/Stop) for more than 3 seconds.
 - Press “Copy SP” on the touch-panel.
 - Input ‘5857’, then press .
2. Under “5857 Save Debug Log”, press .



3. On the operation panel keypad, press  then press 

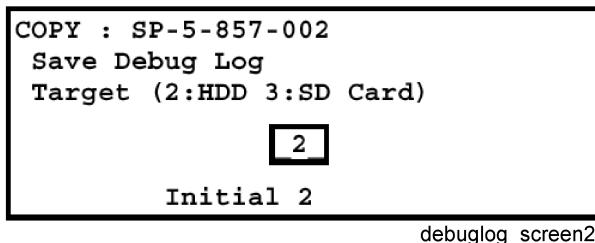
 Note

- The default setting is “0” (OFF). This feature must be switched on in order for the debug information to be saved.

4. Next, select the target destination where the debug information will be saved. Under

Using the Debug Log

“5857 Save Debug Log”, touch “2 Target”, enter “2” with the operation panel key to select the hard disk as the target destination, then press .



Note

- Select “3 SD Card” to save the debug information directly to the SD card if it is inserted in the service slot.

5. Now touch “5858” and specify the events that you want to record in the debug log.

SP5858 (Debug Save When) provides the following items for selection.

| | | |
|---|---------------------|---|
| 1 | Engine SC Error | Saves data when an engine-related SC code is generated. |
| 2 | Controller SC Error | Saves debug data when a controller-related SC Code is generated. |
| 3 | Any SC Error | Saves data only for the SC code that you specify by entering code number. |
| 4 | Jam | Saves data for jams. |

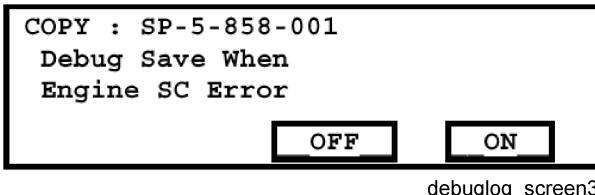
Service
Tables

Note

- More than one event can be selected.

Example 1: To Select Items 1, 2, 4

Touch the appropriate items(s). Press “ON” for each selection. This example shows “Engine SC Error” selected.

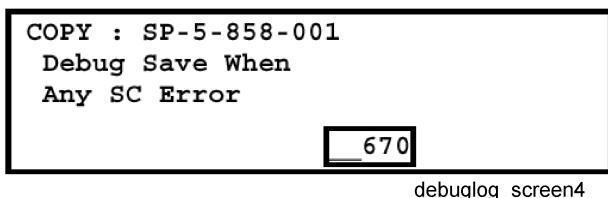


debuglog_screen3

Using the Debug Log

Example 2: To Specify an SC Code

Touch “3 Any SC Error”, enter the 3-digit SC code number with the operation panel number keys, then press $\#$. This example shows an entry for SC670.



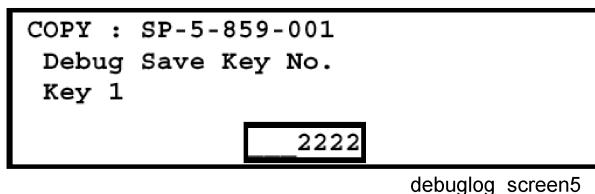
Note

- For details about SC code numbers, please refer to the SC tables in Section 4. Troubleshooting.
6. Next, select the one or more memory modules for reading and recording debug information. Touch “5859”.
 7. Under “5859” press the appropriate key item for the module that you want to record.
 8. Enter the appropriate 4-digit number, then press $\#$.

Note

- Refer to the two tables below for the 4-digit numbers to enter for each key.

The example below shows “Key 1” with “2222” entered.



The following keys can be set with the corresponding numbers. (The initials in parentheses indicate the names of the modules.)

4-Digit Entries for Keys 1 to 10

| Key No. | Copy | Printer | Scanner | Web |
|---------|------------|---------|---------|-----|
| 1 | 2222 (SCS) | | | |
| 2 | 2223 (SRM) | | | |
| 3 | 256 (IMH) | | | |
| 4 | 1000 (ECS) | | | |
| 5 | 1025 (MCS) | | | |

Using the Debug Log

| Key No. | Copy | Printer | Scanner | Web |
|---------|------------|------------------|-------------|---------------|
| 6 | 4848(COPY) | 4400 (GPS) | 5375 (Scan) | 5682 (NFA) |
| 7 | 2224 (BCU) | 4500 (PDL) | 5682 (NFA) | 6600 (WebDB) |
| 8 | | 4600 (GPS-PM) | 3000 (NCS) | 3300 (PTS) |
| 9 | | 2000 (NCS) | 2000 (NCS) | 6666 (WebSys) |
| 10 | | 2224 (BCU) | | 2000 (NCS) |

 **Note**

- The default settings for Keys 1 to 10 are all zero ("0").

Key to Acronyms

| Acronym | Meaning | Acronym | Meaning |
|---------|---------------------------------|---------|------------------------------------|
| ECS | Engine Control Service | NFA | Net File Application |
| GPS | GW Print Service | PDL | Printer Design Language |
| GSP-PM | GW Print Service – Print Module | PTS | Print Server |
| IMH | Image Memory Handler | SCS | System Control Service |
| MCS | Memory Control Service | SRM | System Resource Management |
| NCS | Network Control Service | WebDB | Web Document Box (Document Server) |

Service Tables

The machine is now set to record the debugging information automatically on the HDD (the target selected with SP5-857-002) for the events that you selected SP5-858 and the memory modules selected with SP5-859.

Please keep the following important points in mind when you are doing this setting:

- The number entries for Keys 1 to 5 are the same for the Copy, Printer, Scanner, and Web memory modules.

Using the Debug Log

- The initial settings are all zero.
- These settings remain in effect until you change them. Be sure to check all the settings, especially the settings for Keys 6 to 10. To switch off a key setting, enter a zero for that key.
- You can select any number of keys from 1 to 10 (or all) by entering the corresponding 4-digit numbers from the table.
- You cannot mix settings for the groups (COPY, PRINTER, etc.) for 006 to 010. For example, if you want to create a PRINTER debug log you must select the settings from the 9 available selections for the “PRINTER” column only.
- One area of the disk is reserved to store the debug log. The size of this area is limited to 4 MB.

5.13.2 RETRIEVING THE DEBUG LOG FROM THE HDD

1. Insert the SD card into service slot C3 of the copier.
2. Enter the SP mode and execute SP5857 009 (Copy HDD to SD Card (Latest 4 MB) to write the debugging data to the SD card.
3. Use a card reader to copy the file and send it for analysis to your local Ricoh representative by email, or just send the SD card by mail.

5.13.3 RECORDING ERRORS MANUALLY

Since only SC errors and jams are recorded to the debug log automatically, for any other errors that occur while the customer engineer is not on site, please instruct customers to perform the following immediately after occurrence to save the debug data. Such problems would include a controller or panel freeze.



- To use this feature, the customer engineer must have previously switched on the Save Debug Feature (SP5857-001) and selected the hard disk as the save destination (SP5857-002).
1. When the error occurs, on the operation panel, press (Clear Modes).
 2. On the operation panel, enter “01” then hold down for at least 3 seconds, until the machine beeps. Then release the key. This saves the debug log to the hard disk for later retrieval with an SD card by the service representatives.
 3. Switch the machine off and on to resume operation.
 4. The debug information for the error is saved on the hard disk so the service representatives can retrieve it on their next visit by copying it from the HDD to an SD card.

5.13.4 NEW DEBUG LOG CODES

SP5857-015 Copy SD Card-to-SD Card: Any Desired Key

This SP copies the log on an SD card (the file that contains the information written directly from shared memory) to a log specified by key number. The copy operation is executed in the log directory of the SD card inserted in the same slot. (This function does not copy from one slot to another.) Each SD card can hold up to 4 MB of file data. Unique file names are created for the data during the copy operation to prevent overwriting files of the same name. This means that log data from more than one machine can be copied onto the same SC card. This command does not execute if there is no log on the HDD for the name of the specified key.

SP5857-016 Create a File on HDD to Store a Log

This SP creates a 32 MB file to store a log on the HDD. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the HDD when the first log is stored on the HDD, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the HDD. With the file already created on the HDD for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-011 to delete the debug log data from the HDD and then execute this SP (SP5857-016).

SP5857-017 Create a File on SD Card to Store a Log

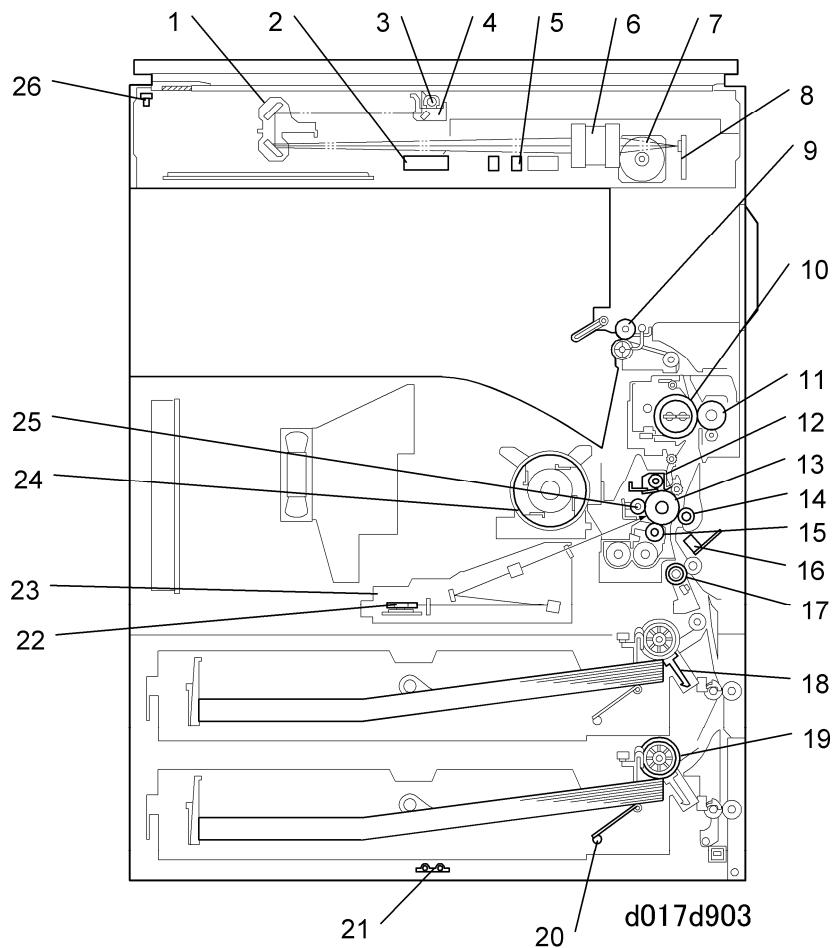
This SP creates a 4 MB file to store a log on an SD card. However, this is not a completely empty file. The created file will hold the number “2225” as the SCS key number and other non-volatile information. Even if this SP is not executed, a file is created on the SD card when the first log is stored on the SD card, but this operation takes time. This creates the possibility that the machine may be switched off and on before the log can be created completely. If you execute this SP to create the log file beforehand, this will greatly reduce the amount of time required to acquire the log information and save onto the SD card. With the file already created on the SD card for the log file, the data only needs to be recorded; a new log file does not require creation. To create a new log file, execute SP5857-012 to delete the debug log data from the SD card and then execute this SP (SP5857-017).

DETAILED SECTION DESCRIPTIONS

6. DETAILED SECTION DESCRIPTIONS

6.1 OVERVIEW

6.1.1 MECHANICAL COMPONENTS

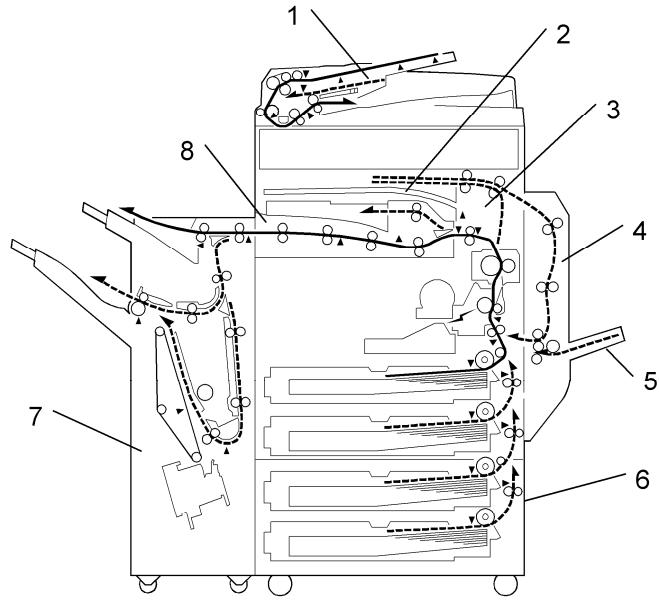


Detailed
Descriptions

Overview

| | |
|----------------------------|----------------------------------|
| 1. 2nd scanner | 14. Transfer roller |
| 2. Original width sensor | 15. Development roller |
| 3. Exposure lamp | 16. ID sensor |
| 4. 1st scanner | 17. Registration roller |
| 5. Original length sensor | 18. Friction pad |
| 6. Lens | 19. Paper feed roller |
| 7. Scanner motor | 20. Bottom plate |
| 8. SBU board | 21. Tray heater |
| 9. Exit roller | 22. Polygon mirror motor |
| 10. Fusing hot roller | 23. Laser unit |
| 11. Fusing pressure roller | 24. Toner supply bottle holder |
| 12. Cleaning unit | 25. Drum charge roller |
| 13. OPC drum | 26. Scanner home position sensor |

6.1.2 PAPER PATH



d017d904

1. Optional ADF
2. Optional 1-bin Tray
3. Optional Interchange Unit
4. Optional Duplex Unit
5. Optional By-pass Feed Tray
6. Optional Paper Tray Unit
7. Optional 1000-sheet Finisher
8. Optional Bridge Unit

Detailed
Descriptions

Overview

6.1.3 ELECTRICAL COMPONENT DESCRIPTIONS

Refer to the electrical component layout on the reverse side of the point-to-point diagram for the location of the components.

| Symbol | Name | Function |
|--------------------------|-------------------------|---|
| Motors | | |
| M | Upper Paper Lift Motor | Raises the bottom plate in the 1st paper tray. |
| M | Lower Paper Lift Motor | Raises the bottom plate in the 2nd paper tray. |
| M | Main Motor | Drives the main unit components. |
| M | Toner Supply Motor | Rotates the toner bottle to supply toner to the development unit. |
| M | Exhaust Fan Motor | Removes heat from around the fusing unit. |
| M | Polygonal Motor | Rotates the polygonal mirror. |
| M | Main Motor | Drives the main unit components. |
| M | Scanner Motor (Mono) | Monochrome scanner unit. |
| M | Scanner Motor (Color) | Color scanner unit. |
| Magnetic Clutches | | |
| MC | Lower Paper Feed Clutch | Starts paper feed from the 2nd paper tray. |
| MC | Lower Relay Clutch | Drives the lower relay rollers. |
| MC | Upper Paper Feed Clutch | Starts paper feed from the 1st paper tray. |
| MC | Upper Relay Clutch | Drives the upper relay rollers. |
| MC | Registration Clutch | Drives the registration rollers. |

Overview

| Switches | | |
|-----------------|---------------------------|---|
| SW | Correct PCU Detect Switch | Detects when a new PCU is installed. South Korea only. |
| SW | Right Cover Switch | Cuts the +5VLD and +24V dc power line and detects whether the right cover is open or not. |
| SW | Right Lower Cover Switch | Detects whether the right lower cover is open or not. |
| SW | Front Door Safety Switch | Cuts the +5VLD and +24V dc power line and detects whether the front cover is open or not. |
| Sensors | | |
| S | 1st Paper Lift Sensor | Detects when the paper in the 1st paper tray is at the feed height. |
| S | 2nd Paper Lift Sensor | Detects when the paper in the 2nd paper tray is at the feed height. |
| S | TD Sensor | Toner Density Sensor. Detects the amount of toner inside the development unit. |
| S | New PCU Detect Sensor | Detects when a new PCU is installed. |
| S | 1st Paper End Sensor | Informs the CPU when the 1st paper tray runs out of paper. |
| S | Upper Relay Sensor | Detects misfeeds. |
| S | 2nd Paper End Sensor | Informs the CPU when the 2nd paper tray runs out of paper. |
| S | Lower Relay Sensor | Detects misfeeds. |
| S | 1st Paper Height Sensor 1 | Detects the amount of paper in the 1st paper tray. |
| S | 1st Paper Height Sensor 2 | Detects the amount of paper in the 1st paper tray. |

Detailed Descriptions

Overview

| | | |
|---|------------------------------|--|
| S | 2nd Paper Height Sensor 1 | Detects the amount of paper in the 2nd paper tray. |
| S | 2nd Paper Height Sensor 2 | Detects the amount of paper in the 2nd paper tray. |
| S | 1st Bottom Fence Sensor 1 | 1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence. |
| S | 1st Bottom Fence Sensor 2 | 1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence. |
| S | 1st Bottom Fence Sensor 3 | 1 of 3 paper size sensors inside the machine that detect paper size in the upper tray according to the position of the bottom fence. |
| S | 1st Side Fence Sensor | Detects paper size in the upper tray according to the position of the side fence (used in combination with the upper tray bottom fence sensors). |
| S | 1st Tray Detect Sensor | Detects the presence of the upper tray. |
| S | 2nd Bottom Fence Sensor 1 | 1 of 3 paper size sensors inside the machine that detects paper size in the lower tray according to the position of the bottom fence. |
| S | 2nd Bottom Fence Sensor 2 | 1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence. |
| S | 2nd Bottom Fence Sensor 3 | 1 of 3 paper size sensors inside the machine that detect paper size in the lower tray according to the position of the bottom fence. |
| S | 2nd Side Fence Sensor | Detects paper size in the lower tray according to the position of the side fence (used in combination with the bottom fence sensors). |
| S | 2nd Tray Detect Sensor | Detects the presence of the lower tray. |

Overview

| | | |
|---|---------------------------------------|--|
| S | ID Sensor | Detects the density of various patterns and the reflectivity of the drum for process control. |
| S | Registration Sensor | Detects misfeeds and controls registration clutch off-on timing. |
| S | Correct Toner Type Sensor | Determines whether correct type of toner is in use. South Korea only. |
| S | Paper Exit Sensor | Detects misfeeds. |
| S | Paper Overflow Sensor | Detects paper overflow in the built-in copy tray. |
| S | APS Sensor 1: Original Width (Mono) | 1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. |
| S | APS Sensor 2: Original Width (Mono) | 1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. |
| S | APS Sensor 3: Original Length (Mono) | 1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. |
| S | APS Sensor 4: Original Length (Mono) | 1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. |
| S | APS Sensor 5: Original Length (Mono) | 1 of 5 APS sensors used in the monochrome scanner unit to detect the size of the original. EU only. |
| S | Scanner HP Sensor (Mono) | Detects the scanner unit home position sensor in the monochrome scanner. |
| S | APS Sensor 1: Original Width (Color) | 1 of 5 APS sensors used in the color scanner unit to detect the size of the original. |
| S | APS Sensor 2: Original Width (Color) | 1 of 5 APS sensors used in the color scanner unit to detect the size of the original. |
| S | APS Sensor 3: Original Length (Color) | 1 of 5 APS sensors used in the color scanner unit to detect the size of the original. |
| S | APS Sensor 4: Original | 1 of 5 APS sensors used in the color scanner unit to |

Detailed Descriptions

Overview

| | | |
|-------------|---------------------------------------|---|
| | Length (Color) | detect the size of the original. |
| S | APS Sensor 5: Original Length (Color) | 1 of 5 APS sensors used in the color scanner unit to detect the size of the original. EU only. |
| S | Scanner HP Sensor (Color) | Detects the position of the scanner unit in the color scanner. |
| PCBs | | |
| PCB | Operation Panel | Controls the operation panel. |
| PCB | MBU | Mother Board Unit. Interfaces between the BCU and controller board. |
| PCB | Controller Board | Controls all applications both directly and through other control boards. |
| PCB | Network Interface Card | Enables scan-to-email, LAN faxing, IP faxing, Internet faxing, and other functions. |
| PCB | IPU | Image Processing Unit. Performs image processing. |
| PCB | LSDB | Laser Synchronization Detection Board. Detects when the laser is about to start another main scan across the OPC drum |
| PCB | LDD | Laser Diode Driver. Controls the laser diodes. |
| PCB | PSU | Power Supply Unit. Provides dc power to the system and ac power to the fusing lamp and heaters. |
| PCB | SBU (Mono) | Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board. |
| PCB | SIU (Mono) | Connects and interfaces between the IPU and the SIO of the monochrome scanner unit. |
| PCB | SIO (Mono) | Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit. |
| PCB | Lamp Stabilizer (Mono) | Stabilizes the exposure lamp power supply. |

Overview

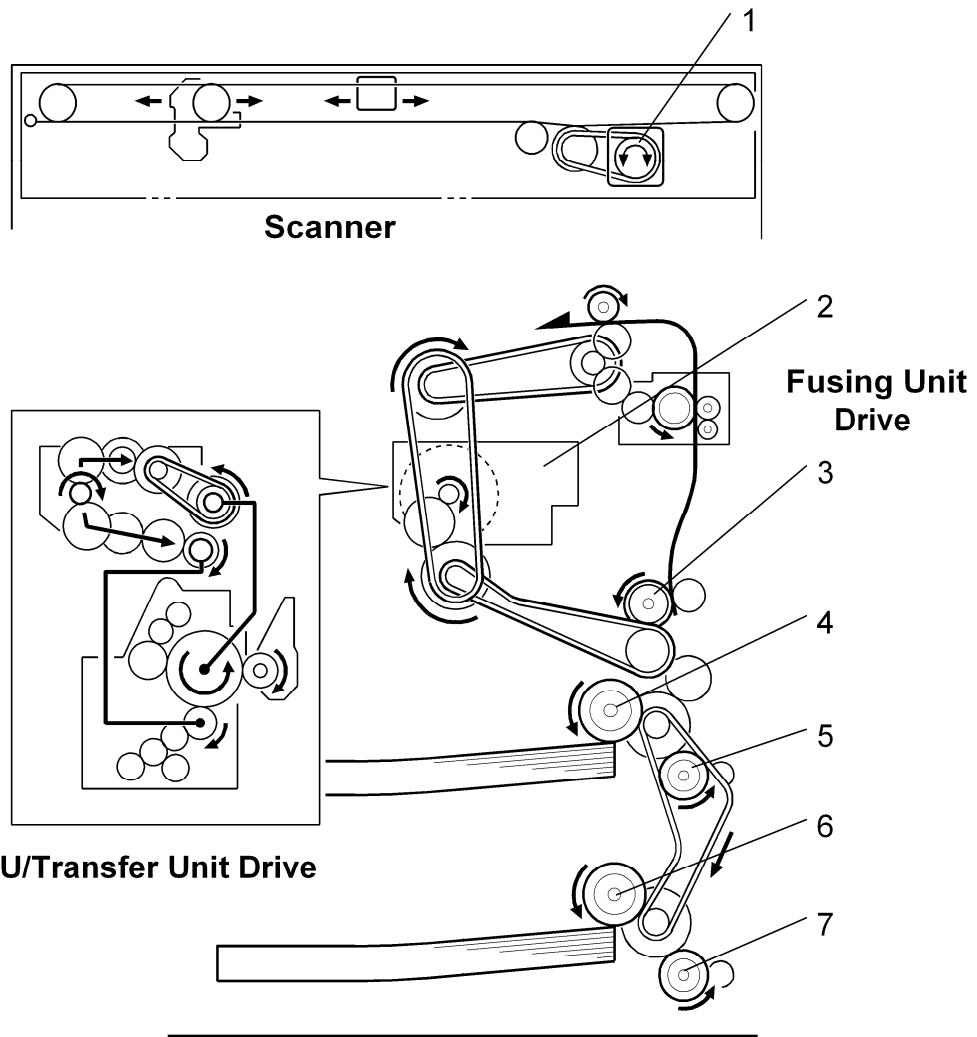
| | | |
|------------------|----------------------------|---|
| PCB | SBU (Color) | Sensor Board Unit. Contains the CCD, and outputs a video signal to the IPU board. |
| PCB | SIU (Color) | Connects and interfaces between the IPU and the SIO of the color scanner unit. |
| PCB | SIO (Color) | Interfaces between scanner unit and BCU, controls sensors and motors in the scanner unit. |
| PCB | Lamp Stabilizer (Color) | Stabilizes the power to the exposure lamp. |
| Solenoids | | |
| SOL1 | Fusing Drive Release | Releases the drive for the fusing unit. |
| Lamps | | |
| L | Quenching Lamp | Neutralizes any charge remaining on the drum surface after cleaning. |
| L | Secondary Fusing Lamp | Heats both ends of the hot roller. |
| L | Main Fusing Lamp | Heats the center of the hot roller. |
| L | Exposure Lamp (Mono) | Monochrome scanner unit. Applies high intensity light to the original for exposure. |
| L | Exposure Lamp (Color) | Color scanner unit. Applies high intensity light to the original for exposure. |
| Heaters | | |
| H1 | Anti-condensation (Option) | Turns on when the main power switch is off to prevent moisture from forming on the optics. |
| H2 | Tray (Option) | Turns on when the main power switch is off to prevent moisture from forming around the paper trays. |
| Others | | |
| CO | Mechanical Counter | Keeps track of the total number of prints made. |

Detailed Descriptions

Overview

| | | |
|----|--------------------------|---|
| CO | Key Counter (Option) | Used for control of authorized use. If this feature is enabled for copying, copying will be impossible until it is installed. |
| H | Tray Heater | Option. Turns on when the main power switch is off to prevent moisture from forming around the paper trays. |
| H | Anti-Condensation Heater | Option. Turns on when the main power switch is off to prevent moisture from forming on the optics. |
| TH | Thermistor (Sub) | Reads the temperature at the end of the hot roller. These readings are used for fusing temperature control. |
| TH | Thermistor (Main) | Reads the temperature at the center of the hot roller. These readings are used for fusing temperature control. |
| TS | Thermostats | Open the fusing lamp circuit if the fusing unit overheats. |

6.1.4 DRIVE LAYOUT



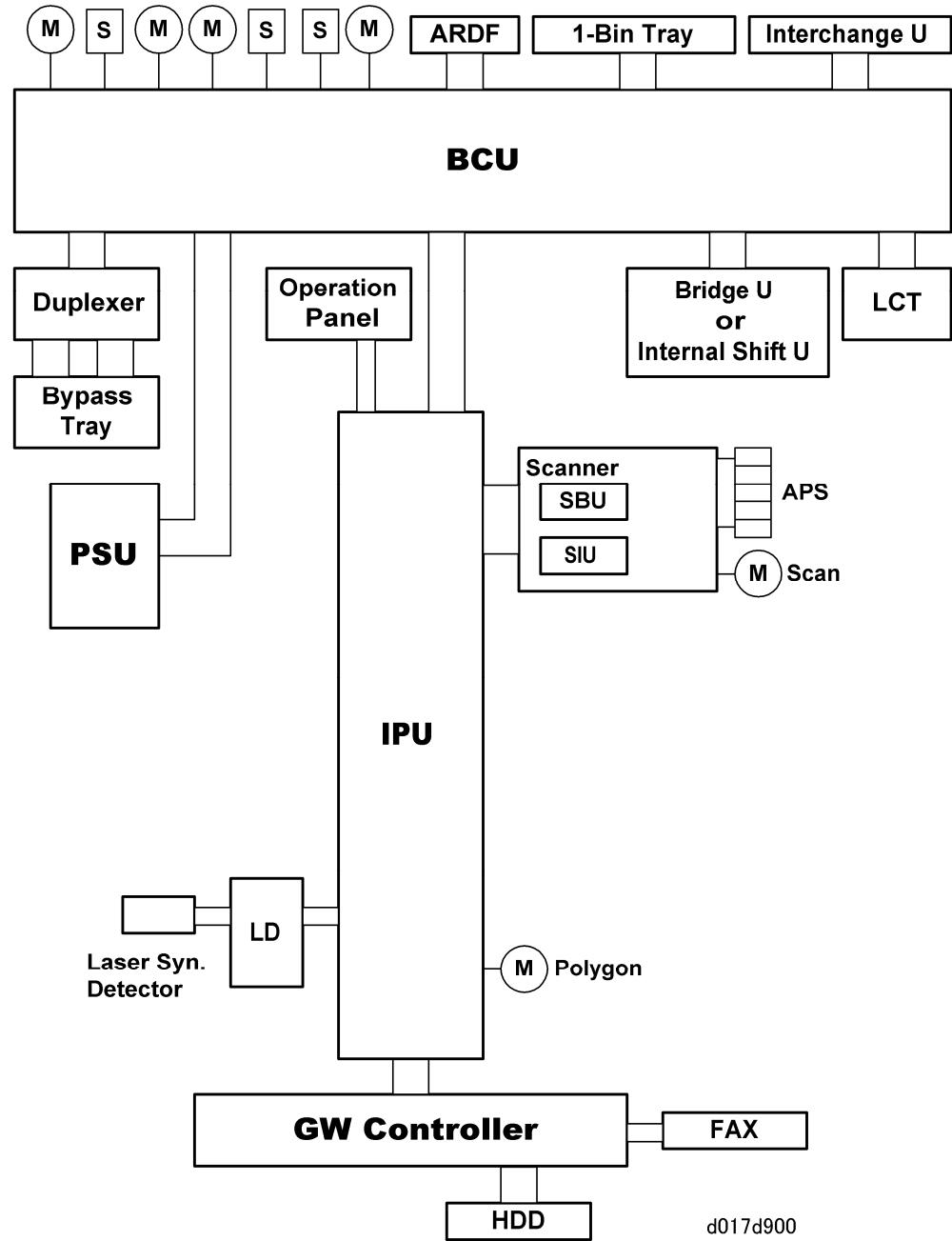
1. Scanner Drive Motor
2. Main Motor
3. Registration Clutch
4. Upper Paper Feed Clutch
5. Upper Transport Clutch
6. Lower Paper Feed Clutch
7. Lower Transport Clutch

Detailed
Descriptions

Board Structure

6.2 BOARD STRUCTURE

6.2.1 MAIN BOARDS



Here is a summary of the new features of the boards in this machine. For more details, please refer to the point-to-point diagram provided with the machine.

BCU (Base Engine Control Unit)

This is the scanner and engine control board. It controls the following functions:

Board Structure

- Engine sequence
- Timing control for peripherals
- Image processing control and video control
- Operation control
- Drive control for the sensors, motors, and solenoids of the printer and scanner
- High voltage supply board control
- Fusing control

PSU (Power Supply Unit)

Provides dc power to the system and ac power to the fusing lamp and optional heaters.

Operation Panel

Controls the operation panel user interface (key input) and the LCD display.

IPU (Image Processing Unit)

The IPU board does the image processing (auto shading, filtering, magnification, gradation processing), and finally sends the data to the LD drive board. The IPU also functions as a motherboard because it has connection points for the GW controller and FCU. The ICIB (Illegal Copy Interface Board) also connects directly to the IPU

Scanner Board (Mono or Color)

The machine can have either a black-and-white or color scanner unit. Although the machine does not print color, the color scanner provides color scanning for applications such scan-to-email, scan to PDF, etc. Either unit is installed (not both).

- SBU (Sensor Board Unit). Converts the analog signals to 8-bit digital signals, and then sends them to the IPU for processing.
- SIU (Scanner Interface Unit). Interface between the scanner unit and the IPU.

LD (Laser Diode Board)

The laser diode board is controlled directly by the GAVD mounted on the IPU.

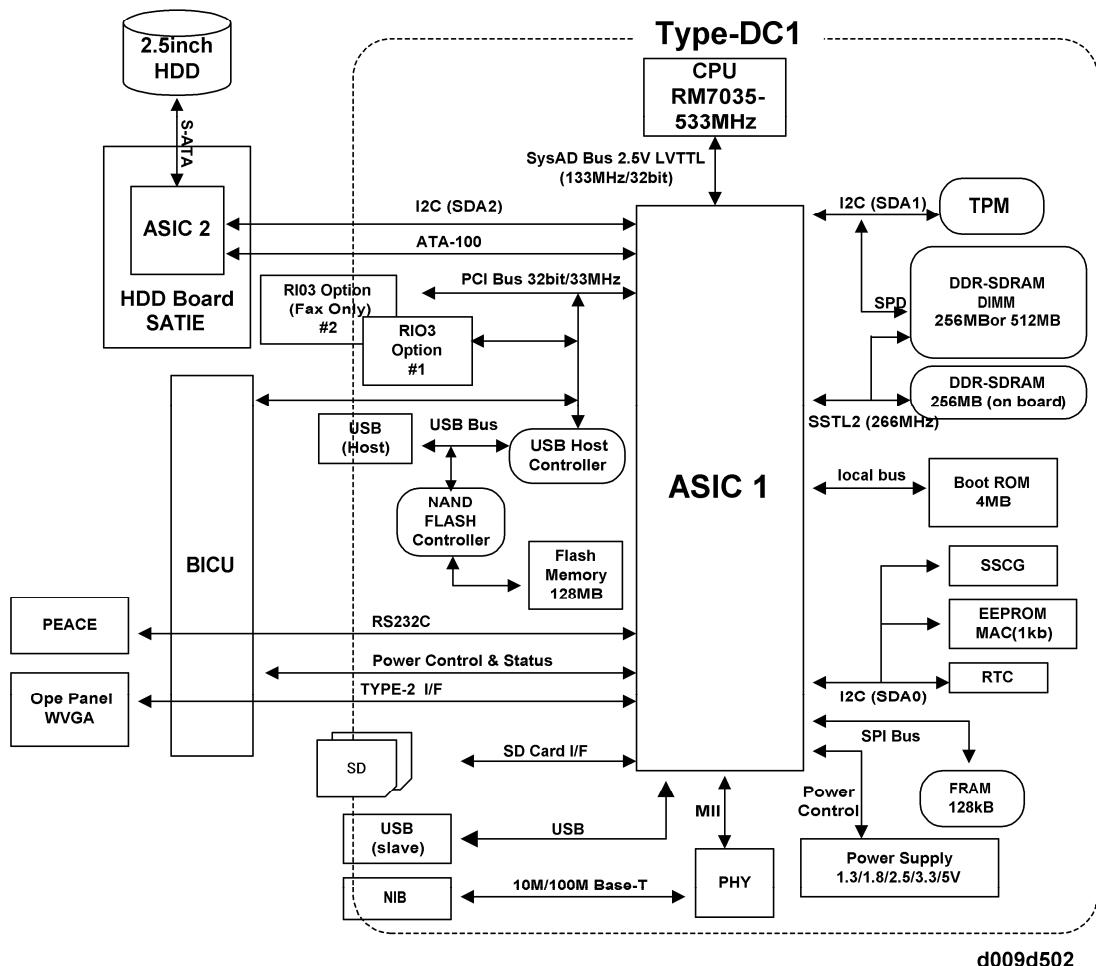
GW Controller

Controls the memory and the fax/scanner/printer options. The NIB (Network Interface Board) and USB 2.0 interfaces are built into the controller board and do not require installation.

Fax Unit D361. The fax unit is an option for this machine. A G3 option is also available.

Board Structure

6.2.2 CONTROLLER BOARD



The controller controls all applications, including copier, printer, scanner, and fax applications. To add the optional printer, scanner, or fax applications, SD cards must be inserted in the SD card slots of the controller. The fax option, however, requires installation of an FCU.

ASCI 1: Contains the dedicated GW controller chips of the shared resources (the CPU, memory, and HDD hardware) for the copying and printing functions.

- CPU (RM7035-533MHz). The central processing unit that controls the operation of the controller board.
 - HDD. The interface for connection of the flat film cable connection to the HDD unit.
 - DDR SDRAM. The image memory for the printer function where image compression,

Board Structure

image rotation and other operations are done.

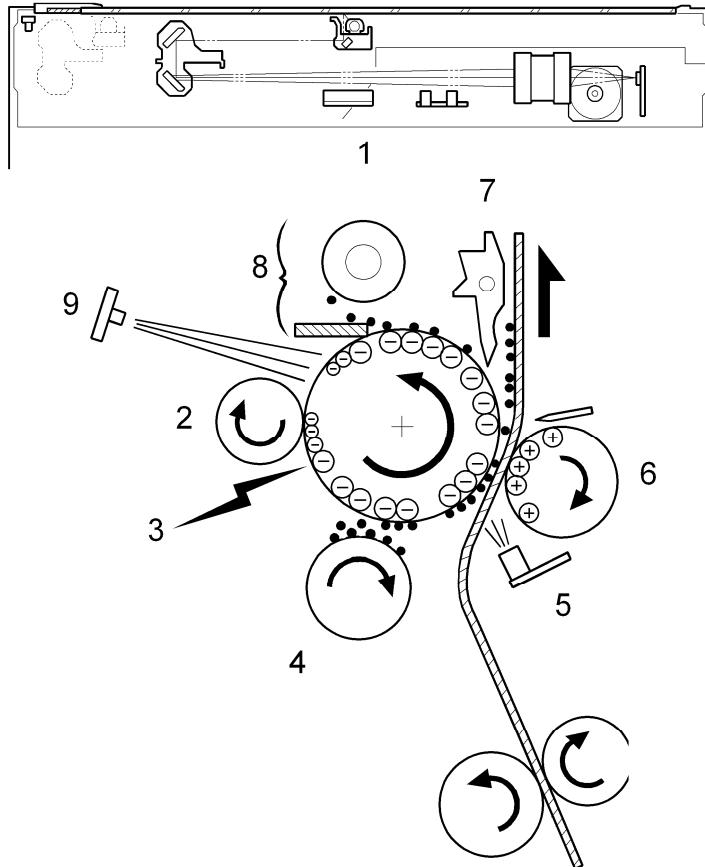
- **SD.** This is the interface for SD card slots 1 and 2. Slot 2 is for optional applications, or for firmware version updates, moving applications to other SD cards, and downloading/uploading NVRAM contents
- **Board Option Slot** Only one of the following options can be installed: IEEE1284 Interface Board (Centronics), IEEE802.11a/g, g (Wireless LAN), Bluetooth Interface Unit, File Format Converter (MLB) or Cumin-M.
- **Flash ROM.** Stores the program. Maximum capacity: 128 MB.
- **USB.** The interface for USB 2.0 devices. Supports both low-speed and high-speed modes. USB support is built-into the controller. No installation is required for the USB function. But, **SP5985 001** must be set to "1" to enable the network functions.
- **NIB.** The Ethernet interface connection. Network support is built-into the controller. No installation is required for the network function. But, SP5985 002 must be set to "1" to enable the network functions.
- **EEPROM.** Stores the data for the SP code settings.
- **NVRAM.** The memory that stores the system configuration and other information.

HDD: A 2.5" HDD (more than 40 GB) can be connected using an S-ATA I/F.

Detailed
Descriptions

Copy Process

6.3 COPY PROCESS



1. Exposure

A xenon lamp exposes the original. Light reflected from the original passes to the CCD, which converts it into an analog data signal. This data is converted to a digital signal, processed and stored in the memory. At the time of printing, the data is retrieved and sent to the laser diode. For multi-copy runs, the original is scanned once only and stored to the memory.

2. Drum Charge

In the dark, the charge roller gives a negative charge to the organic photo-conductive (OPC) drum. The charge remains on the surface of the drum because the OPC layer has a high electrical resistance in the dark.

3. Laser Exposure

The processed data scanned from the original is retrieved from the memory and transferred to the drum by a laser beam, which forms an electrical latent image on the drum surface. The amount of charge remaining as a latent image on the drum depends on the laser beam intensity, which is controlled by the IPU board.

Copy Process

4. Development

The magnetic developer brush on the development rollers comes in contact with the latent image on the drum surface. Toner particles are electrostatically attached to the areas of the drum surface. Were the laser reduced the negative charge on the drum.

5. ID Sensor

The laser forms a sensor pattern on the drum surface. The ID sensor measures the reflectivity of the pattern. The output signal is one of the factors used for toner supply control. Also, the ID sensor measures the reflectivity of the drum surface. The output signal is used for charge roller voltage control.

6. Image Transfer

Paper is fed to the area between the drum surface and the transfer roller at the proper time for aligning the copy paper and the developed image on the drum surface. Then, the transfer roller applies a high positive charge to the reverse side of the paper. This positive charge pulls the toner particles from the drum surface onto the paper. At the same time, the paper is electrostatically attracted to the transfer roller.

7. Paper Separation

Paper separates from the drum as a result of the electrostatic attraction between the paper and the transfer roller. The discharge plate helps separate the paper from the drum.

8. Cleaning

The cleaning blade removes any toner remaining on the drum surface after the image transfers to the paper.

9. Quenching

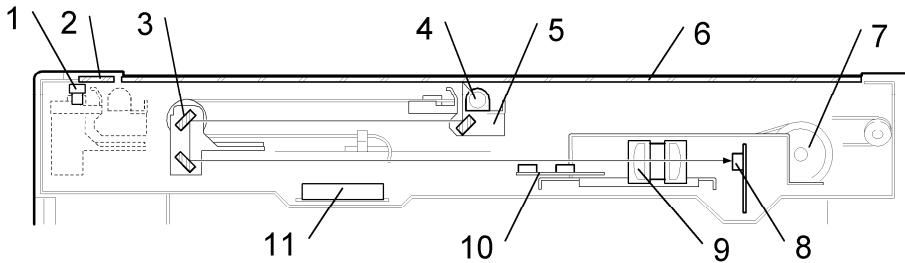
The light from the quenching lamp electrically neutralizes the charge on the drum surface.

Detailed
Descriptions

Scanning

6.4 SCANNING

6.4.1 OVERVIEW



b230d501

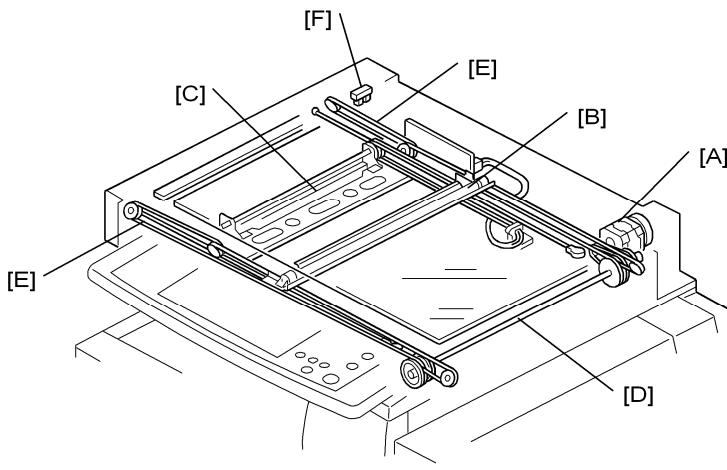
| | |
|-------------------------------|----------------------------|
| 1. Scanner HP sensor | 7. Scanner motor |
| 2. ADF exposure glass | 8. Sensor board unit (SBU) |
| 3. 2nd scanner (2nd carriage) | 9. Lens Block |
| 4. Scanner lamp | 10. Original length sensor |
| 5. 1st scanner (1st carriage) | 11. Original width sensor |
| 6. Exposure glass | |

The original on the exposure glass or ARDF exposure glass reflects the light emitted from the scanner lamp. The reflected light goes to the CCD on the sensor board by way of the 1st and 2nd scanners. The sensor board converts the CCD analog signals into digital signals.

When the original is manually placed on the exposure glass, the scanner motor pulls the 1st and 2nd scanners via mechanical linkage. The original is scanned from left to right.

When the original is fed from the optional ARDF, it is automatically transported onto the ARDF exposure glass, and to the original exit. The original does not stay on the glass; but goes to the exit. The 1st and 2nd scanners stay at their home positions.

6.4.2 SCANNER DRIVE



b230d102

The scanner motor [A] drives the 1st scanner [B] and the 2nd scanner [C] through the scanner drive pulley, scanner drive shaft [D], and two scanner wires [E].

Book mode -

The SBU board controls the scanner drive motor. The 2nd scanner speed is half that of the 1st scanner.

In reduction or enlargement mode, the scanning speed depends on the magnification ratio. The returning speed is always the same, whether in full size or magnification mode. The image length change, in the sub scan direction, is done by changing the scanner motor speed. In the main scan direction it is done by image processing on the BICU board.

You can adjust the magnification in the sub-scan direction by changing the scanner motor speed with SP4-008.

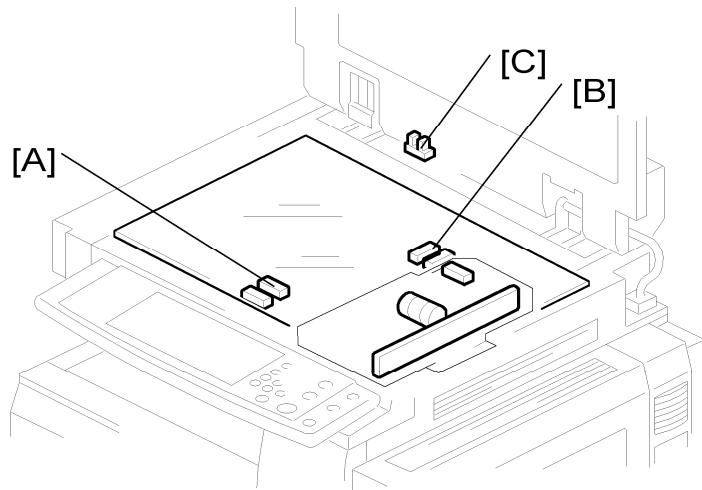
ARDF mode -

The scanners always stay in their home position (the scanner HP sensor [F] detects the 1st scanner) to scan the original. The ARDF motor feeds the original through the ARDF. In reduction/enlargement mode, the image length change in the sub-scan direction is done by changing the ARDF motor speed. Magnification in the main scan direction is done in the BICU board. This is the same as for book mode.

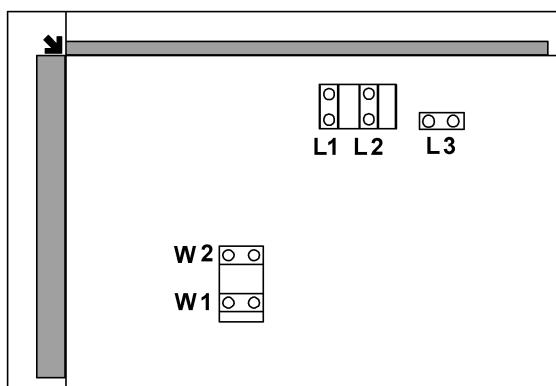
You can adjust magnification in the sub-scan direction by changing the ARDF motor speed with SP6-017.

Scanning

6.4.3 ORIGINAL SIZE DETECTION



- The original width sensors [A] detect the original width. The original length sensors [B] detect the original length.
- The SBU controller on the SBU board checks each sensor status when the platen cover sensor [C] is activated as it is closed. It detects the original size by the on/off signals it gets from each sensor.
- If the copy is made with the platen cover fully open, the SBU controller on the SBU determines the original size from the sensor outputs after the Start key is pressed.



Scanning

| Original Size | | Length Sensor | | | Width Sensor | | SP4-301 display |
|--|-----------------------------|---------------|----|----|--------------|----|-----------------|
| Metric version | Inch version | L3 | L2 | L1 | W1 | W2 | |
| A3 | 11" x 17" | O | O | O | O | O | 00011111 |
| B4 | 10" x 14" | O | O | O | O | X | 00011110 |
| F4 8.5" x 13", 8.25" x 13", or 8" x 13" SP 5126 controls the size that is detected | 8.5" x 14" | O | O | O | X | X | 00011100 |
| A4 LEF | 8.5" x 11" | X | X | X | O | O | 00000011 |
| B5 LEF | - | X | X | X | O | X | 00000010 |
| A4 SEF | 11" x 8.5" | X | O | O | X | X | 00001100 |
| B5 SEF | - | X | X | O | X | X | 00000100 |
| A5 LEF/ SEF | 5.5" x 8.5", 8.5" x 5.5" | X | X | X | X | X | 00000000 |

O: Paper present

X: Paper not present

The above table shows the outputs of each original size sensor. This original size detection method eliminates the necessity for a pre-scan and increases the machine's productivity. However, if the by-pass tray is used, the machine assumes that the copy paper is lengthwise (L). For example, if A4 sideways paper is placed on the by-pass tray, the machine assumes it is A3 paper and scans a full A3 area. Information from the original size sensors is disregarded. Refer to the ARDF manual for more information on original size detection with the ARDF.

Detailed Descriptions

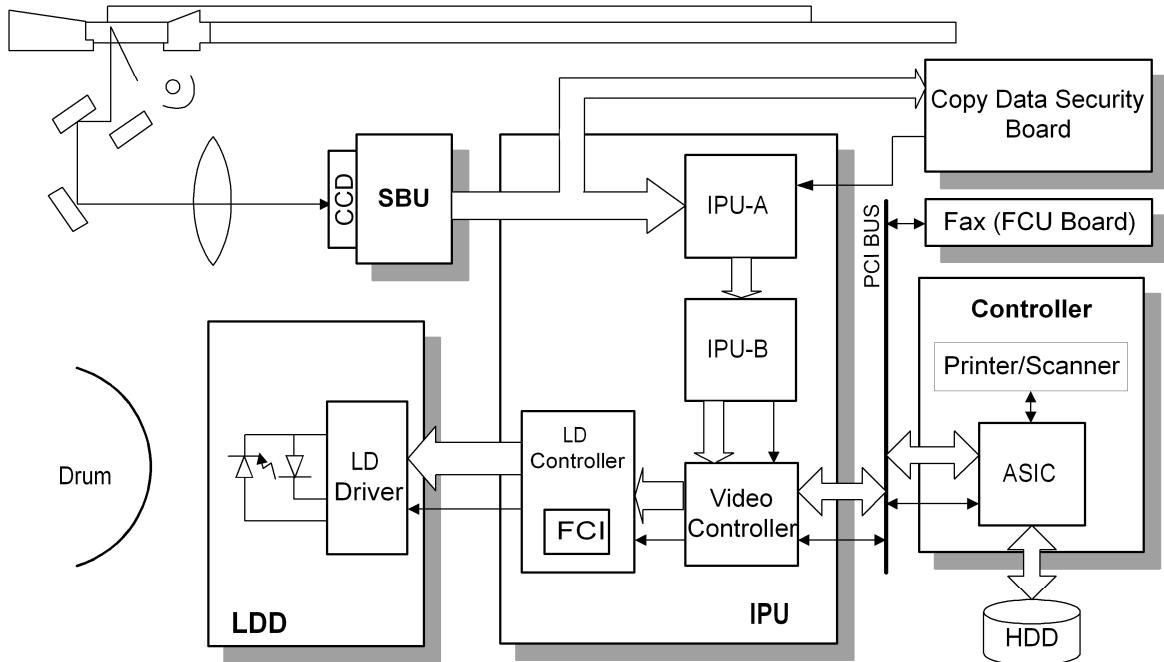
6.4.4 ANTI-CONDENSATION HEATER

The anti-condensation heater is available as an optional unit. The anti-condensation heater prevents condensation on the mirrors. Condensation can occur when the scanner unit is moved from a cold room to a warm room. Condensation can cause abnormal images.

Image Processing

6.5 IMAGE PROCESSING

6.5.1 OVERVIEW



The CCD generates an analog video signal. The SBU (Sensor Board Unit) converts the analog signal to an 8-bit digital signal, then it sends the digital signal to the IPU (Image Processing Unit) board.

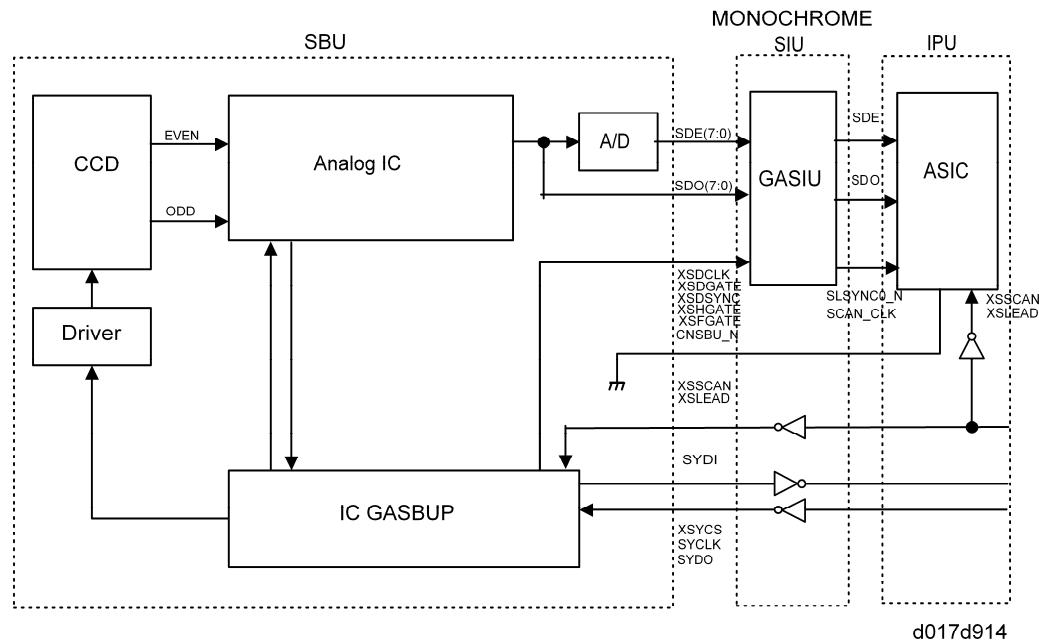
The IPU board performs the image processing, such as auto shading, filtering, magnification, gradation processing.

The ASIC on the controller board performs the image editing, such as image repeat, double copy.

Finally, the IPU board sends the video data to the LD drive board.

6.5.2 SBU (SENSOR BOARD UNIT)

Monochrome Scanner Unit



The CCD converts the light reflected from the original into an analog signal. The CCD line has 7,400 pixels and the resolution is 600 dpi (23.6 lines/mm).

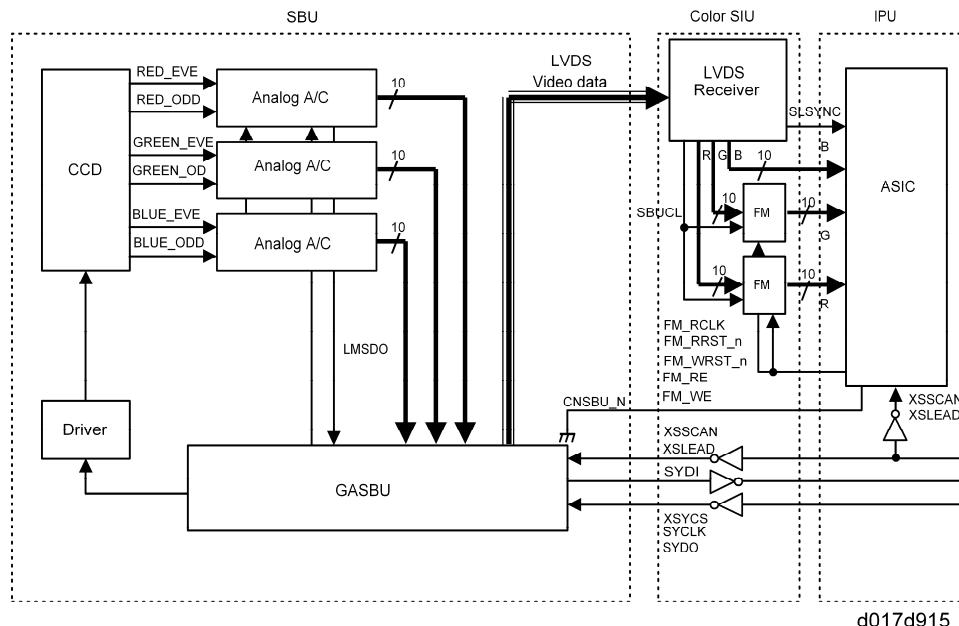
The CCD has two output lines, for odd and even pixels, to the analog processing IC. The analog processing IC performs the following operations on the signals from the CCD:

1. Z/C (Zero Clamp):
Adjusts the black level reference for even pixels to match the odd pixels.
2. Signal Amplification:
The analog signal is amplified by operational amplifiers in the AGC circuit.
3. Auto Gain Control
Adjusts the gain curve for the scanned image density.

After the above processing, the analog signals are converted to 8-bit signals by the A/D converter. This will give a value for each pixel on a scale of 256 grades. Then, the digitized image data goes to the IPU board.

Image Processing

Color Scanner Unit



d017d915

SBU

The VPU (Video Processor Unit) does the following functions:

1. Black level correction
2. White level correction
3. Gradation calibration
4. ADS control (Background Density)
5. Creating the SBU test pattern

Operation Summary

The signals from the 3-line CCD, one line for each color (R, G, B) and 2 analog signals per line (ODD, EVEN), are sampled by the ASIC and converted to digital signals in the 10-bit A/D converter. This is the first phase of processing the data scanned from the original.

Storing Operation Settings

The controller stores the SBU settings. These values must be restored after the lens block is replaced:

| | | |
|--------------------|------------------|--------------------------------------|
| SP4-008-001 | Sub Scan Mag | Sub Scan Magnification Adjustment |
| SP4-010-001 | Leading Edge Reg | Leading Edge Registration Adjustment |
| SP4-011-001 | Side to Side Reg | Side to Side Registration Adjustment |

Image Processing

Also, before lens block replacement, enter the SP mode and note the settings of **SP4-688-001** (DF density adjustments). After lens block replacement, do some copy samples with the DF, then check the copies. If the copies have background, change **SP4-688-001** to their previous settings, or adjust until the background is acceptable. This SP code is also used to adjust the DF scanning density, if the scanning densities of the DF and the platen mode is not the same.

SBU Test Mode

There are two SP codes to create a test pattern which can be used as a diagnostic tool to troubleshoot problems in the SBU:

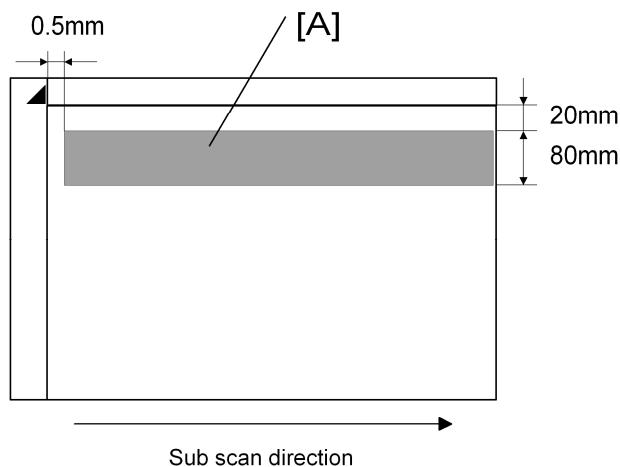
SP4907 001 SBU Pattern - Test Pattern change

To print the pattern:

Select the pattern to print.

Touch "Copy Window" then press the Start key twice.

6.5.3 AUTO IMAGE DENSITY



Detailed
Descriptions

ADS prevents the background of an original from appearing on copies.

The copier scans the auto image density detection area [A] as shown in the diagram. This corresponds to a few mm at one end of the main scan line. As the scanner scans down the page, the SBU detects the peak white level for each scan line. The IPU performs the ADS function in accordance with the peak white level.

When an original with a gray background is scanned, the density of the gray area is the peak white level density. Therefore, the original background will not appear on copies.

Because peak level data is taken for each scan line, ADS corrects for any changes in

Image Processing

background density down the page.

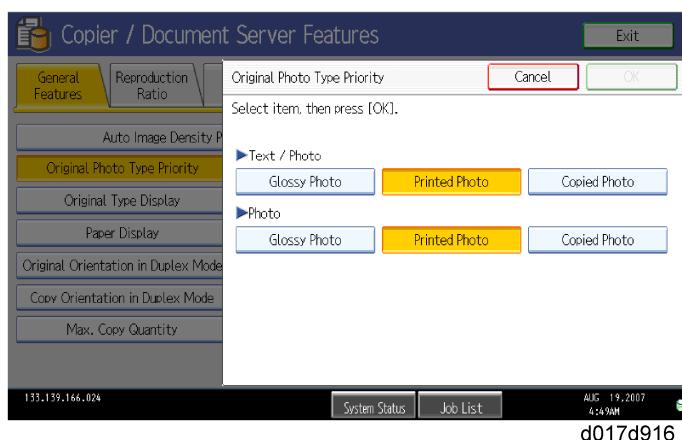
As with previous digital copiers, the user can select manual image density when selecting auto image density mode, and the machine will use both settings when processing the original.

6.5.4 ORIGINAL TYPE SETTINGS

The user can select one of the following modes with the User Tools screen: Text, Text/Photo, Photo, Pale, Generation.

Text/Photo and Photo have three different settings (Glossy Photo, Printed Photo, Copied Photo, etc).

To display this screen, press the User Tools/Counter button (Copier/Document Server Settings' on the display panel, press the 'General Features' tab, and then press 'Original Photo Type Priority'.



| Mode | Function |
|------------|--|
| Text | Best reproduction of text and sharp lines. Ignores background texture. |
| Text/Photo | Good reproduction of mixed text and photographs with accurate grayscaling, better than that achieved in the Text mode. |
| Photo | Best possible reproduction of photographs. |
| Pale | Reproduction similar to text mode, but of lower contrast. Ideal for copying thin original. |

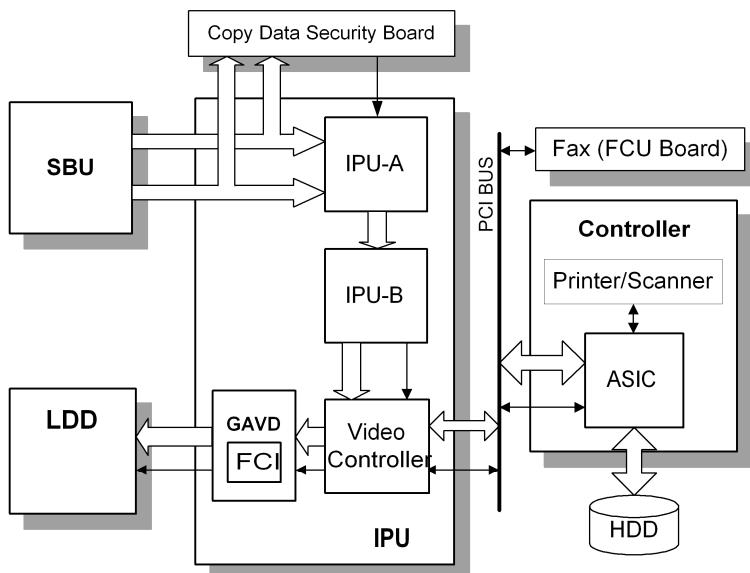
Image Processing

| Mode | Function |
|-----------------|---|
| Generation Copy | Attempts to achieve the best reproduction of copied originals that are faded because they are copies of copies. |

In addition, there are two main image processing modes: grayscale processing and binary picture processing. When no optional hard disk has been installed, the machine uses binary picture processing. However, when the optional hard disk has been installed, the machine uses grayscale processing. The user or technician cannot select the mode.

6.5.5 IPU (IMAGE PROCESSING UNIT)

Overview



The image data from the SBU goes to the IPU (Image Processing Unit) ICs on the IPU board, which does the following processes on the image data.

Detailed Descriptions

IPU-A

- Auto shading
- Pre-filtering
- Magnification
- Test pattern generation

IPU-B

- Filtering (MTF and smoothing)
- ID gamma correction
- Grayscale processing

Image Processing

- Binary picture processing
- Error diffusion
- Dithering

Video Controller

- Video path control

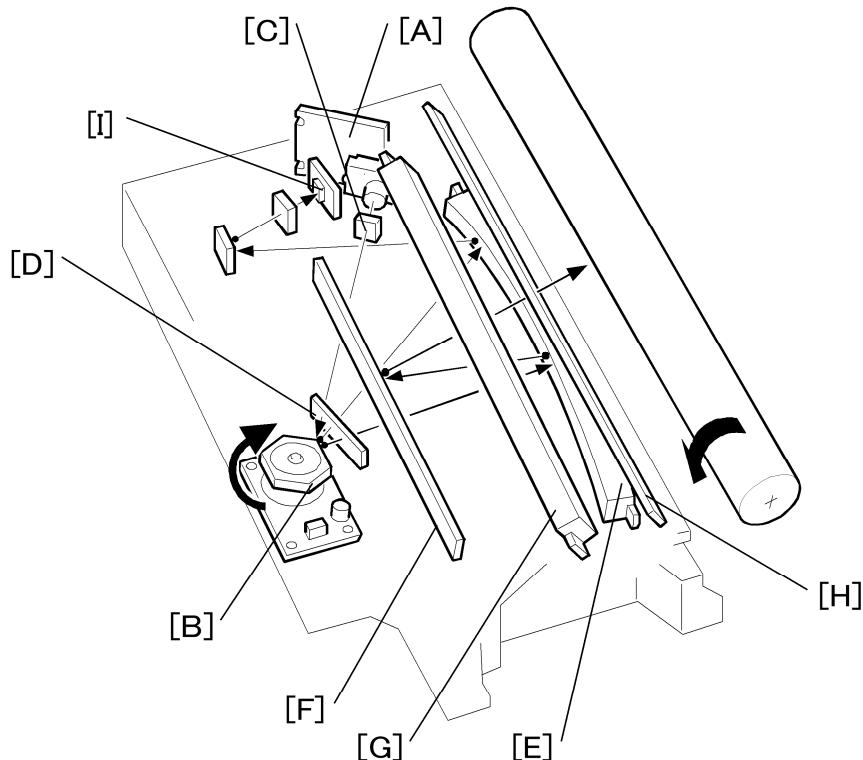
GAVD

- FCI (Fine Character and Image)

The image data then goes to the LD driver (LDD).

6.6 LASER EXPOSURE

6.6.1 OVERVIEW



b205d901

The optical path from the laser diode to the drum is shown above.

The LD unit [A] outputs a laser beam to the polygon mirror [B] through the cylindrical lens [C]. The shield glass [D] prevents dust from reaching the polygon mirror.

Each surface of the polygon mirror reflects one full main scan line. The laser beam goes to the F-theta mirror [E], mirror [F], and BTL (barrel toroidal lens) [G]. Then the laser beam goes to the drum through the toner shield glass [H].

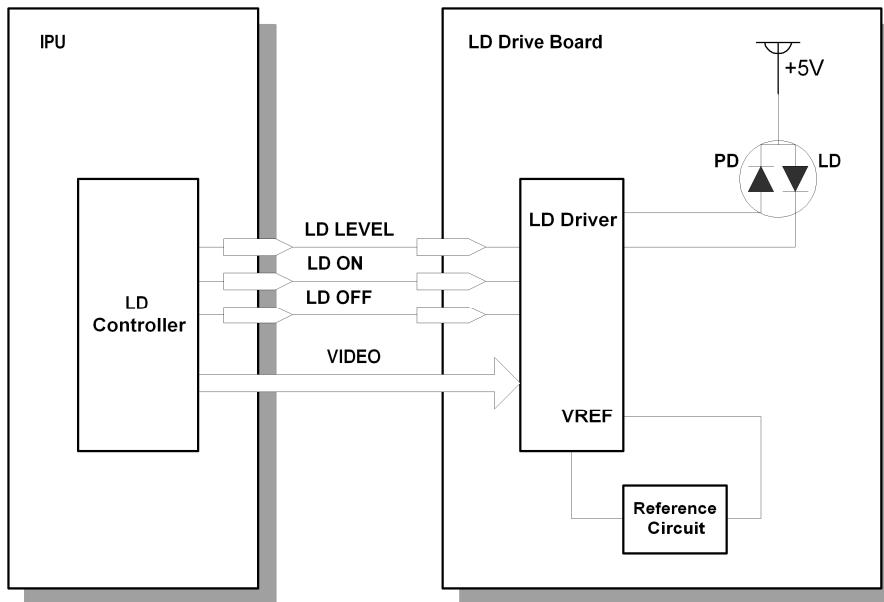
The laser synchronizing detector [I] determines the main scan starting position.

The speed of the polygon mirror motor is 35,433 rpm for 600 dpi.

Detailed
Descriptions

Laser Exposure

6.6.2 AUTO POWER CONTROL (APC)



The LD driver IC drives the laser diode. To prevent the intensity of the laser beam from changing because of the temperature, the machine monitors the current passing through the laser diode (LD). The machine adjusts the current to the laser diode by comparing it with the reference level from the reference circuit.

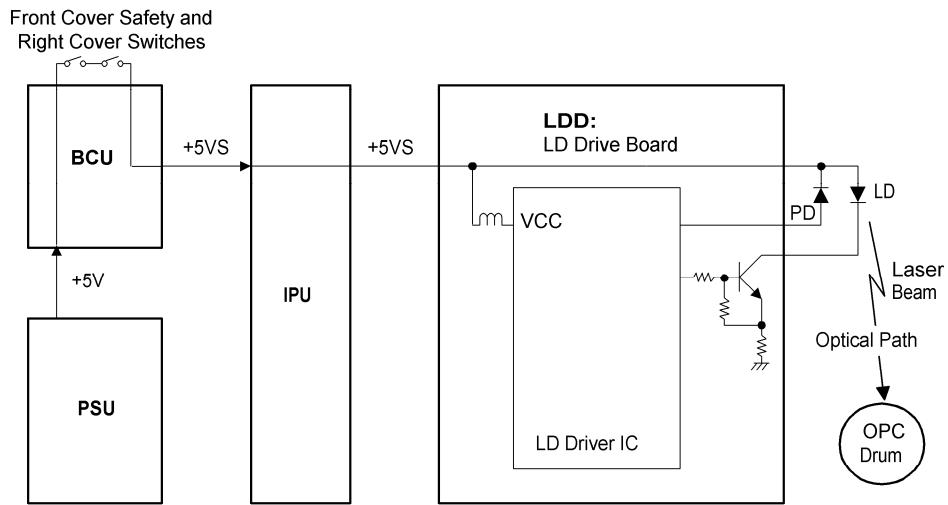
This auto power control is done just after the machine is turned on and during printing while the laser diode is active.

The laser diode power is adjusted on the production line.

Note

- Do not touch the variable resistors on the LD unit in the field.

6.6.3 LD SAFETY SWITCH



d017d902

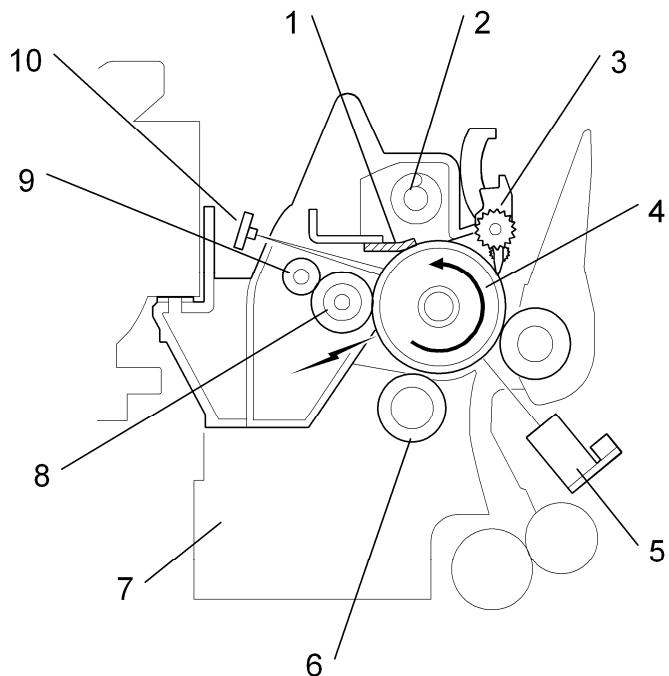
To ensure technician and user safety and to prevent the laser beam from inadvertently switching on during servicing, safety switches are located at the front and right covers. The switches are installed on the +5VLD line coming from the power supply unit through the BCU and IPU boards.

When the front cover or the right cover is opened, the power supply to the laser diode is interrupted.

Photoconductor Unit (PCU)

6.7 PHOTOCONDUCTOR UNIT (PCU)

6.7.1 OVERVIEW



The PCU consists of the components shown in the above illustration. An organic photoconductor (OPC) drum (diameter: 30 mm) is used in this machine.

| | |
|---|---|
| 1. Cleaning Blade | 6. Development Roller |
| 2. Toner Collection Coil | 7. Development Unit |
| 3. Pick-off Pawl | 8. Charge Roller |
| 4. OPC Drum | 9. Charge Roller Cleaning Roller |
| 5. ID Sensor (see the note below this list) | 10. Quenching Lamp (see the note below this list) |

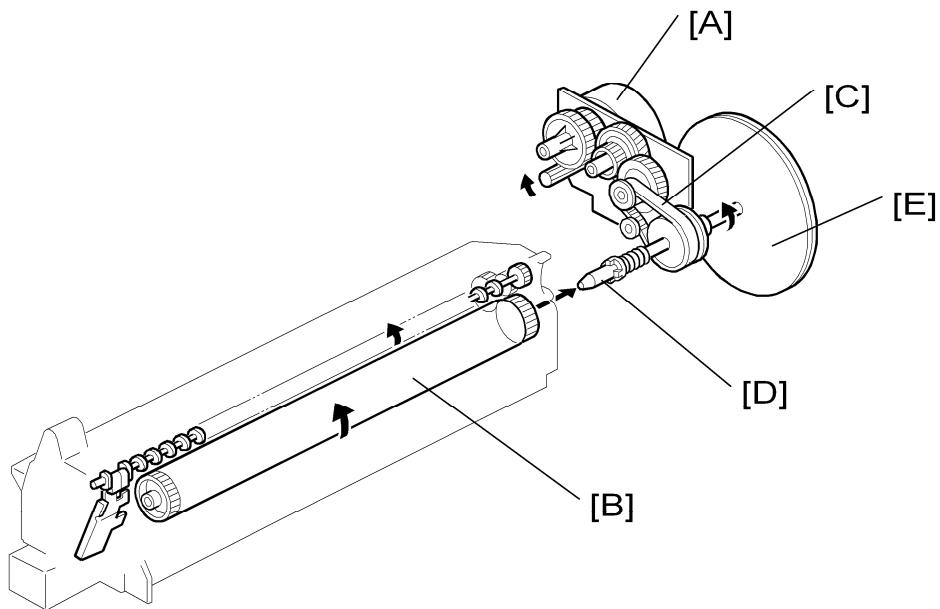
Note

- These parts are not included in the PCU.

The machine informs the user when the PCU life has finished. However, the user can continue to make copies.

SP5-912 can be used to enable or disable this warning message, and to change the default replacement interval (the default is 60k).

6.7.2 DRIVE



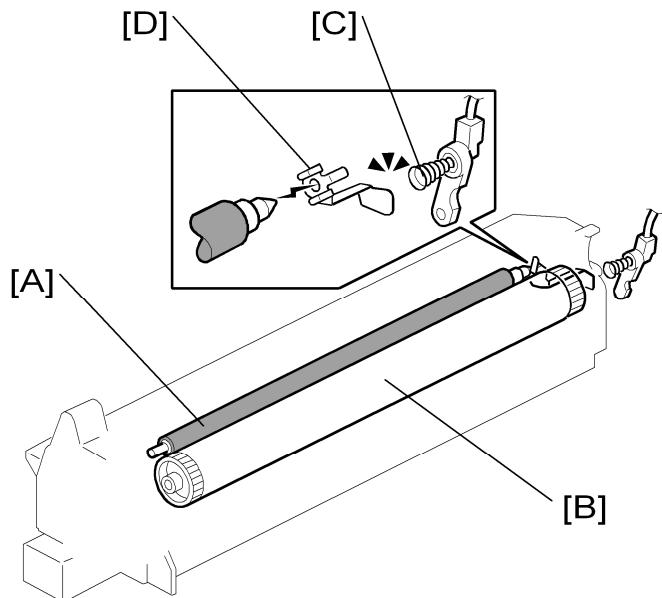
The main motor [A] drives the drum [B] through a series of gears, a timing belt [C], and the drum drive shaft [D]. The main motor assembly includes a drive controller, which outputs a motor lock signal when the rotation speed is out of the specified range.

The fly-wheel [E] on the end of the drum drive shaft stabilizes the rotation speed (this prevents banding and jitter from appearing on copies).

Drum Charge

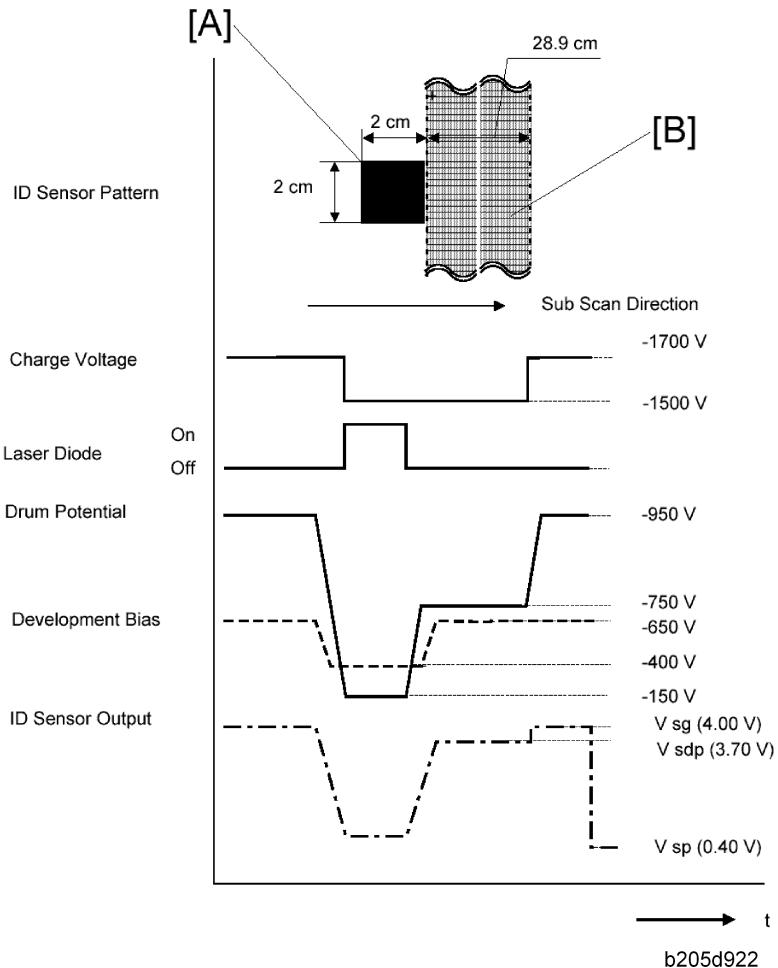
6.8 DRUM CHARGE

6.8.1 OVERVIEW



This copier uses a drum charge roller to charge the drum. The drum charge roller [A] always contacts the surface of the drum [B] to give it a negative charge of $-900V$. The high voltage supply board gives a negative dc voltage to the drum charge roller through the spring [C] and terminal plate [D].

6.8.2 CHARGE ROLLER VOLTAGE CORRECTION



With a drum charge roller system, the voltage transferred from roller to drum varies with the temperature and humidity around the drum charge roller. The lower the temperature or humidity is, the higher the applied voltage required.

To compensate, the machine uses the ID sensor to measure the effects of current environmental conditions. For this measurement, the process control parameters are balanced so that any small change in drum potential caused by environmental effects is reflected in a change in the amount of toner transferred to the drum.

This measurement is made immediately after the ID sensor pattern for toner density control. Immediately after making ID sensor pattern [A], the charge roller voltage stays on, but the development bias goes up to -650V; as a result the drum potential is reduced to -750V. The laser diode is not switched on, and the drum potential is now slightly higher than the development bias, so only a very small amount of toner transfers to the drum.

The ID sensor measures the density of this pattern [B], and the output voltage is known as

Drum Charge

V_{sdp} . This voltage is compared with V_{sg} (read from the bare drum at the same time). If the humidity drops, the drum potential goes up (to a higher –ve voltage) even if the charge roller voltage supply stays the same (efficiency of voltage transfer is higher with lower humidity). As a result, less toner is transferred to ID sensor pattern [B]. If the sensor output reaches a certain point, the drum charge voltage will be reduced.

To determine whether to change the drum charge roller voltage, the machine compares V_{sdp} with V_{sg} .

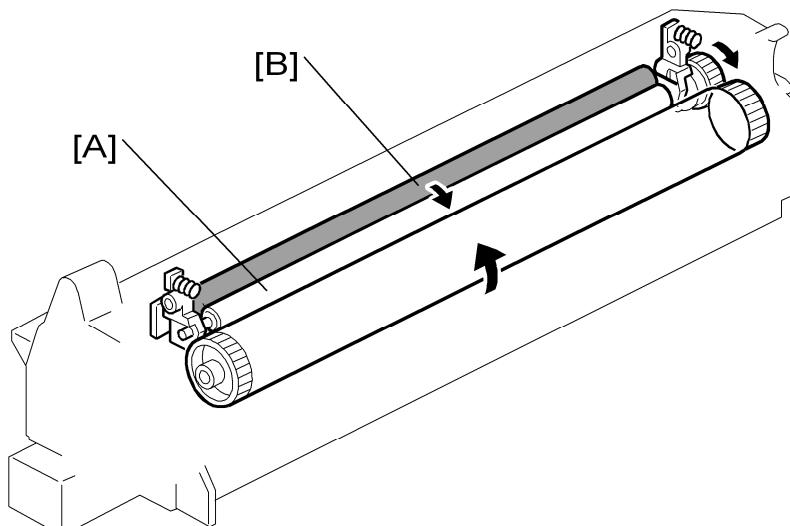
- $V_{sdp} / V_{sg} > 0.95$ = Reduce the magnitude of the drum charge voltage by 50 V
- $V_{sdp} / V_{sg} < 0.90$ = Increase the magnitude of the drum charge voltage by 50 V

6.8.3 ID SENSOR PATTERN PRODUCTION TIMING

The ID sensor pattern is made in the following conditions:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

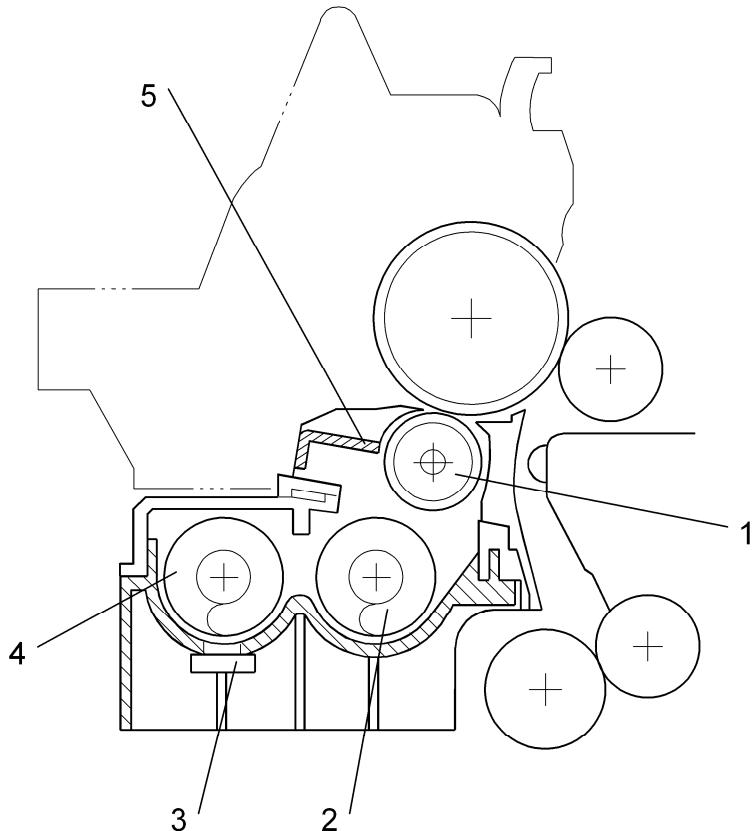
6.8.4 DRUM CHARGE ROLLER CLEANING



Because the drum charge roller [A] always contacts the drum, it gets dirty easily. So, the charge roller cleaning roller [B] also contacts the drum charge roller all the time to clean the surface of the drum charge roller.

6.9 DEVELOPMENT

6.9.1 OVERVIEW



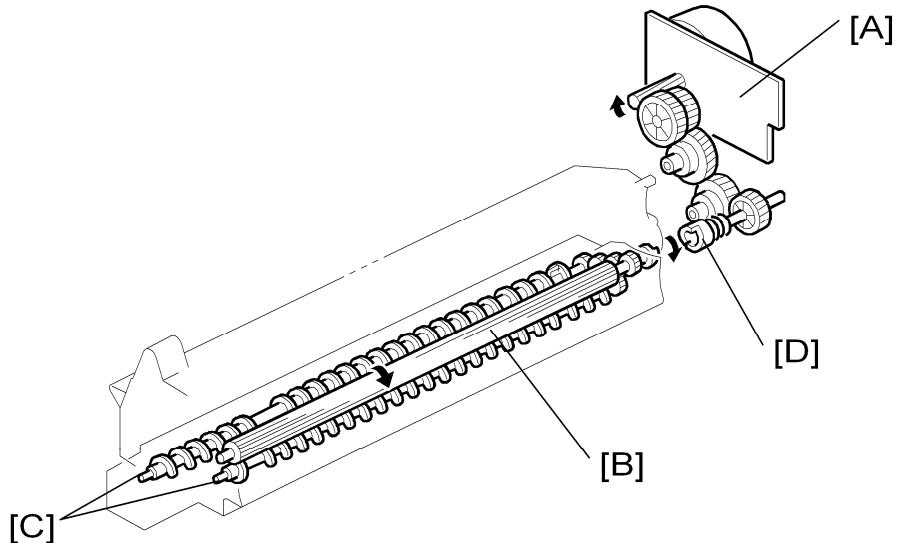
The development unit consists of the following parts.

1. Development roller
2. Mixing auger 2
3. TD sensor
4. Mixing auger 1
5. Doctor blade

This machine uses a single-roller development system. Two mixing augers mix the developer. The toner density (TD) sensor and image density (ID) sensor (see the illustration in the PCU section) are used to control toner density.

Development

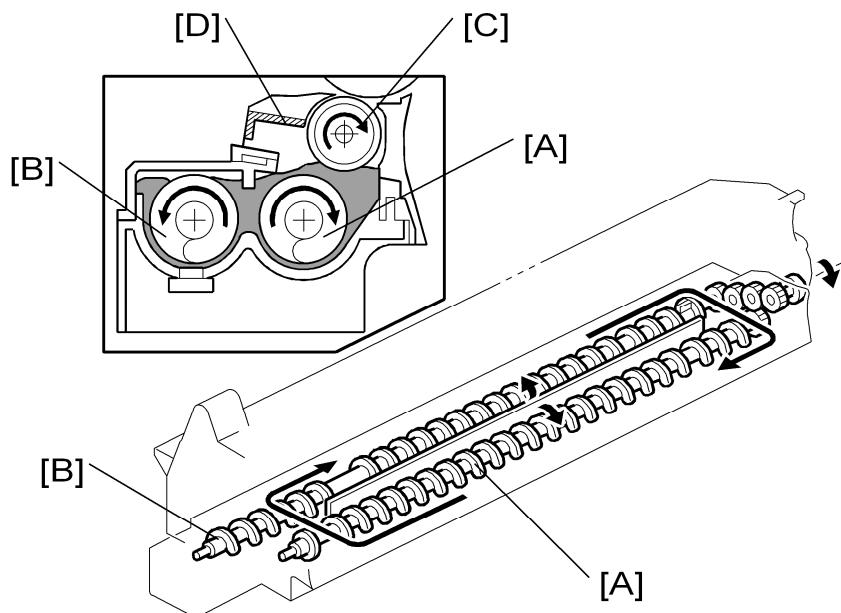
6.9.2 DRIVE



The main motor [A] drives the development roller [B] and mixing augers [C] through a train of gears and the development drive shaft [D]. When the PCU is pushed in, the development drive shaft engages the development roller gear.

The development drive gears (except for the gears in the development unit) are helical gears. These gears are quieter than normal gears.

6.9.3 DEVELOPER MIXING

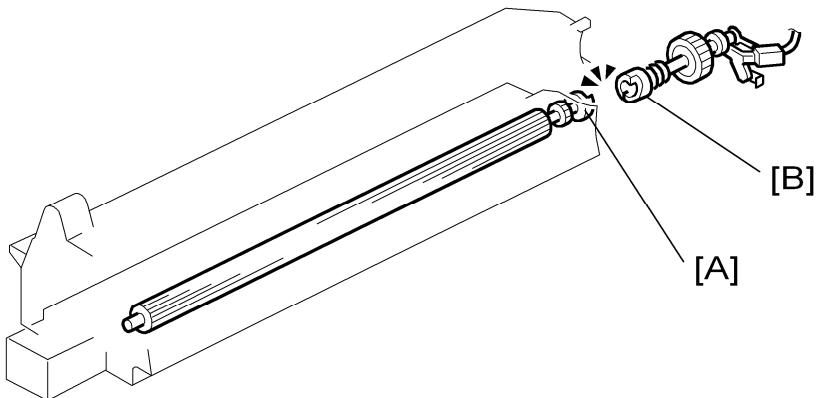


This copier uses 2 mixing augers, [A] and [B], to keep the developer evenly mixed. Mixing auger 2 [A] transports excess developer, scraped off the development roller [C] by the

Development

doctor blade [D], towards the front of the machine. Mixing auger 1 [B] returns the excess developer, along with new toner, to the rear of the mixing assembly. Here the developer is reapplied to the development roller.

6.9.4 DEVELOPMENT BIAS



This machine uses a negative-positive development system, in which black areas of the latent image are at a low negative charge (about -150 ± 50 V) and white areas are at a high negative charge (about -950 V).

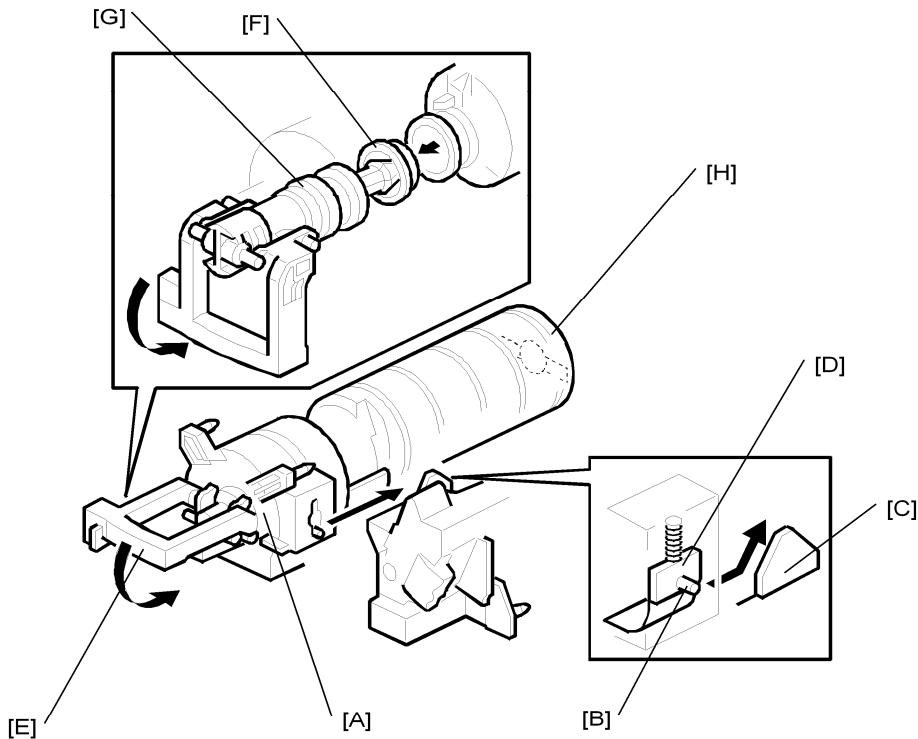
To attract negatively charged toner to the black areas of the latent image on the drum, the high voltage supply board applies a bias of -650 volts to the development rollers throughout the image development process. The bias is applied to the development roller shaft [A] through the drive shaft [B].

The development bias voltage (-650 V) can be adjusted with SP2-201-1.

Development

6.9.5 TONER SUPPLY

Toner Bottle Replenishment Mechanism



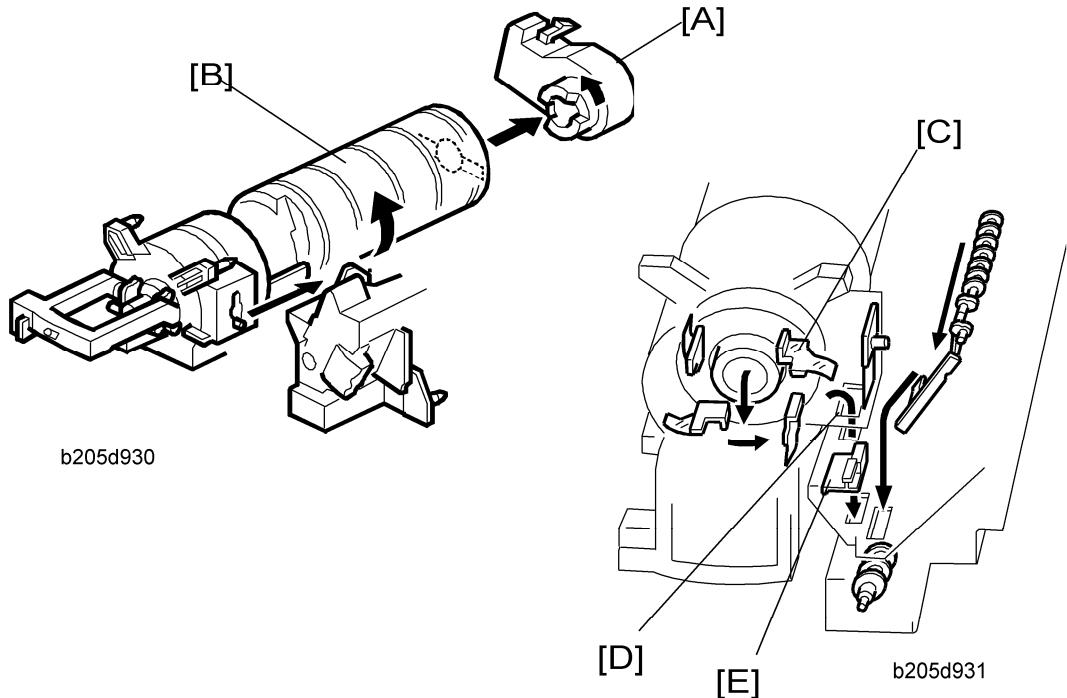
b205d929

When a toner bottle is placed in the bottle holder unit [A] and the unit is pushed in completely, pin [B] moves against the side [C] of the PCU, and the toner shutter [D] is pulled out to open the bottle. When the toner bottle holder lever [E] is put back in the original position, the cap [F] on the toner bottle is pulled away and kept in place by the chuck [G].

The toner supply mechanism transports toner from the bottle to the development unit. The toner bottle has a spiral groove [H] that helps move toner to the development unit.

When the bottle holder unit is pulled out to add a new toner bottle, the following happens automatically to prevent toner from scattering.

- The chuck releases the toner bottle cap into its proper position.
- The toner shutter shuts to block the opening as a result of pressure from a spring.

Toner Supply Mechanism

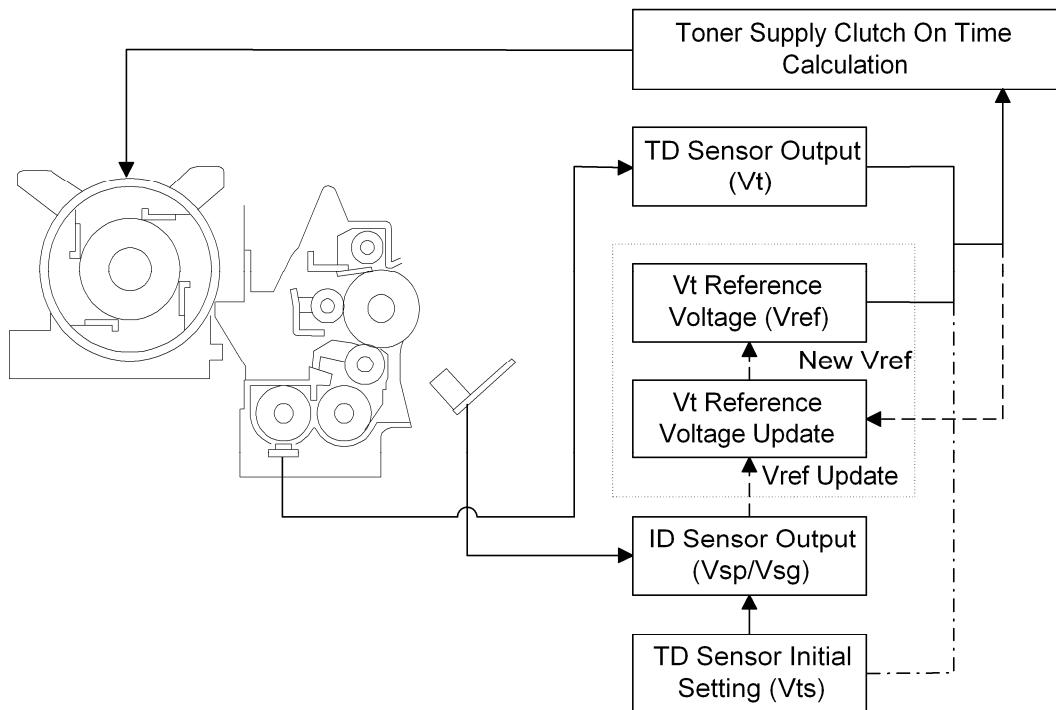
The toner supply motor [A] drives the toner bottle [B] and the mylar blades [C]. First, the toner falls down into the toner bottle holder. The toner supply mylar blades transfer the toner to the slit [D]. When the PCU is installed in the machine, the shutter [E] above the PCU is opened by the machine frame. Then the toner falls down into the development unit through the slit and the shutter.

6.9.6 TONER DENSITY CONTROL

Overview

There are four modes for controlling toner supply as shown in the following tables. The mode can be changed with by SP2-921. The factory setting is sensor control 1 mode. Basically, toner density is controlled using the standard TD sensor voltage (V_{ts}), toner supply reference voltage (V_{ref}), actual TD sensor output voltage (V_t), and ID sensor output data (V_{sp}/V_{sg}).

Development



There are five toner density control modes as follows.

| Mode | Sensor control 1 (SP2-921, "0"): Normally use this setting only |
|-----------------------|---|
| Toner supply decision | Compare Vt with a reference voltage (Vts or Vref) |
| Toner control process | Toner is supplied to the development unit when Vt is higher than the reference voltage (Vts or Vref). This mode keeps the Vref value for use the next toner density control. Vts is used for the first toner density control after a new PCU has been installed, until it has been corrected with the ID sensor output. Vref is used after Vts has been corrected with the ID sensor output voltage (corrected during the first toner density control for a new PCU). |
| Toner supply amount | Varies |
| Toner end detection | Performed |

Development

| Mode | Sensor control 2 (SP2-921, "1"): DFU |
|-----------------------|---|
| Toner supply decision | Compare V_t with a reference voltage (V_{ts} or V_{ref}) |
| Toner control process | This toner control process is the same as sensor control 1 mode. However, the reference voltage is always the same as V_{ref} . |
| Toner supply amount | Varies |
| Toner end detection | Performed |

| Mode | Fixed control 1 (SP2-921, "2"): DFU |
|-----------------------|--|
| Toner supply decision | Compare V_t with a reference voltage (V_{ts} or V_{ref}) |
| Toner control process | This toner control process is the same as sensor control 1 mode. |
| Toner supply amount | Fixed (SP2-925) |
| Toner end detection | Performed |

| Mode | Fixed control 2 (SP2-921, "3"): Use temporarily if the TD sensor needs to be replaced |
|-----------------------|--|
| Toner supply decision | None |
| Toner control process | Toner is supplied every printed page regardless of V_t . |
| Toner supply amount | Fixed (SP2-925) |
| Toner end detection | Not performed |

| Mode | Sensor control 3 (SP921, "4"). DFU |
|-----------------------|---|
| Toner supply decision | Compare V_t with a reference voltage (V_{ts}) |
| Toner control process | This toner control process is the same as sensor control 1 mode. However, the reference voltage used is always V_{ts} . |

Detailed Descriptions

Development

| Mode | Sensor control 3 (SP921, "4". DFU) |
|---------------------|------------------------------------|
| Toner supply amount | Varies |
| Toner end detection | Performed. |

Toner Density Sensor Initial Setting

The TD sensor initial setting procedure is done by SP2801. During TD sensor initial setting, the TD sensor is set so that the TD sensor output to the value of SP2-926 (default: 2.5V). This value will be used as the standard reference voltage (Vts) of the TD sensor.

Toner Density Measurement

Toner density in the developer is detected once every copy cycle. The sensor output voltage (Vt) during the detection cycle is compared with the standard reference voltage (Vts) or the toner supply reference voltage (Vref).

Vsp/Vsg Detection

The ID sensor detects the following voltages.

- Vsg: The ID sensor output when checking the drum surface
- Vsp: The ID sensor output when checking the ID sensor pattern

In this way, the reflectivity of both the drum surface and the pattern on the drum are checked. This compensates for any variations in the reflectivity of the pattern on the drum or the reflectivity of the drum surface.

The ID sensor pattern is made on the drum by the charge roller and laser diode.

Vsp/Vsg is not detected every page or job; it is detected at the following times to decide Vref:

- When the machine is turned on or returns from the energy save mode and the hot roller temperature is less than 30 °C. The temperature threshold can be adjusted with SP2995 001
- After the total number of prints exceeds 300 pages. If this total is exceeded during a job, the pattern is created at the completion of the job. This total can be changed with SP2995 002.
- SP 2995 003 determines whether the job is interrupted to make the ID sensor pattern. If it is set to 1, the job will be interrupted.

Toner Supply Reference Voltage (Vref) Determination

The toner supply reference voltage (Vref) is the threshold voltage for the toner supply determination. Vref is determined using the following data:

Development

- ID sensor output (V_{sp}/V_{sg})
- (V_{ts} or the current V_{ref}) - V_t

Toner Supply Determination

The reference voltage (V_{ts} or V_{ref}) is the threshold voltage for determining whether or not to supply toner. If V_t becomes greater than the reference voltage, the machine supplies additional toner.

Toner Supply Motor On Time Determinations

For fixed control mode, the toner supply motor on time is specified by the setting of SP2-925, and does not vary. The default setting is 200 ms for each copy. The toner supply motor on time for each value of SP2-925 is as follows.

| SP2-925 | Motor On Time ($t = 200$ ms) |
|---------|-------------------------------|
| 0 | t |
| 1 | $2t$ |
| 2 | $4t$ |
| 3 | $8t$ |
| 4 | $12t$ |
| 5 | $16t$ |
| 6 | Continuously |
| 7 | Not supplied |

Detailed
Descriptions

For sensor control modes 1 and 2, the toner supply motor on time is decided by the following factors.

- $\Delta V_t (= V_t - (V_{ref} \text{ or } V_{ts}))$
- TD sensor sensitivity (coefficient: S, value is 0.3)

There are seven levels for toner supply motor on time as shown below.

| Level | Decision | Motor On Time (seconds) |
|-------|--------------------------------------|-------------------------|
| 1 | $0 < \Delta V_t < \text{or } = S/16$ | $t (0.6)$ |

Development

| Level | Decision | Motor On Time (seconds) |
|-------|--------------------------------------|-------------------------|
| 2 | $S/16 < \Delta Vt \leq S/8$ | $t \times 2 (1.2)$ |
| 3 | $S/8 < \Delta Vt \leq S/4$ | $t \times 4 (2.4)$ |
| 4 | $S/4 < \Delta Vt \leq S/2$ | $t \times 8 (4.8)$ |
| 5 | $S/2 < \Delta Vt \leq 4S/5$ | $t \times 16 (9.6)$ |
| 6 | $4S/5 < \Delta Vt \leq S$ (near-end) | T (30); see note 3 |
| 7 | $S < \Delta Vt$ (toner end) | T (30); see note 3 |

- The value of “t” can be changed using SP2-922 (default: 0.6 second)
- The value of “T” can be changed using SP2-923 (default: 30 seconds)
- T (30) means that toner is supplied intermittently in a half duty cycle (1.5 s on, 1.5 s off) for 30 seconds

6.9.7 TONER SUPPLY IN ABNORMAL SENSOR CONDITIONS

ID sensor

Readings are abnormal if any of the following conditions occur:

- $V_{sg} \leq 2.5V$
- $V_{sg} < 3.5V$ when maximum power (254) is applied
- $V_{sp} \geq 2.5V$
- $(V_{sg} - V_{sp}) < 1.0V$

ID sensor power required to make the standard output reaches the maximum value (254)

The above ID sensor values can be checked using SP2-220.

When this is detected, the machine changes the value of Vref to the previous value then does the toner density control process (in a similar way to sensor control mode 2).

No SC code is generated if the ID sensor is defective.

TD Sensor

The TD sensor is checked every copy. If the readings from TD sensor become abnormal, the machine changes the toner density control mode to fixed supply mode 2, and the toner supply amount per page is always 200 ms, regardless of the value of SP2-925. Then at the end of a job (if the optional fax unit is installed), or 100 copies after the TD sensor error was detected (if no fax unit is installed), an SC code is generated (SC390) and the machine must be repaired. The 100-copy threshold can be adjusted with SP 2-992.

6.9.8 TONER NEAR-END/END DETECTION AND RECOVERY

The toner near end and end conditions are detected using the Vt and Vref values, in a similar way to toner density control.

This is done in all toner supply modes except for fixed mode 2, when toner end is not detected.

Toner Near-end Detection

If Vt is at level 6 (see the table on the previous page) five times consecutively, the machine enters the toner near end condition and the toner end indicator starts blinking. Then the machine supplies toner for a certain time, which depends on the setting of SP 2-923 (see above).

Toner Near-end Recovery

If the machine detects “ $S/2 < \Delta Vt < \text{or } = 4S/5$ ” twice consecutively when in one of the following situations, the machine leaves the toner near end condition.

- While in the toner recovery cycle (supplying toner on and off for 30 s – see the previous page) after the machine has detected a toner near end condition.
- During copying in the toner near end condition.
- If the front cover is opened and closed for more than 10 seconds while a toner near end condition exists.

Toner End Detection

There are two situations for entering the toner end condition.

- When Vt is level 7 three times consecutively, the machine enters the toner end condition.
- When “ $4S/5 < \Delta Vt < \text{or } = S$ ” is detected in the toner near end condition, then 50 copies can be made after this condition (the number of copies between this condition and toner end can be changed using SP2-213).

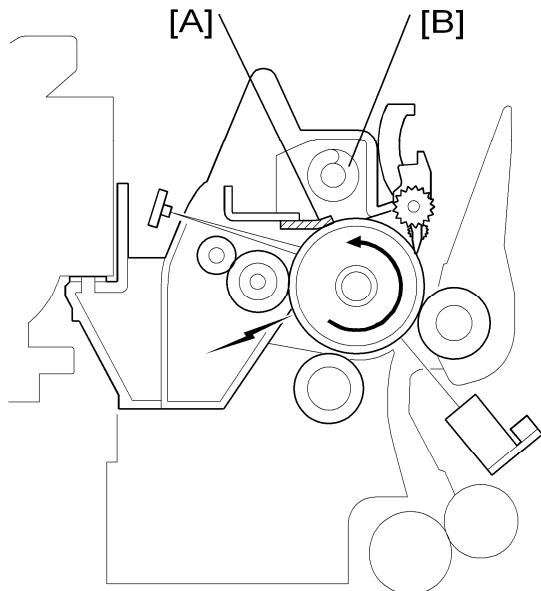
Toner End Recovery

If the front cover is opened and closed for 10 seconds while a toner end condition exists and the toner bottle is replaced, the machine attempts to recover using the same procedure as for toner near end/end detection.

Drum Cleaning and Toner Recycling

6.10 DRUM CLEANING AND TONER RECYCLING

6.10.1 DRUM CLEANING



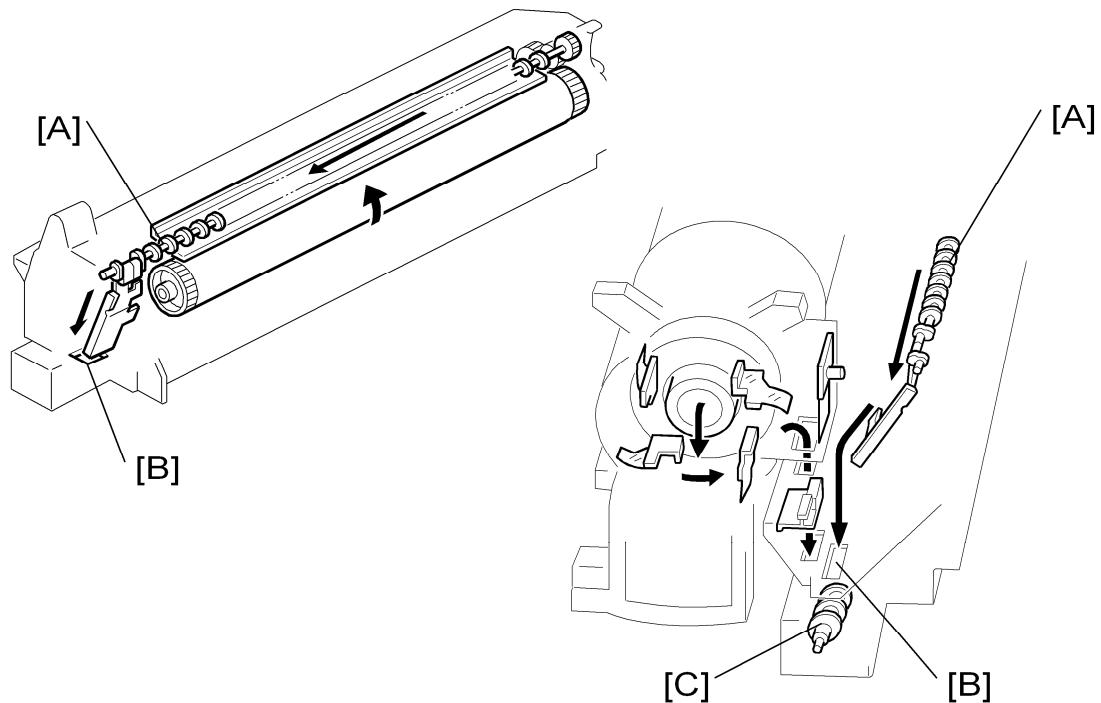
The cleaning blade [A] removes any toner remaining on the drum after the image is transferred to the paper. This model uses a counter blade system.

The cleaning blade scrapes off toner remaining on the drum. When toner builds up in the cleaning unit, toner at the top of the pile is removed by the toner collection coil [B].

To remove the toner and other particles that are accumulated at the edge of the cleaning blade, the drum turns in reverse for about 5 mm at the end of every copy job. This feature is controlled with SP 2-998.

In addition, cleaning is done in the middle of a job if 100 sheets have been made since the previous cleaning. This feature is controlled with SP 2-211.

6.10.2 TONER RECYCLING

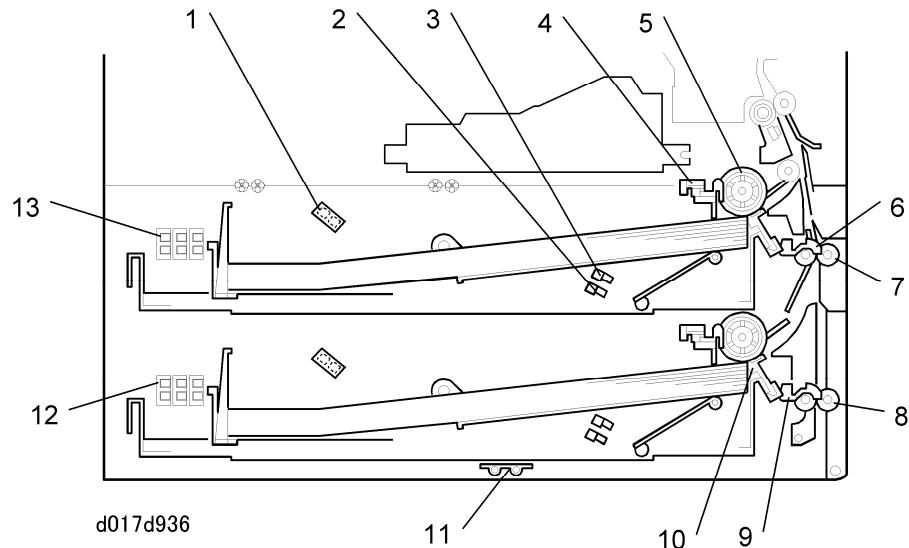


Toner picked up by the toner collection coil [A], is transported to the opening [B] in the side of the PCU. Then, this toner falls into the development unit with new toner coming from the toner bottle and it is all mixed together by mixing auger 1 [C] and used again.

Paper Feed

6.11 PAPER FEED

6.11.1 OVERVIEW

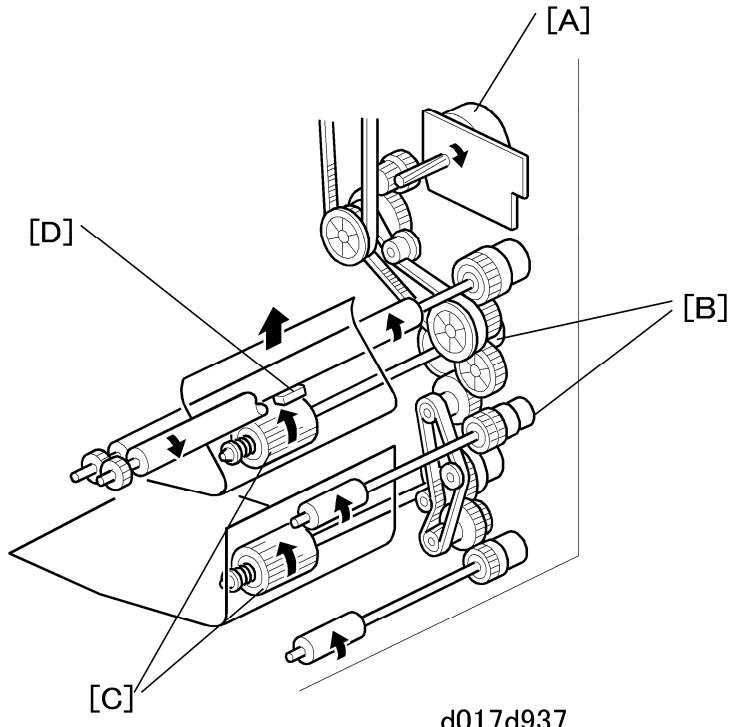


| | |
|-------------------------|--------------------------------|
| 1. Paper Lift Sensor | 8. Lower Relay Roller |
| 2. Paper Height Sensor2 | 9. Lower Relay Sensor |
| 3. Paper Height Sensor1 | 10. Friction Pad |
| 4. Paper End Sensor | 11. Tray Heater (option) |
| 5. Paper Feed Roller | 12. Paper Size Sensor (Tray 2) |
| 6. Upper Relay Sensor | 13. Paper Size Sensor (Tray 1) |
| 7. Upper Relay Roller | |

There are two standard paper trays. Each tray holds 550 sheets.

- Each tray uses a friction pad (4) to separate paper so that only one sheet feeds at a time.
- The paper feed roller (2) and shaft do not separate from the tray when the tray is pulled out. This prevents paper from getting caught inside the machine when a tray is removed.
- The two relay sensors are used to detect paper jams. The upper relay sensor (6) detects jams for paper fed from either tray of the main machine. The lower sensor (8) detects jams if paper is fed up from the optional paper feed unit or LCT.

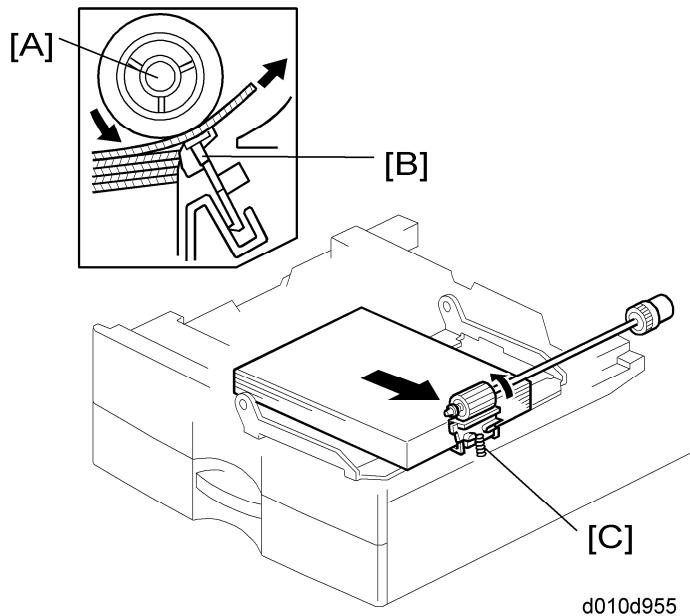
6.11.2 PAPER FEED DRIVE



The main motor [A] drives the pick-up and feed mechanism of both the first and second paper trays. The paper feed clutches [B] transfer drive from this motor to the paper feed rollers [C]. When the paper feed clutch activates, the feed roller starts to feed the paper from the tray. The paper feed clutch remains on until shortly after the registration sensor [D] activates.

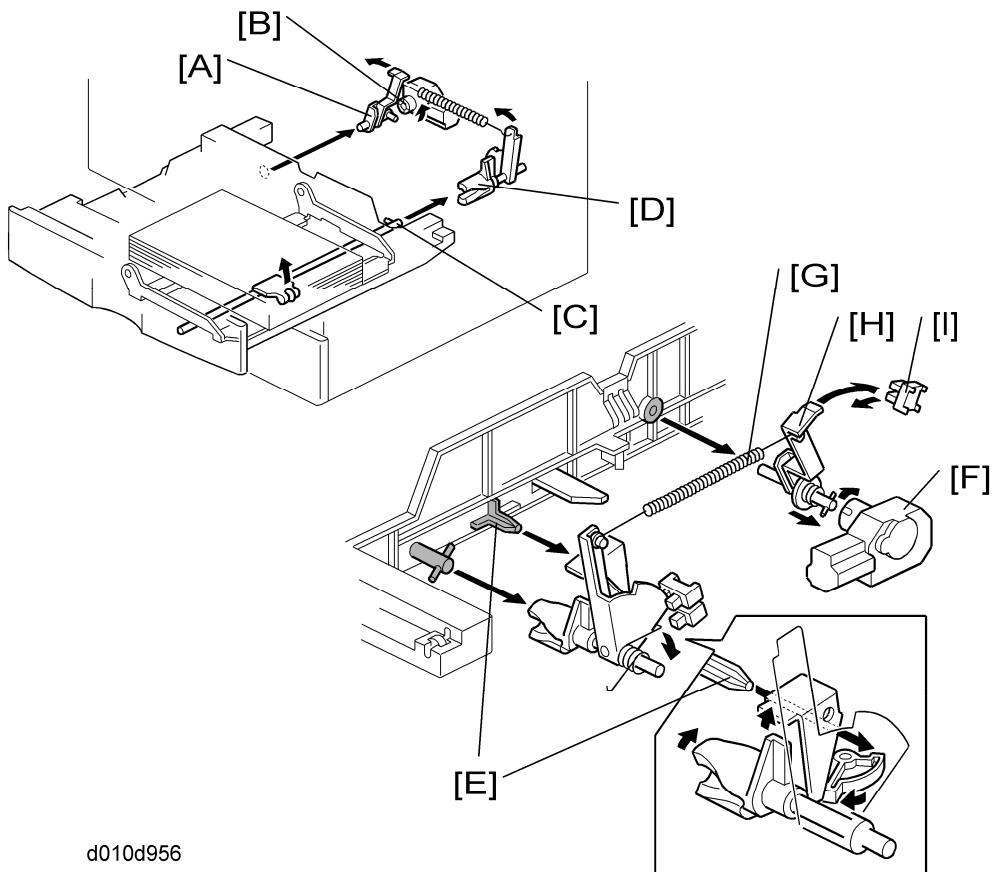
Paper Feed

6.11.3 PAPER FEED AND SEPARATION



The paper feed roller [A] feeds the first sheet on top of the stack into the paper feed path. The friction pad [B] stops the sheet below so that only one sheet feeds at a time. A spring [C] pushes up the friction pad so that it applies constant pressure on the feed roller above. (The pressure exerted by the spring on the friction pad is constant and cannot be adjusted.)

6.11.4 PAPER LIFT



When a tray is pushed into the machine:

- A paper size switch (not shown) detects the tray
- Pin [A] for the lift motor pressure shaft engages the lift motor coupling [B].
- Pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D].
- Pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor [F] turns on, and rotates clockwise.

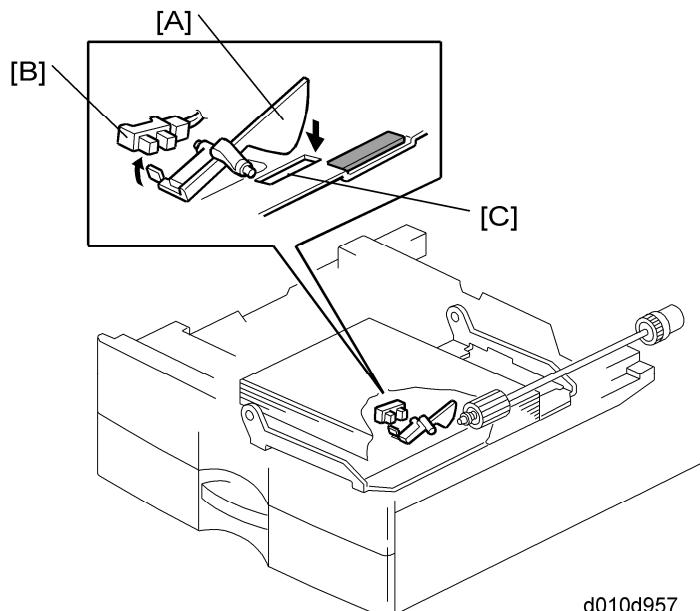
- The main pressure spring [G] pulls the bottom plate pressure lever. This lifts the tray bottom plate.
- When the top of the stack contacts the feed roller, the motor can no longer raise the plate, and the actuator [H] enters the gap of the lift sensor [I], and this stops the motor.
- At this time, the pressure of the feed roller on the paper is too low or too high. The lift motor moves forwards or reverses to increase or reduce this pressure. The length of time that the motor moves forwards or reverses is prescribed for each paper size. (This is described in detail below.)

Paper Feed

When the paper tray is pulled out:

- Pins [A], [C] disengage from the couplings [B], [D], and the bottom plate lowers.
- To make it easier to push the tray in, the lift motor reverses to lower the bottom plate pressure lever coupling [D] to its original position.

6.11.5 PAPER END DETECTION

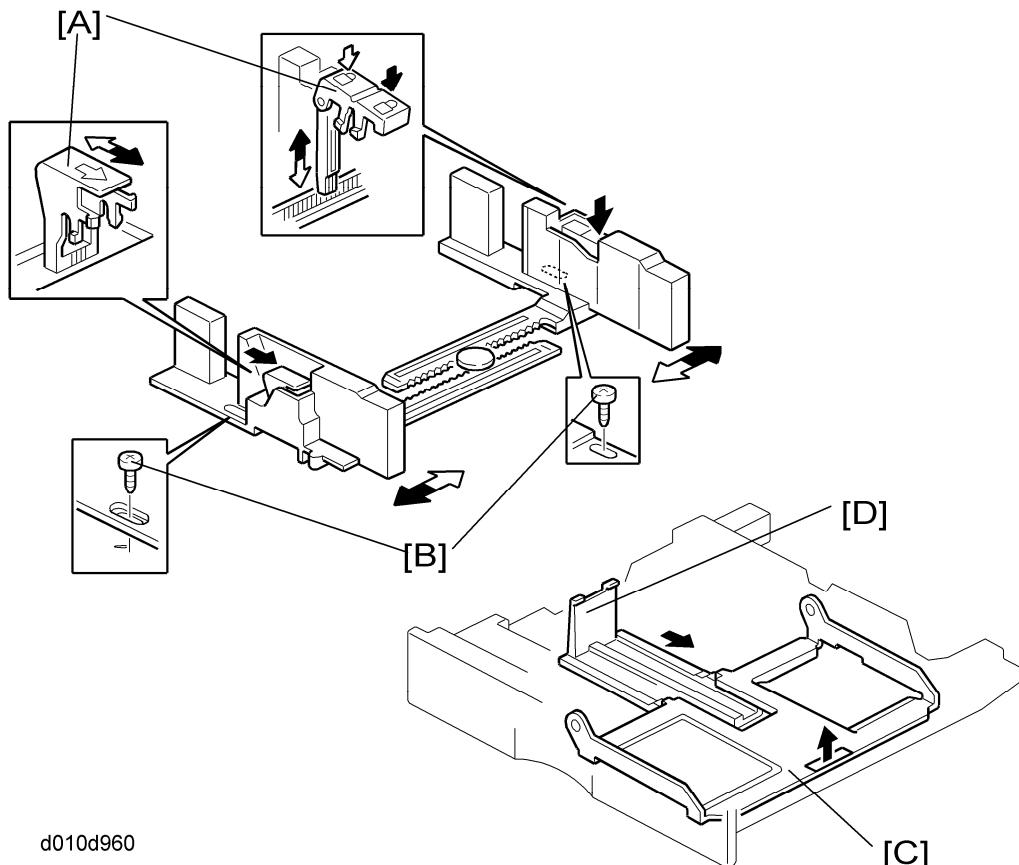


While there is paper in a paper tray, the top of the paper stack lifts the feeler [A] which deactivates the paper end sensor [B]. This signals paper present in the tray.

After the last sheet feeds, the paper end feeler [A] drops into the cutout [C] in the tray bottom plate and activates the paper end sensor. This signals that the paper tray is empty.

When a paper tray is removed with no paper in the tray, the rounded shape of the paper end feeler causes it to rise so that it does not interfere with tray removal.

6.11.6 SIDE AND END FENCES



Side Fences

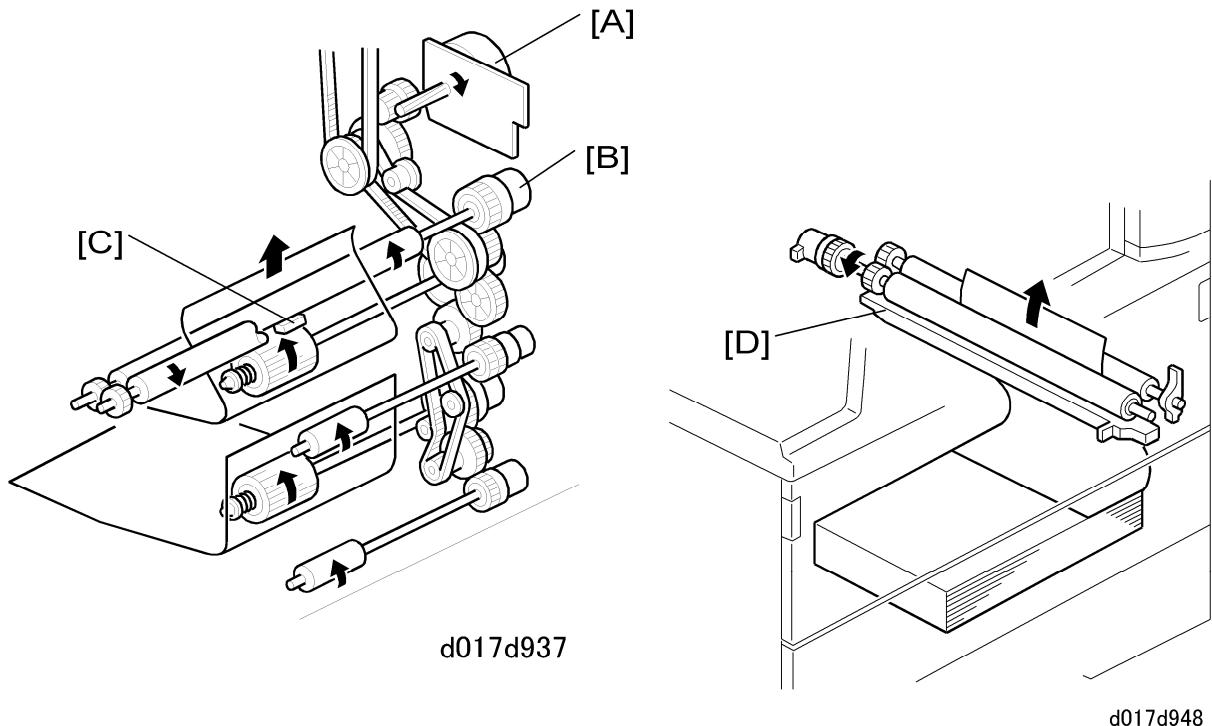
If the tray is pushed in forcefully when it is full, the fences may warp or bend. This can cause paper skew or incorrect side-to-side registration. To prevent this problem, each side fence has a stopper [A]. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

End Fence

When the amount of paper in the tray decreases, the bottom plate [C] lifts gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it straight.

Paper Feed

6.11.7 PAPER REGISTRATION



The drive from the main motor [A] is transmitted to the registration roller through the registration clutch [B].

The registration sensor [C] is used to correct paper skew and to detect paper misfeed.

The cleaning mylar [D] contacts the registration roller. It removes paper dust from the registration roller to prevent the dust from going to the development unit via the drum-cleaning unit.

The amount of paper buckle at the registration roller to correct skew can be adjusted with SP 1003.

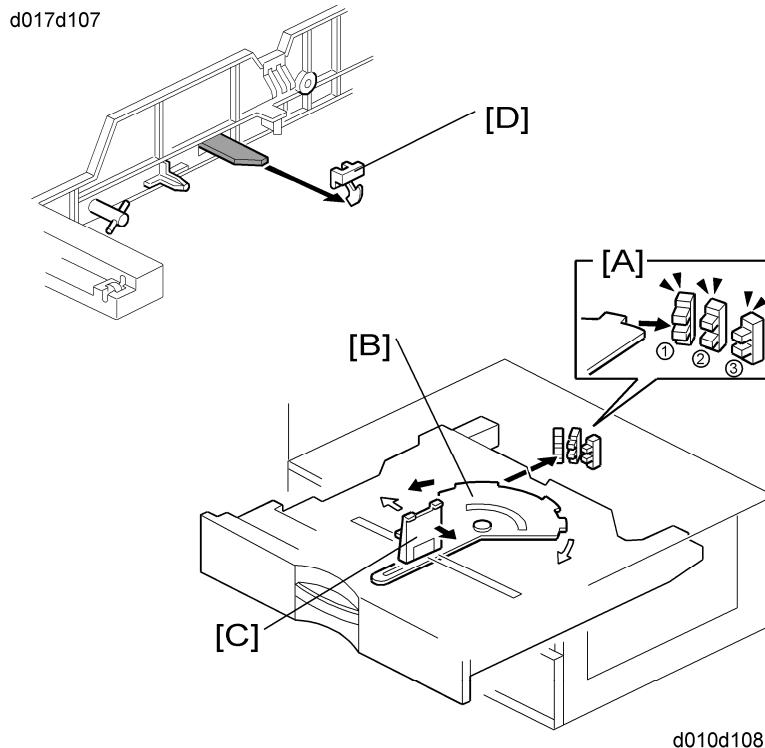
If jams frequently occur after registration, SP 1903 can be used to activate the relay clutch so that the relay roller assists the registration roller in feeding the paper.

When feeding from the by-pass tray, the by-pass feed clutch activates and turns the by-pass feed roller. This feature may be needed when feeding thick paper, and cannot be used for the first paper feed tray.

A jam lever is provided to facilitate removal of jammed sheets.

6.11.8 PAPER SIZE DETECTION

Paper Tray 1, Paper Tray 2



The three paper size sensors [A] (SN1, SN2 and SN3) interact with notched actuators [B] on a movable wheel. The actuators move when the paper end fence [C] is adjusted for the loaded paper. The readings of these three sensors are used with the reading of the side fence sensor [D] to determine the paper size. The combination of these four readings is sent to the CPU to determine the size of the paper loaded in the tray.

The table below shows how the machine uses the on or off signals from the sensors to determine a paper size.

EUROPE/ASIA

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

| Name | 1 | Sensor | | | | SP Set SP1912 |
|--------|-----------|--------|---|---|---|------------------|
| | | 2 | 3 | 4 | | |
| A5 LEF | 148 x 210 | L | H | L | L | |

Paper Feed

| | | | | | | |
|--------|-----------|---|---|---|---|-----------|
| B5 LEF | 182 x 257 | H | L | H | L | Exec. LEF |
| A5 SEF | 210 x 148 | H | H | L | H | HLT SEF |
| A4 LEF | 210 x 297 | H | H | L | L | LT LEF |
| B5 SEF | 257 x 182 | L | L | H | H | |
| LT SEF | 279 x 216 | L | L | L | L | |
| A4 SEF | 297 x 210 | H | L | L | L | |
| B4 SEF | 364 x 357 | H | H | H | L | LG SEF |
| A3 SEF | 420 x 297 | L | H | H | L | DLT SEF |

Tray 2

| Name | (W x L mm) | Sensor | | | | SP Set SP1913 |
|--------|------------|--------|---|---|---|------------------|
| | | 1 | 2 | 3 | 4 | |
| A6 SEF | 148 x 105 | L | H | L | H | |
| A5 LEF | 148 x 210 | L | H | L | L | |
| B6 SEF | 182 x 128 | H | L | H | H | |
| B5 LEF | 182 x 257 | H | L | H | L | Exec. LEF |
| A5 SEF | 210 x 148 | H | H | L | H | HLT SEF |
| A4 LEF | 297 x 210 | H | H | L | L | LT LEF |
| B5 SEF | 257 x 182 | L | L | H | H | |
| LT SEF | 279 x 216 | L | L | L | L | |
| A4 SEF | 297 x 210 | H | L | L | L | |
| B4 SEF | 364 x 257 | H | H | H | L | LG SEF |
| A3 SEF | 420 x 297 | L | H | H | L | DLT SEF |

Paper Feed

NORTH AMERICA

L= "LOW" (OFF)

H= "HIGH" (ON)

Tray 1

| Name | (W x L mm) | Sensor | | | | SP Set SP1912 |
|---------|------------|--------|---|---|---|------------------|
| | | 1 | 2 | 3 | 4 | |
| A5 LEF | 148 x 210 | L | H | L | L | |
| B5 LEF | 182 x 257 | H | L | H | L | Exec. LEF |
| HLT SEF | 216 x 140 | H | H | L | H | A5 SEF |
| LT LEF | 216 x 279 | H | H | L | L | A4 LEF |
| B5 SEF | 257 x 182 | L | L | H | H | |
| LT SEF | 270 x 216 | L | L | L | L | |
| A4 SEF | 297 x 210 | H | L | L | L | |
| LG SEF | 356 x 216 | H | H | H | L | B4 |
| DLT SEF | 432 x 279 | L | H | H | L | A3 |

Tray 2

| Name | (W x L mm) | Sensor | | | | SP Set SP1913 |
|---------|------------|--------|---|---|---|------------------|
| | | 1 | 2 | 3 | 4 | |
| A6 SEF | 148 x 105 | L | H | L | H | |
| A5 LEF | 148 x 210 | L | H | L | L | |
| B6 SEF | 182 x 128 | H | L | H | H | |
| B5 LEF | 182 x 257 | H | L | H | L | Exec. LEF |
| HLT SEF | 216 x 140 | H | H | L | H | A5 SEF |

Detailed Descriptions

Paper Feed

| | | | | | | |
|---------|-----------|---|---|---|---|--------|
| LT LEF | 216 x 279 | H | H | L | L | A4 LEF |
| B5 SEF | 257 x 182 | L | L | H | H | |
| LT SEF | 270 x 216 | L | L | L | L | |
| A4 SEF | 297 x 210 | H | L | L | L | |
| LG SEF | 356 x 216 | H | H | H | L | B4 |
| DLT SEF | 432 x 279 | L | H | H | L | A3 |

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the "Add Paper" indicator will light. These SP codes allow you to select more precisely which size is detected in the tray. An alternate size can be selected for each paper tray.

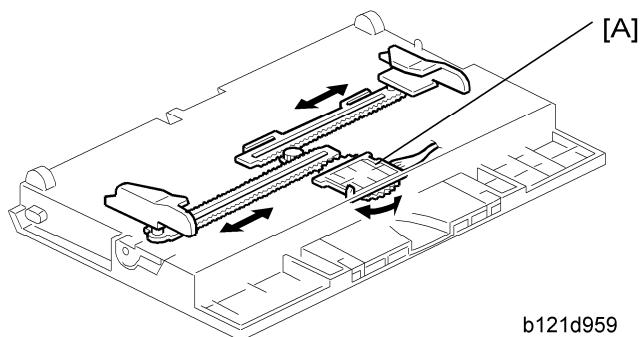
Auto Paper Size Detection SP Codes

| Tray Name | SP Code | Available Selections for Each SP |
|------------------------|---------|--|
| 1st Tray | 1912 | 1 B5 or Executive (LEF) 2 A5 or Half-Letter (SEF) |
| 2nd Tray | 1913 | 3 A4 or Letter (LEF) |
| 3rd Tray ^{*1} | 1914 | 4 A4/Legal (SEF) |
| 4th Tray ^{*2} | 1915 | 5 A3/Double-Letter (SEF) |

^{*1}: LCT (option) or upper tray of paper feed unit (option)

^{*2}: Lower tray of paper feed unit (option).

By-pass Tray



b121d959

Paper Feed

The by-pass feed paper size switch [A] monitors the paper width. The side fence is connected to the terminal plate gear. When the side fences move to match the paper width, the circular terminal plate rotates over the wiring patterns on the rectangular part of the paper size switch. The patterns for each paper width in the paper size switch are unique.

North America

| CN No. (BCU) | 11" x 17" | 8 ½ " x 14" | 5 ½ " x 8 ½ " | | |
|---------------|-----------|-------------|---------------|-----|-----|
| CN136-1 | ON/OFF | OFF | OFF | OFF | OFF |
| CN136-2 | OFF | OFF | OFF | ON | OFF |
| CN136-3 (GND) | OFF | OFF | OFF | OFF | OFF |
| CN136-4 | OFF | ON | OFF | OFF | ON |
| CN136-5 | ON | ON | OFF | OFF | OFF |

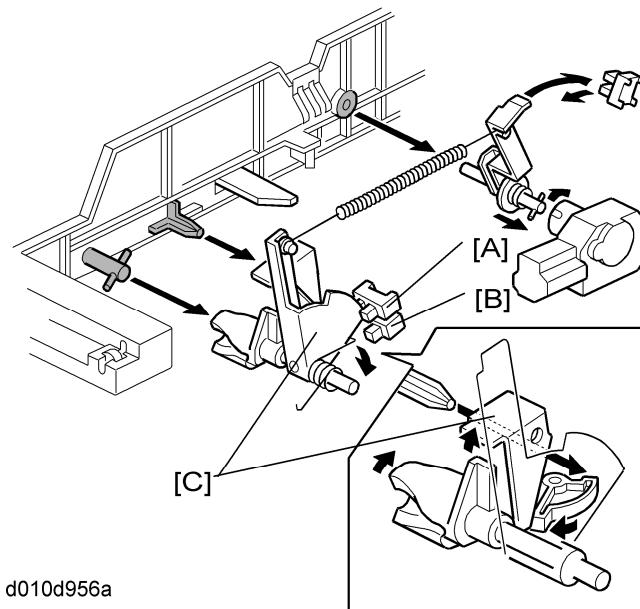
Europe/Asia

| CN No. (BCU) | A3 | A4 SEF | 8" x 13" | A5 SEF |
|---------------|--------|--------|----------|--------|
| CN136-1 | ON/OFF | OFF | OFF | OFF |
| CN136-2 | OFF | OFF | OFF | ON/OFF |
| CN136-3 (GND) | OFF | OFF | OFF | OFF |
| CN136-4 | OFF | ON | ON | OFF |
| CN136-5 | ON | ON | OFF | OFF |

Detailed
Descriptions

Paper Feed

6.11.9 PAPER HEIGHT DETECTION



The amount of paper in a tray is detected by the combination of on/off signals from two paper height sensors [A] and [B]. These sensors are switched on/off by an actuator that rises as the stack of paper becomes smaller. (The paper amount that remains in a tray is displayed on the LCD.)

When the paper stack becomes smaller, the bottom plate pressure lever [C] pushes an actuator up through the gaps in the paper height sensors. This activates and deactivates the paper height sensors.

Four on/off states are possible. These on/off combinations (shown in the table below) signal how much paper remains in a tray.

| Paper Remaining | Paper Height Sensor 1 [A] | Paper Height Sensor 2 [B] |
|-----------------|---------------------------|---------------------------|
| 100% | OFF | OFF |
| 70% | ON | OFF |
| 30% | ON | ON |
| 10% | OFF | ON |

6.11.10 FEED PRESSURE ADJUSTMENT FOR PAPER SIZE

To ensure effective paper separation at the friction pad, the stack lift motor and bottom plate must maintain the correct, constant pressure of the top on the stack on the feed roller above.

- If the pressure is too high, this can cause double-feeding.
- If the pressure is too low, paper feed failure.

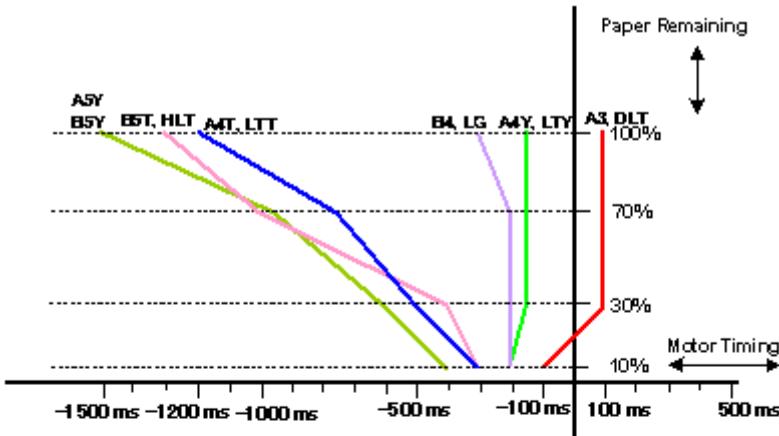
To prevent these problems, the machine takes into account the size of the paper in the tray and constantly monitors the amount of paper remaining in the tray. It uses this information to make slight adjustments by raising or lowering the bottom plate with the stack lift motor to maintain the correct pressure against the feed roller.

Several SP codes can be used to adjust feed pressure based on these variables:

- **Paper size.** The paper size detectors tell the machine the paper size loaded in the tray.
- **Amount of paper remaining in the tray.** The paper height sensors monitor the amount of paper remaining in the tray.

The pressure of the spring under the friction pad does not change and cannot be adjusted. However, downward pressure from weight of the stack on the bottom plate varies according to paper size and orientation (LEF or SEF). A stack of A3 size paper, for example, will weigh much more than a stack of A5.)

Paper Feed



| SP1908 | F1 PLATE ADJ. | |
|--------|----------------|-------|
| 1 | A3, DLT: 100% | +100 |
| 2 | A3, DLT: 70% | +100 |
| 3 | A3, DLT: 30% | +100 |
| 4 | A3, DLT: 10% | -100 |
| 5 | A4Y, LTT: 100% | -150 |
| 6 | A4Y, LTT: 70% | -150 |
| 7 | A4Y, LTT: 30% | -150 |
| 8 | A4Y, LTT: 10% | -200 |
| 9 | B4, LG: 100% | -300 |
| 10 | B4, LG: 70% | -200 |
| 11 | B4, LG: 30% | -200 |
| 12 | B4, LG: 10% | -200 |
| 13 | B5Y: 100% | -1500 |
| 14 | B5Y: 70% | -900 |
| 15 | B5Y: 30% | -600 |
| 16 | B5Y: 10% | -400 |
| 17 | A4T, LTT: 100% | -1200 |
| 18 | A4T, LTT: 70% | -700 |
| 19 | A4T, LTT: 30% | -500 |
| 20 | A4T, LTT: 10% | -300 |
| 21 | A5Y: 100% | -1500 |
| 22 | A5Y: 70% | -900 |
| 23 | A5Y: 30% | -600 |
| 24 | A5Y: 10% | -400 |
| 25 | B5T, HLT: 100% | -1300 |
| 26 | B5T, HLT: 70% | -1000 |
| 27 | B5T, HLT: 30% | -400 |
| 28 | B5T, HLT: 10% | -300 |

Note:
T: SEF
Y: LEF

d01 7d956b

Look at the graph and table above.

A3, DLT

To keep the stack of this heavy paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor forward for 100 ms (+100 ms) to lift the tray at 100%, 70%, and 30% paper remaining to prevent a failure to feed.
- The machine runs the tray lift motor in reverse for 100 ms (-100 ms) to lower the tray at 10% remaining to compensate for the lower weight of the smaller amount of paper remaining. This prevents double-feeding.

B5T, HLT

To keep the stack of this light paper at the correct pressure against the feed roller above:

- The machine runs the tray lift motor in reverse for 1300 ms, 1000 ms, 400 ms, and 300

Paper Feed

ms at 100%, 70%, 30% and 10% paper remaining.

- This lowers the pressure of the stack against the roller to prevent double-feeding.

The run time of the tray lift motor can be adjusted with SP codes for each paper size at each step of paper remaining. This can be done for every feed tray except the bypass tray.

| Tray Name | Tray Location | SP Code |
|-----------|--------------------------------------|-------------------|
| 1st Tray | Upper Tray (Main Machine) | 1908 F1 Plate Adj |
| 2nd Tray | Lower Tray (Main Machine) | 1909 F2 Plate Adj |
| 3rd Tray | LCT or Upper Tray of Paper Feed Unit | 1910 F3 Plate Adj |
| 4th Tray | Lower Tray of Paper Feed Unit | 1911 F4 Plate Adj |

Each SP code has a total of 56 settings to adjust for:

- Paper size (A3, A4, A5, etc.)
- Four settings for the amount of paper remaining with each paper size (100%, 70%, 30%, 10%)

For more information about these SP codes, see Service Tables.

- If a particular paper size is consistently double-feeding, this means there is too much pressure between the feed roller and paper stack. Increasing the reverse run time of the tray lift motor (-300 to -500, for example) should reduce the pressure and solve the problem.
- If a particular paper size is consistently failing to feed, this means there is not enough pressure between the feed roller and paper stack. Increasing the forward run time of the tray lift motor (200 to 400, for example) should increase the pressure and solve the problem.

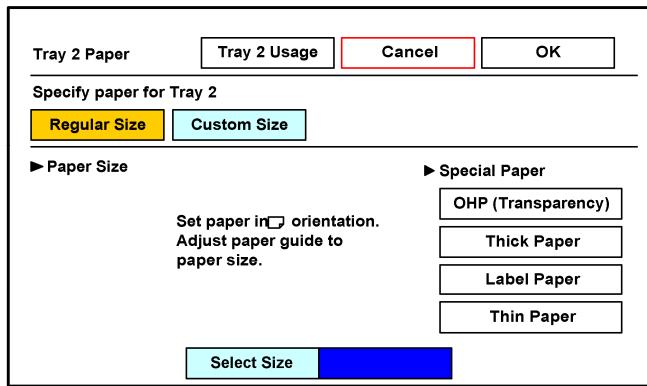
Another set of SP codes allow you to select more precise automatic detection of size by the tray paper size sensors. An alternate size can be selected for each paper tray. (See Paper Size Detection.)

6.11.11 SPECIAL PAPER SETTING

Only the 2nd tray can feed special paper such as thick paper or envelopes. The special paper type can be selected either by using the UP mode or with the following operation.

1. Touch the Tray 2 Icon on the operation panel, then press [#].

Paper Feed



d010d109

After selecting the special paper type, the fusing temperature and transfer roller current will be changed as follows.

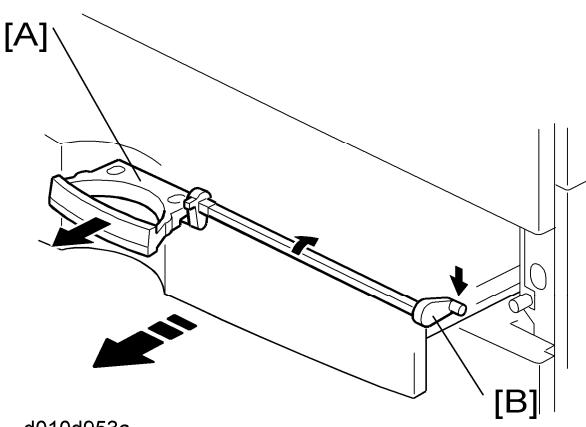
2. Fusing temperature (when thick paper is selected):
 - Current operation temperature + 15 °C
3. Transfer roller current:
 - A3 width (11"): 14muA
 - B4 width (10"): 15muA
 - A4 width (8.5"): 17muA
 - A5 width (5.5"): 20muA

Note that for the by-pass tray, the fusing and transfer conditions for special paper are also applied if the user uses thick (non-standard) mode.

6.11.12 TRAY LOCK MECHANISM

A lock mechanism in each tray prevents it from coming out accidentally when the machine is moved.

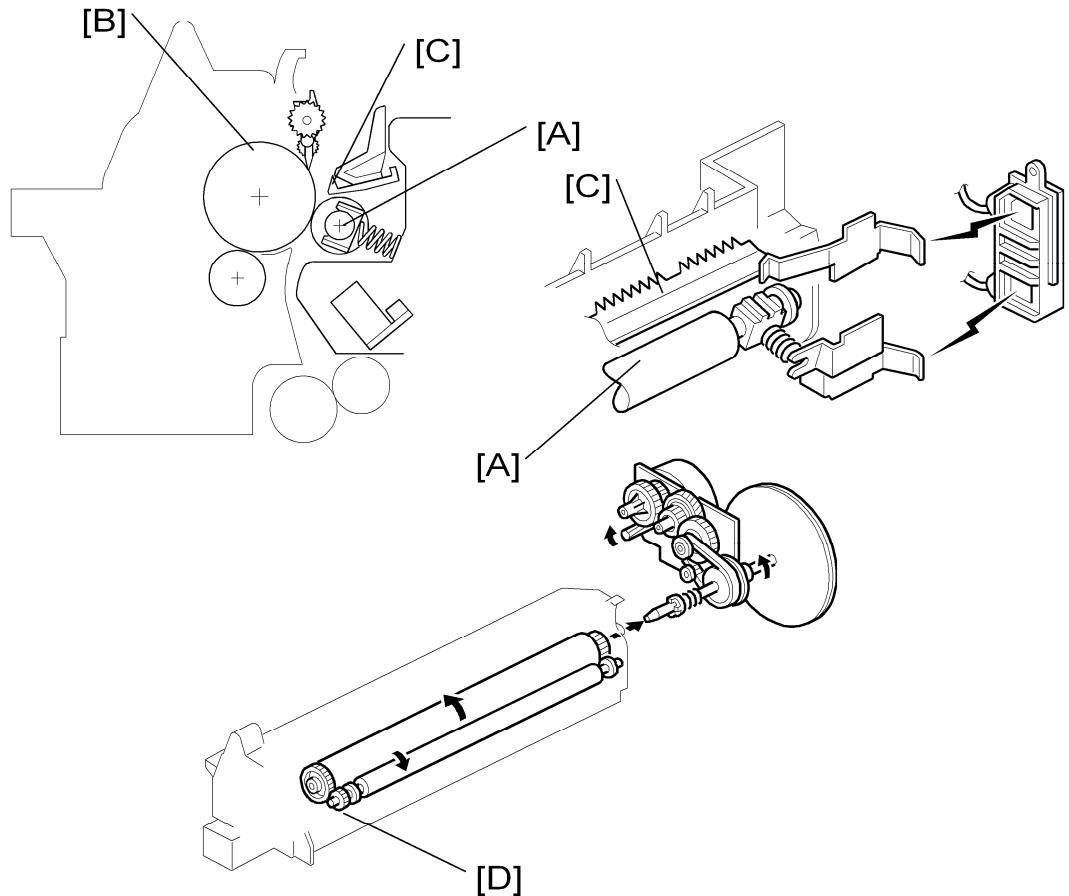
- Pulling on the sides of a tray will not open it. A tray can be opened only by pulling on its handle to release the tray for opening.
- Pulling the handle [A] lowers the lock lever [B] and releases the lock so the tray will open.



d010d953a

6.12 IMAGE TRANSFER AND PAPER SEPARATION

6.12.1 OVERVIEW



The machine uses a transfer roller [A], which touches the surface of the drum [B]. The high voltage supply board supplies a positive current to the transfer roller, which attracts the toner from the drum onto the paper. The current depends on the paper width, paper type, and paper feed tray.

The curvature of the drum and the discharge plate [C] help the paper to separate from the drum. The high voltage supply board also supplies a negative dc voltage to the discharge plate.

Drive from the drum through a gear [D] turns the transfer roller

6.12.2 IMAGE TRANSFER CURRENT TIMING

There are two transfer current levels: low transfer current level and high transfer current level. The image transfer procedure is as follows:

Image Transfer and Paper Separation

1. When the CPU receives the image writing start signal, the CPU instructs the high voltage supply board to supply +10 μ A (low transfer current level) to the roller. This prevents any positively charged toner on the drum surface from transferring to the transfer roller.
2. At a certain time after the low transfer current has been supplied to the roller, an appropriate current is applied to the roller to transfer the toner to the paper.
3. After the trailing edge of the paper has passed through the roller, transfer current turns off. In multiple copy mode, the transfer current shifts again to the low transfer current.

The transfer current (high transfer current level) depends on the paper feed station, paper width, and the temperature in the machine.

Example: Temperature = 15 °C to 24 °C

| Paper Width | Paper Tray / By-pass Tray (Normal) | Duplex (2nd Side) | By-pass Tray (Thick) / 2nd Paper Tray (Special Paper) |
|---|--|-------------------|--|
| A3/11" x 17", A4/8.5 x 11" sideways | 14 μ A | 10 μ A | 14 μ A |
| B4 | 13 μ A | 12 μ A | 15 μ A |
| A4/11" x 8.5 lengthwise, A5/5.5 x 8.5 sidewise | 13 μ A | 16 μ A | 17 μ A |
| A5/8.5 x 5.5 lengthwise and less | 16 μ A | 16 μ A | 20 μ A |

The transfer current can be adjusted using SP2301, except for the low transfer current.

Be careful when increasing the transfer current. This might cause a ghosting effect, in which part of the image at the top of the page is repeated lower down the page at a lower density. It may also damage the OPC drum in the worst case.

6.12.3 TRANSFER ROLLER CLEANING

If the paper size is smaller than the image, or if a paper jam occurs during printing, toner may be transferred to the roller surface. To prevent the toner from transferring to the back side of the printouts, the transfer roller requires cleaning before the next printing run.

During transfer roller cleaning, the high voltage supply unit supplies a negative cleaning

Image Transfer and Paper Separation

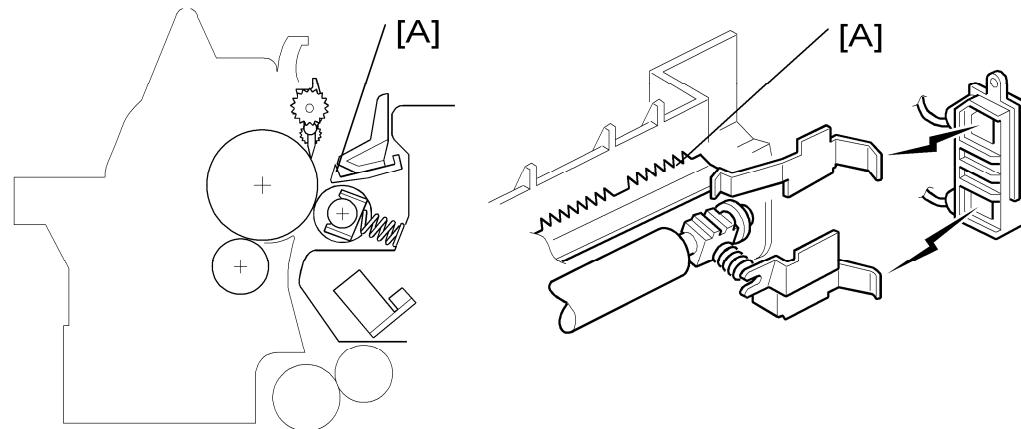
current ($-4\mu\text{A}$) to the transfer roller. Any negatively charged toner on the transfer roller is then transferred back to the drum. Then a positive cleaning current ($+10\mu\text{A}$) is applied to the transfer roller to push back to the drum any positively charged toner on the transfer roller.

The machine goes through the cleaning mode in the following conditions:

- Before starting the printing job (only if enabled with SP2-996; note that the default setting is off)
- Just after the power is switched on.
- After a copy jam has been cleared
- After 50 sheets have printed. If a job is in progress when the number of prints exceeds 50, the machine enters cleaning mode at the completion of the current job (the print job is not interrupted for cleaning).

The transfer roller cleaning current can be adjusted using SP2-301-4.

6.12.4 PAPER SEPARATION MECHANISM



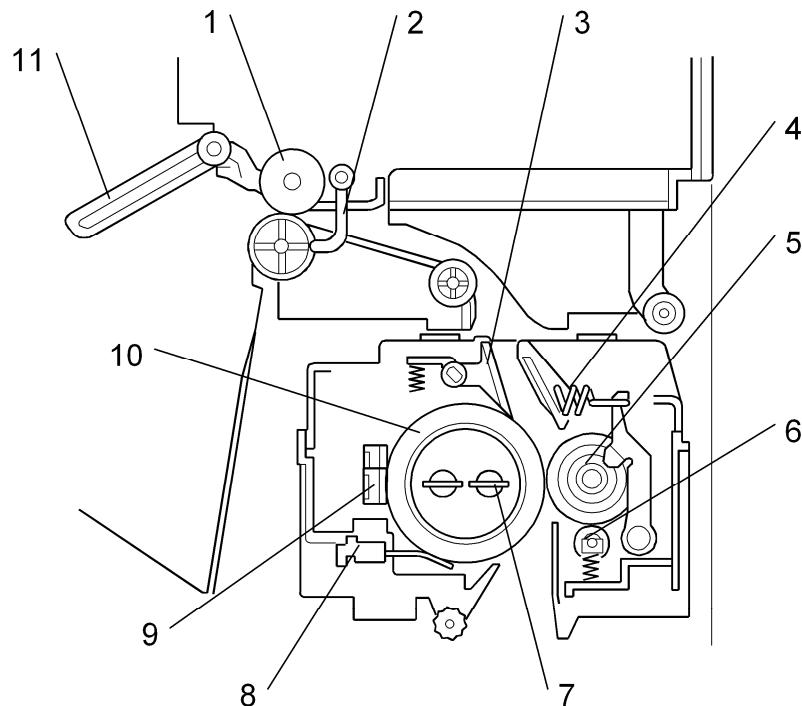
The discharge plate [A] and the drum curvature of the drum help the paper to separate away from the drum. The high voltage supply board applies a constant dc voltage, -1.8 kV (when feeding from a paper tray) or -2.1 kV (from the duplex unit) to the discharge plate.

The discharge plate voltage can be adjusted using SP2-901.

Image Fusing and Paper Exit

6.13 IMAGE FUSING AND PAPER EXIT

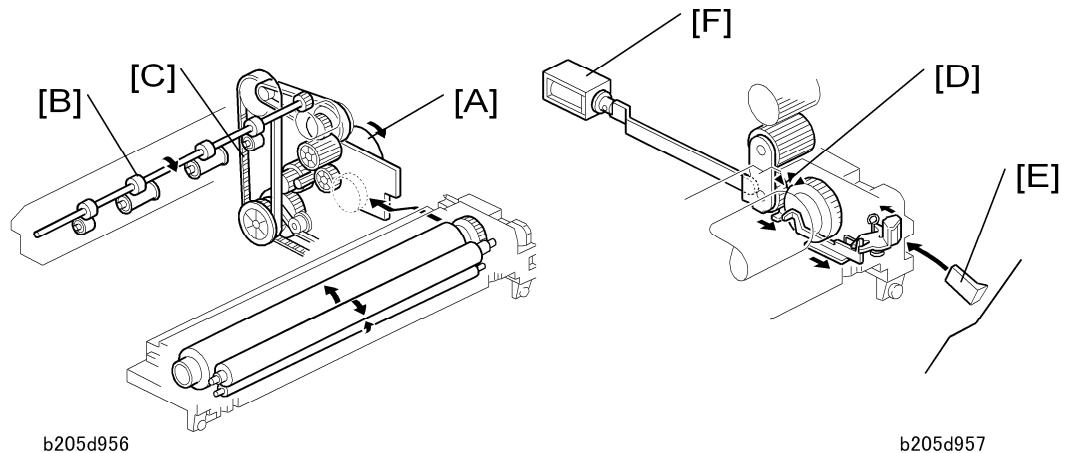
6.13.1 OVERVIEW



| | | | |
|----|----------------------|-----|-----------------------|
| 1. | Paper exit roller | 7. | Two fusing lamps |
| 2. | Fusing exit sensor | 8. | Two thermistors |
| 3. | Hot roller strippers | 9. | Four thermostats |
| 4. | Pressure spring | 10. | Hot roller |
| 5. | Pressure roller | 11. | Paper overflow sensor |
| 6. | Cleaning roller | | |

The pressure lever applies the correct pressure at the nip between the pressure roller and hot roller. When the lever is released, the pressure roller moves away from the hot roller. If a paper jam occurs in the fusing unit, releasing this lever makes jam removal easier.

6.13.2 FUSING DRIVE AND RELEASE MECHANISM



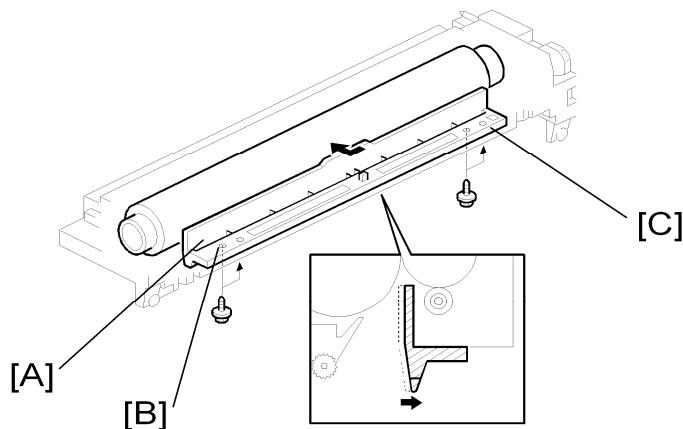
The main motor [A] drives the fusing unit through a gear train and drives the paper exit rollers [B] through a timing belt [C].

The fusing unit release mechanism automatically disengages the fusing unit drive gear [D] when the right cover [E] is opened. This allows the fusing unit drive gear to rotate freely so that misfed paper can easily be removed.

Also, the fusing drive is released by the fusing drive release solenoid [F]. To reduce the warming up time, the machine cuts the drive to the fusing unit during warming up. Just after the main switch is turned on, this solenoid is energized and the fusing unit drive gear [D] is disengaged.

However, the fusing unit drive is not released when the temperature is lower than 15 °C.

6.13.3 FUSING ENTRANCE GUIDE SHIFT MECHANISM

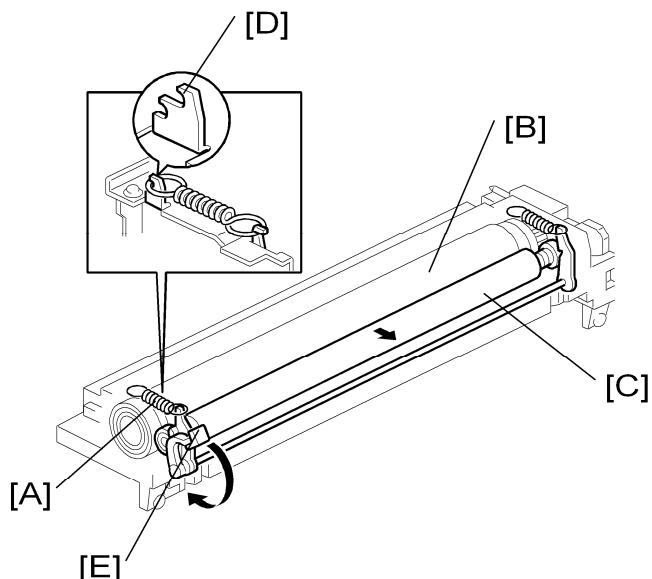


The entrance guide [A] is adjustable for paper thickness to prevent creasing. The left screw holes [B] on each side are used as the default setting.

Image Fusing and Paper Exit

If creasing occurs frequently in the fusing unit, adjust the entrance guide to the right, by securing it with the other holes [C]. This allows more direct access to the gap between the hot roller and the pressure roller.

6.13.4 PRESSURE ROLLER

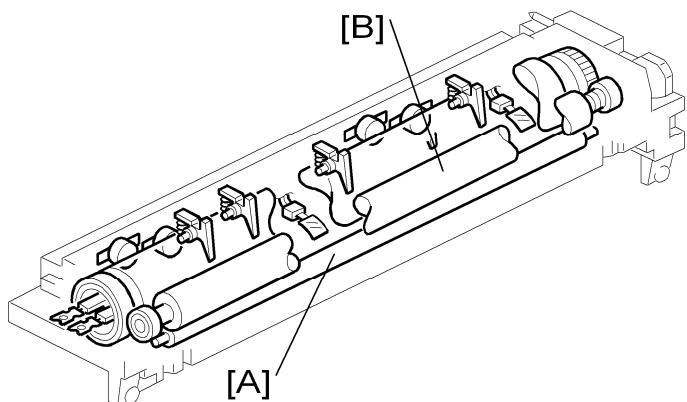


The pressure springs [A] constantly apply pressure between the hot roller [B] and the pressure roller [C].

Applied pressure can be changed by adjusting the position of the pressure springs. The spring is positioned at the top [D] as the default setting.

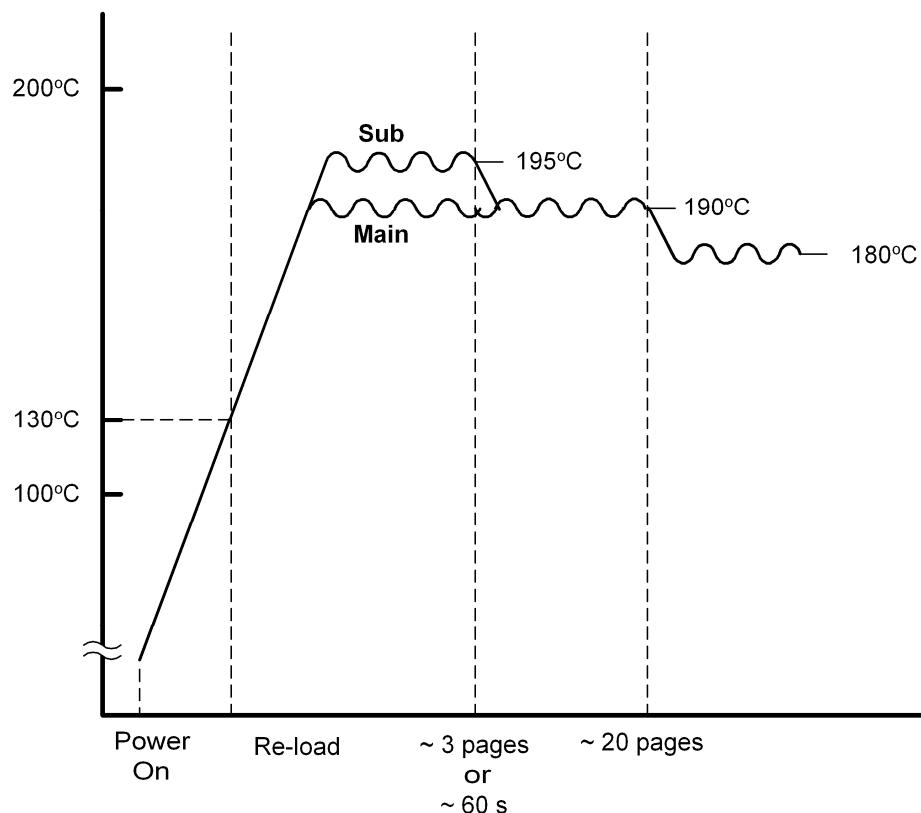
The user moves lever [E] when using thicker copy paper or envelopes, to reduce the pressure between the hot and pressure rollers.

6.13.5 CLEANING MECHANISM



The cleaning roller [A] is always in contact with the pressure roller [B]. It collects toner and paper dust adhered to the surface of the pressure roller.

6.13.6 FUSING TEMPERATURE CONTROL



Temperature Control

Just after the main power switch is turned on, the CPU turns on the fusing lamp to obtain a fusing temperature of 190 °C (Main fusing lamp), 195 °C (Sub fusing lamp) for the first 60s, or for the first three consecutive pages of printing, whichever comes first. After that, the machine keeps the fusing temperature at 190 °C for the first 20 consecutive pages of printing. Then the fusing temperature is kept at 180 °C.

The three-page and 60-second limits can be adjusted with SP1-105-8 and -9.

Note that the fusing temperature is higher if the user uses special paper in the 2nd tray or thick paper mode from the bypass tray.

Detailed Descriptions

Fusing Lamp Control

When the fusing lamp power turns off and on, this causes fluorescent lights in the room to flicker. To reduce the flickering, use the following SP modes.

Fusing temperature detection cycle (SP mode 1-108)

The CPU checks the output from the fusing thermistor once a second (default setting). The CPU compares the current and previous temperatures. Based on the result, it then decides how long the fusing lamp power should be on during the next one-second interval (also, if the current temperature is too high, the power will not be needed).

Image Fusing and Paper Exit

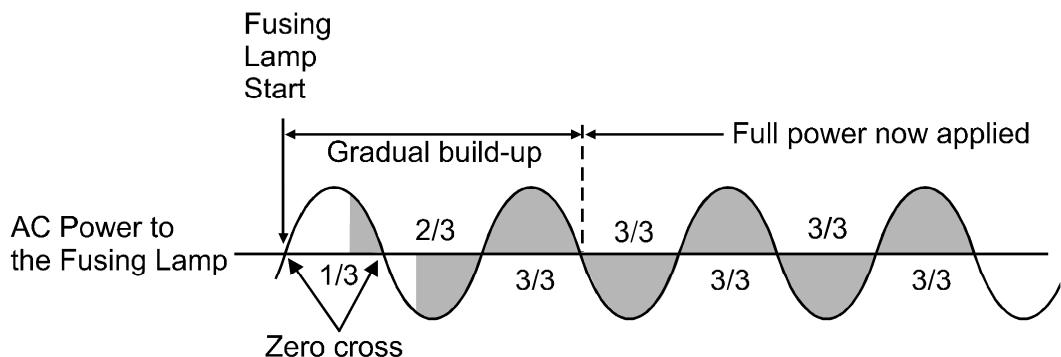
Starting and stopping the fusing lamp power every second causes fluorescent lighting in the room to flicker. To reduce this flickering, use SP1-108 to change the cycle from 1 second to 2 seconds.

Fusing soft-start

In addition, whenever the fusing lamp power switches on, full power is applied to the fusing lamp gradually, not all at once. This prevents the power in the room from dropping suddenly. This feature is known as "Soft Start". The machine does this by gradually allowing more power to the fusing lamp over a number of zero-cross cycles of the ac supply. The diagram below shows full power being applied gradually over the duration of 3 zero-cross cycles. Soft start occurs every time the fusing lamp power switches on (i.e., at some time during every second), not just at the start of the print job.

Note

- This feature is effective to counter flickering lights. However, generated noise increases if the setting is changed from the default. If a radio or a TV is close by the machine, the noise may have some effect on the image or sound.



6.13.7 OVERHEAT PROTECTION

If the hot roller temperature becomes higher than 231 °C, the CPU cuts off the power to the fusing lamp. At the same time, SC543 is generated.

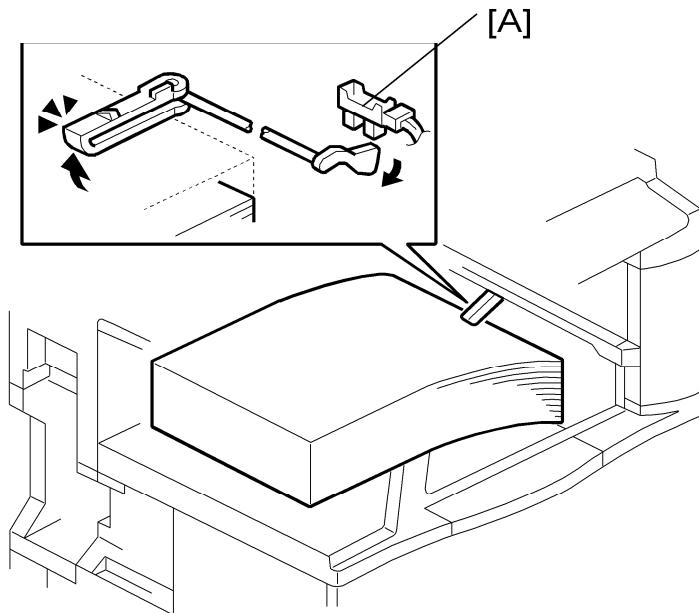
Even if the thermistor overheat protection fails, there are four thermostats in series with the common ground line of the fusing lamp. If the temperature of the thermostat reaches 210 °C, one of the thermostats opens, removing power from the fusing lamp. At the same time, SC542 is generated and the machine stops operating.

In addition to these protection devices, there is a backup temperature control circuit on the SBCU. If the thermistor protection fails, or if a short circuit occurs on the PSU board.

If the temperature exceeds 250 °C:

- This backup temperature control circuit switches off the fusing lamps
- The machine issues SC544.

6.13.8 PAPER EXIT

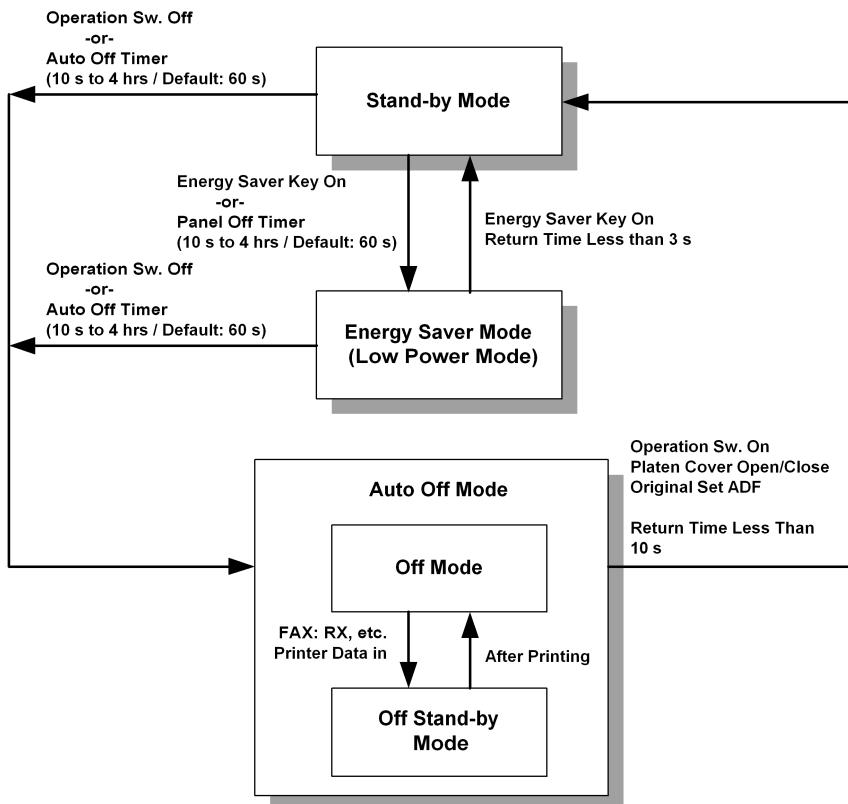


The paper overflow detection sensor [A] is located at the paper exit section of the fusing unit. When this sensor is activated, the machine detects that the paper stack height exceeded a certain limit and stops printing.

Energy Saver Modes

6.14 ENERGY SAVER MODES

6.14.1 OVERVIEW



When the machine is not being used, the energy saver function reduces power consumption by decreasing the fusing temperature.

This machine has two types of energy saver mode as follows.

- Energy saver mode
- Auto Off mode

These modes are controlled by the following UP and SP modes.

- Panel off timer (energy saver mode timer): User Tools> System Settings> Timer Setting> Panel Off Timer
- Auto off timer: User Tools> System Settings> Timer Setting> Auto Off Timer

6.14.2 ENERGY SAVER MODE

Entering the energy saver mode

The operation manual uses the term 'panel off mode' for the timer.

The machine enters energy saver mode when one of the following is done.

Energy Saver Modes

- The panel off timer runs out
- The Clear Mode/Energy Saver Key is held down for one second

Note that the default setting of the panel off timer is 60 s, which is the same as the auto off timer. In this condition, if the machine is not touched for 60 s, it will go straight to auto off mode. If the user wants an energy saver mode and an auto off mode, the panel off timer must be set to a shorter value than the auto off timer.

What happens in energy saver mode

When the machine enters energy saver mode, the fusing lamp drops to a certain temperature, and the operation panel indicators are turned off except for the Energy Saver LED and the Power LED.

If the CPU receives an image print out command from an application (e. g. to print incoming fax data or to print data from a PC), the fusing temperature rises to print the data.

Return to stand-by mode

If one of the following is done, the machine returns to stand-by mode:

- The Clear Mode/Energy Saver Mode key is pressed
- Any key on the operation panel or touch panel screen is pressed
- An original is placed in the ADF
- The ADF is lifted
- A sheet of paper is placed in the by-pass feed table

The recovery time from energy saver mode is about 3 s.

| Mode | Operation Switch | Energy Saver LED | Fusing Temp. | +24V | System +5V |
|--------------|------------------|------------------|--------------|------|------------|
| Energy Saver | On | On | 150 °C | On | On |

Detailed Descriptions

6.14.3 AUTO OFF MODE

There are two Auto Off modes: Off Stand-by mode and Off mode. The difference between Off Stand-by mode and Off mode is the machine's condition when it enters Auto Off mode.

 Note

- The machine will not enter the Auto Off mode for at least 90 seconds. after the machine is turned on when applications other than Copy (printer/scanner, printer, etc.) are installed.

Energy Saver Modes

Entering off stand-by and off modes

The machine enters the Off Stand-by mode or Off mode when:

- The auto off timer runs out
- The operation switch is pressed to turn the power off

If one or more of the following conditions exists, the machine enters Off Stand-by mode. If none of these conditions exist, the machine enters Off Mode.

- Error or SC condition
- An optional G4 unit is installed
- Image data is stored in the memory
- During memory TX or polling RX
- The handset is off hook
- An original is in the ADF
- The ADF is open

Off Stand-by mode

The system +5V is still supplied to all components. When the machine detects a ringing signal or receives a stream of data for a print job, the +24V supply is activated and the machine automatically prints the incoming message or executes the print job.

Off Mode

The system +5V supply also turns off. However, +5VE (+5V for energy saver mode) is still activated. When the machine detects a ringing signal, off-hook signal, or receives a print job, the machine returns to the Off Stand-by mode and the system +5V and +24V supplies are activated.

Returning to stand-by mode

The machine returns to stand-by mode when the operation switch is pressed. The recovery time is about 10 s.

| Mode | Operation Switch | Energy Saver Mode | Fusing Lamp | +24V | System +5V | Note |
|--------------|------------------|-------------------|---------------------------|------|------------|------------------|
| Off Stand-by | Off | Off | Off (On when printing) | On | On | |
| Off | Off | Off | Off | Off | Off | +5VE is supplied |

SPECIFICATIONS

7. SPECIFICATIONS

7.1 SPECIFICATIONS

7.1.1 MAIN MACHINE

| | |
|----------------------|---|
| Configuration: | Desktop |
| Copy Process: | Dry electrostatic transfer system |
| Originals: | Sheet, Book |
| Original Size: | Platen/ARDF: Max. A3/11" x 17" |
| Copy Paper Size | Tray 1: A5 to A3,/DLT, Custom Tray 2: A6 SEF to A3, DLT, Postcard, Custom Bypass: A6 SEF to A3/DLT, Postcard, Custom |
| Custom Sizes (W x L) | Tray 1: 140 to 297 mm x 180 to 432 mm (5.5" to 11.75" x 7" to 17") Tray 2: 100 to 297 mm x 148 to 432 mm (4" to 11.75" x 5.75" to 17") Bypass: 90 to 305 mm x 148 to 1260 mm (35" to 12" x 5.75" to 50") |
| Duplexing | A5/HLT to A3/DLT |
| Paper Weight | Tray 1: 60 to 105 g/m ² , (14 ~ 28 lb.) Tray 2: 52 to 107 g/m ² , (14 ~ 28 lb.) Bypass: 52 to 157 g/m ² , (14 ~ 42 lb.) Duplex: 60 to 105 g/m ² , (14 ~ 28 lb.) |
| Copy Speed | D018: 25 cpm (A4 LEF/Letter LEF) D019: 33 cpm (A4 LEF/Letter LEF) |
| Resolution | 600 dpi |
| Gradation | Read: 256-level (1-dot) Write: 2/3-level (1-dot) |
| 1st Copy Print Time | 4.5 sec. (A4/LT LEF, Tray 1) |

Specifications

| | | |
|-------------------|---|--|
| Warm-up Time | Basic: Less than 12 sec. Operation Key: Less than 10 sec. LCD on: Less than 3 sec. Standby: Less than 6 sec. Scan Start: Less than 6 sec. | |
| Continuous Copies | 001 to 999 Sheets | |
| Zoom | Platen Mode: 25% to 400% ARDF Mode: 25% to 200% | |
| Paper Supply | Tray 1, 2: 500 Sheets Bypass: 100 Sheets | |
| Output Capacity | A4, smaller: 500 Sheets face-down B4, larger: 250 Sheets face-down | |
| Power Source | NA: 120V 60 Hz EU: 220 to 240V 50/60 Hz (Asia, China) Taiwan: 110V 60 Hz | |
| Power Consumption | Full System (Operating) | Less than 1.4 KW |
| | Off Mode | Less than 1.65 W |
| | Sleep Mode | Less than 6 W (NA) Less than 6.5 W (EU) |

| Dimensions (w x d x h) | | |
|------------------------|--------------------------|--|
| Standard | No PTU | 570 x 653 x 709 mm (22.4 x 25.7 x 30 in.) |
| | With PTU | 570 x 653 x 980 mm (22.4 x 25.7 x 38.6 in.) |
| Duplexer | With Duplexer (No PTU) | 630 x 653 x 709 mm (24.8 x 25.7 x 30 in.) |
| | With Duplexer (With PTU) | 630 x 653 x 980 mm (24.8 x 25.7 x 38.6 in.) |

Specifications

| | | |
|-----------------|----------------------------|--|
| Maximum (w x d) | With Side Finisher, Bypass | 858 x 653 mm (33.8 x 25.7 in.) |
| Full System | All Options | 1165 x 653 x 1100 mm (48.9 x 25.7 x 43.3 in.) |

| | | |
|--------|---------------|--------------------------|
| Weight | No Duplexer | Less than 60 kg (132 lb) |
| | With Duplexer | Less than 65 kg (143 lb) |

| Noise Emission (Sound Power Level): | |
|-------------------------------------|--|
| Stand-by (Mainframe only): | 40 db |
| Operating (Mainframe only): | 64.8 db (D017/D019) 67.6 db (D018/D020) |

 Note

- The above measurements were made in accordance with ISO 7779.
- Full System: Mainframe + ADF + 1-bin Sorter + Paper Tray Unit + Duplex Unit + Bridge Unit + Finisher

7.1.2 OPTIONS

ARDF (D366)

| | | | |
|-----------------------------|---|--------|--|
| Paper Size/Weight: | Simplex | Size | A3 to A5, DLT to HLT |
| | | Weight | 40 to 128 g/m ² (10 to 34 lb) |
| | Duplex | Size | A3 to A5, DLT to HLT |
| | | Weight | 52 to 105 g/m ² (14 to 28 lb) |
| Table Capacity: | 50 sheets (80 g/m ² , 20 lb) | | |
| Original Standard Position: | Rear left corner | | |
| Separation: | Feed belt and separation roller | | |

Specifications

| | | | |
|---------------------------------|---|---------------|---------------|
| Original Transport: | Roller transport | | |
| Original Feed Order: | From the top original | | |
| Supported Magnification Ratios: | Copy | - | 32 to 200 % |
| | Fax | Color | 32.6 to 200 % |
| | | Black & white | 48.9 to 200 % |
| Power Source: | DC 24V, 5V from the scanner unit | | |
| Power Consumption: | 50 W or less | | |
| Dimensions (W × D × H) : | 550 mm x 491 mm x 120 mm (21.7" x 19.3" x 4.7") | | |
| Weight: | 10 kg (22 lb) | | |

Duplex Unit (D369)

| | |
|--------------------|---|
| Paper Size: | Standard sizes: A5 LEF to A3, HLT to DLT Non-standard sizes: Width: 140 to 297 mm, Length: 182 to 432 mm |
| Paper Weight: | 64 g/m ² to 105 g/m ² (20 lb to 28 lb) |
| Tray Capacity: | 1 sheet |
| Power Consumption: | 40 W |
| Power Source: | DC 24 V, 5 V |
| Weight: | 7 kg |
| Size (W x D x H): | 160 x 490 x 570 mm |

Bypass Feed Unit (D370)

| | |
|-------------|-----------------|
| Paper Size: | Standard sizes: |
|-------------|-----------------|

Specifications

| | |
|--------------------|--|
| | A6 LEF to A3, HLT lengthwise to DLT Non-standard sizes: Width: 90 to 305 mm, Length: 148 to 432 mm |
| Paper Weight: | 52 g/m ² to 157 g/m ² (16 lb to 42 lb) |
| Tray Capacity: | 50 sheets (80 g/m ² , 20 lb) |
| Paper Feed System: | Friction Pad Paper Feed |
| Power Source: | DC 24 V, 5 V |
| Weight: | 3 kg |
| Size (W x D x H): | 430 x 110 x 240 mm |

Interchange Unit (D371)

| | |
|--------------------|---|
| Paper Size: | Standard sizes: A6 LEF to A3, HLT to DLT Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm |
| Paper Weight: | 52 g/m ² to 135 g/m ² (16 lb to 36 lb) |
| Power Consumption: | 15 W |
| Weight: | 1.6 kg |
| Size (W x D x H): | 117 x 447 x 92 mm (4.6" x 17.6" x 3.6") |

1-Bin Tray (D367)

| | |
|----------------|--|
| Paper Size: | A5 LEF to A3, HLT to DLT |
| Paper Weight: | 60 g/m ² to 105 g/m ² (16 lb to 28 lb) |
| Tray Capacity: | 125 sheets (80 g/m ² , 20 lb) |

Specifications

| | |
|--------------------|----------------------------|
| Power Source: | DC 5 V, 24 V (from copier) |
| Power Consumption: | 15 W |
| Weight: | 4 kg |
| Size (W x D x H): | 470 mm x 550 mm x 110 mm |

Bridge Unit (D368)

| | |
|-------------------------|---|
| Paper Size: | Standard sizes: A6 LEF to A3, HLT to DLT Non-standard sizes: Width: 100 to 305 mm, Length: 148 to 432 mm |
| Paper Weight: | 52 g/m ² to 135 g/m ² (16 lb to 42 lb) |
| Power Source: | DC 24 V, 5 V (from copier) |
| Dimensions (W x D x H): | 413 x 435 x 126 mm |
| Weight | 3.0 kg (6.6 lbs) |

Shift Tray Unit (D385)

| | |
|--------------------|---|
| Paper Size: | Standard Size: A5 LEF to A3, HLT LEF to DLT Non-standard Size: Width: 90 to 297 mm, Length: 148 to 432 mm |
| Paper Weight: | 60 to 105 g/m ² (16 to 28 lbs.) |
| Tray Capacity: | 125 sheets (80 g/m ² , 20 lbs.): B4 or larger 250 sheets (80 g/m ² , 20 lbs.): A4 or smaller |
| Power Source: | DC 5 V, 24 V (from copier) |
| Power Consumption: | 17 W |

Specifications

| | |
|-------------------|--------------------------|
| Weight: | 1.1 kg |
| Size (W x D x H): | 530 mm x 410 mm x 120 mm |

Paper Tray Unit (D331)

| | | |
|-------------------------|--|--|
| Paper Size: | A5 to A3, 5 ¹ / ₂ " x 8 ¹ / ₂ " SEF to 11" x 17" | |
| Paper Weight: | 60 – 105 g/m ² , 16 – 28 lb | |
| Tray Capacity: | 500 sheets (80 g/m ² , 20 lb) x 2 trays | |
| Paper Feed System: | Feed roller and friction pad | |
| Paper Height Detection: | 4 steps (100%, 70%, 30%, Near end) | |
| Power Source: | <ul style="list-style-type: none"> ▪ 24 Vdc and 5Vdc (from the copier/printer): ▪ 120 Vac (120 V version) from the copier/printer when the optional tray heater is installed ▪ 220 – 240 Vac (230 V version) from the copier/printer when the optional tray heater is installed | |
| Power Consumption: | Max: | 28 W (Copying/printing) 23 W (Optional Tray Heater On) |
| | Average: | 17 W (Copying/printing) 15 W (Optional Tray Heater On) |
| Weight: | 25 kg (55 lb) | |
| Size (W x D x H): | 550 mm x 520 mm x 271 mm | |

LCT (B391)

| | |
|----------------|--|
| Paper Size: | A4 LEF/LT LEF |
| Paper Weight: | 60 g/m ² to 169 g/m ² , 16 lb to 45 lb |
| Tray Capacity: | 2,000 sheets (80 g/m ² , 20lb.) |

Specifications

| | |
|----------------------------|--|
| Remaining Paper Detection: | 5 steps (100%, 70%, 30%, 10%, Empty): Right Tray 4 steps (100%, 70%, 30%, Empty): Left Tray |
| Power Source: | DC 24 V, 5 V (from copier/printer) |
| Power Consumption: | 50 W (Max.)/30 W (Ave.) |
| Weight: | 25 kg (55 lb) |
| Size (W x D x H): | 580 mm x 620 mm x 260 mm (22.8" x 24.4" x 10.2") |

500-Sheet Finisher (D372)

| | | | |
|---------------------------|---|--------|------|
| Target Line Speed | 77 mm/sec. to 205 mm/sec | | |
| Target CPM | 35 cpm | | |
| Face-down Output Size | 12"x18", A3 SEF to A6 SEF, DLT to HLT SEF Shift sizes: A3 SEF to B5 SEF A5, B6, A6 SEF labels possible | | |
| Paper Thickness | 52 g/m ² (45 K) to 157 g/m ² (135 K) Up to 253 g/m ² (220K) without shift | | |
| Stapling | | | |
| Stack Height for Stapling | 50 sheets: A4, LT and smaller 30 sheets: B4, LG and larger | | |
| Size | A3 SEF to B5 SEF (can be mixed if same width) | | |
| Stack Thickness | 64g/m ² (45 K) to 157 g/m (135 K) | | |
| Stapling Positions | Front/Oblique: 1, Front/Parallel: 1 Rear/Oblique: 1, Rear/Parallel: 1, 2 locations | | |
| Output Tray Capacity | | | |
| Non-staple Mode | 500 sheets: A4, LT and smaller | | |
| Staple Mode | 250 sheets: B4, | Stacks | Size |

Specifications

| | | | | | | |
|------------------------|-----------------------|---|---------------------------|-----------------|--|--|
| | | LG and larger Stack Size (Stapling) | | | | |
| | 2 to 9 Sheets | | 55 to 46 | A4, B5, LT LEF | | |
| | 10 to 50 Sheets | | 45 to 10 | | | |
| | 2 to 9 Sheets | | 55 to 27 | A4, B5, LT SEF | | |
| | 10 to 50 Sheets | | 25 to 8 | | | |
| | 2 to 9 Sheets | | 55 to 27 | A3, B4, DLT, LG | | |
| | 10 to 30 Sheets | | 25 to 8 | | | |
| Stacking | | Non-Stapling Mode | Vertical: 15 mm or less | | | |
| | | | Horizontal: 15 mm or less | | | |
| Jogging Precision | | | | | | |
| 2 to 30 Sheets | | 2 mm | | | | |
| 31 to 50 Sheets | | 3 mm | | | | |
| Dimensions (w x d x h) | | 396 x 551 x 276 mm (15.6 x 21.7 x 10.9 in.) | | | | |
| Weight | | 12 kg (26.4 lb) | | | | |

Specifications

Specifications

1000-Sheet Finisher (B408)

Upper Tray

| | |
|-----------------|--|
| Paper Size: | A3 to A6 11" x 17" to 5.5" x 8.5" |
| Paper Weight: | 60 to 157 g/m ² (16 to 42 lb) |
| Paper Capacity: | 250 sheets (A4 LEF/8.5" x 11" SEF or smaller) 50 sheets (A4, 8.5" x 11" or smaller) 30 sheets (B4, 8.5" x 14" or larger) |

Lower Tray

| | | | | |
|-------------------|--|--------|-----------|-----------|
| Paper Size: | No staple mode: A3 to B5, DLT to HLT Staple mode: A3, B4, A4, B5, DLT to LT | | | |
| Paper Weight: | No staple mode: 60 to 157 g/m ² (16 to 42 lb) Staple mode: 64 to 90 g/m ² (17 to 24 lb) | | | |
| Stapler Capacity: | 30 sheets (A3, B4, DLT, LG) 50 sheets (A4, B5 LEF, LT) | | | |
| Paper Capacity: | No staple mode: 1,000 sheets (A4/LT or smaller: 80 g/m ² , 20 lb) 500 sheets (A3, B4, DLT, LG: 80 g/m ² , 20 lb) Staple mode: (80 g/m ² , 20 lb, number of sets) | | | |
| | Set Size | 2 to 9 | 10 to 50 | - |
| | Size | | 10 to 30 | 31 to 50 |
| | A4/LT LEF B5 LEF | 100 | 100 to 20 | 100 to 20 |
| | A4/LT SEF | 100 | 50 to 10 | 50 to 10 |

Specifications

| | | | | |
|-------------------------|---|----|----------|---|
| | A3, B4, DLT, LG | 50 | 50 to 10 | - |
| Staple positions: | 1 Staple: 2 positions (Front, Rear) 2 Staples: 2 positions (Upper, Left) | | | |
| Staple Replenishment: | Cartridge (5,000 staples/cartridge) | | | |
| Power Source: | DC 24 V, 5 V (from the copier/printer) | | | |
| Power Consumption: | 50 W | | | |
| Weight: | 25 kg (55.2 lbs) | | | |
| Dimensions (W x D x H): | 527 x 520 x 790 mm (20.8" x 20.5" x 31.1") | | | |

1000-Sheet Finisher (B793)

| | |
|-------------------|--|
| Print Paper Size: | No punch mode: A3/11" x 17" to A5/8.5" x 5.5" (LEF) Punch mode: 2 holes: A3/11" x 17" to B6/5.5" x 8.5" (SEF) or A4/8.5" x 11" to A5/8.5" x 5.5" (LEF) 3 holes: A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF) 4 holes (Europe): A3, B4, 11" x 17" (SEF) or A4, B5, 8.5" x 11" (LEF) 4 holes (North Europe): A3/11" x 17" to B6/5.5" x 8.5" (SEF) Staple mode: A3/11" x 17" to B5/8.5" x 11" |
| Paper Weight: | No punch mode: 52 to 256 g/m ² (14 to 68 lb) (Shift tray) 52 to 105 g/m ² (14 to 28 lb) (Proof tray) Punch mode: 52 to 163 g/m ² (14 to 43 lb) Staple mode: 64 to 90 g/m ² (17 to 24 lb) |

Specifications

Specifications

| | | |
|-------------------------|--|------------------|
| | Label/Thick paper/OHP cannot be stapled | |
| Tray Capacity: | <p>[Proof tray] 100 sheets: A4, 8.5" x 11" or less 50 sheets: B4, 8.5" x 14" or more [Shift tray] 1000 sheets: A4, 8.5" x 11" (LEF) or smaller 500 sheets: B4, 8.5" x 14" or larger</p> | |
| Staple capacity: | <p>Single size: 50 sheets: A4, 8.5" x 11" or smaller 30 sheets: B4, 8.5" x 14" or larger</p> | |
| Staple position: | <p>3 positions 1-staple: 2 positions (Top Left, Top Right) 2-staples: 1 positions</p> | |
| Staple replenishment: | Cartridge (5000 staples) | |
| Power consumption: | 60 W | |
| Dimensions (W x D x H): | 535 mm x 600 mm x 930 mm (21.1" x 23.6" x 36.6") | |
| Weight | Without punch unit: | 48 kg (105.8 lb) |
| | With punch unit: | 50 Kg (110.3 lb) |

LARGE CAPACITY TRAY PS500
B391

LARGE CAPACITY TRAY PS500 B391

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. OVERALL MACHINE INFORMATION..... | 1 |
| 1.1 SPECIFICATIONS..... | 1 |
| 1.2 MECHANICAL COMPONENT LAYOUT..... | 2 |
| 1.3 ELECTRICAL COMPONENT LAYOUT | 3 |
| 1.4 ELECTRICAL COMPONENT DESCRIPTIONS | 4 |
| 2. DETAILED SECTION DESCRIPTIONS | 5 |
| 2.1 PAPER FEED..... | 5 |
| 2.2 REVERSE ROLLER AND PICK-UP ROLLER RELEASE | 6 |
| 2.3 TRAY LIFT..... | 7 |
| 2.4 NEAR END/END DETECTION..... | 8 |
| 2.5 RIGHT TRAY SIDE FENCE | 9 |
| 2.6 LEFT TRAY REAR FENCE | 9 |
| 2.7 RIGHT TRAY PAPER END DETECTION..... | 10 |
| 3. REPLACEMENT AND ADJUSTMENT | 11 |
| 3.1 DETACHING THE TRAY FROM THE MAINFRAME..... | 11 |
| 3.2 REAR FENCE HP SENSOR | 11 |
| 3.3 CHANGING THE TRAY PAPER SIZE..... | 12 |
| 3.4 LEFT TRAY PAPER END SENSOR..... | 12 |
| 3.5 TRAY LIFT MOTOR | 13 |
| 3.6 TRAY MOTOR..... | 14 |
| 3.7 PAPER FEED CLUTCH AND RELAY CLUTCH..... | 15 |
| 3.8 PAPER FEED UNIT | 16 |
| 3.9 UPPER LIMIT, RIGHT TRAY PAPER END, AND RELAY SENSORS | 17 |
| 3.10 REAR FENCE MOTOR | 18 |
| 3.11 PICK-UP/PAPER FEED/REVERSE ROLLERS | 19 |

1. OVERALL MACHINE INFORMATION

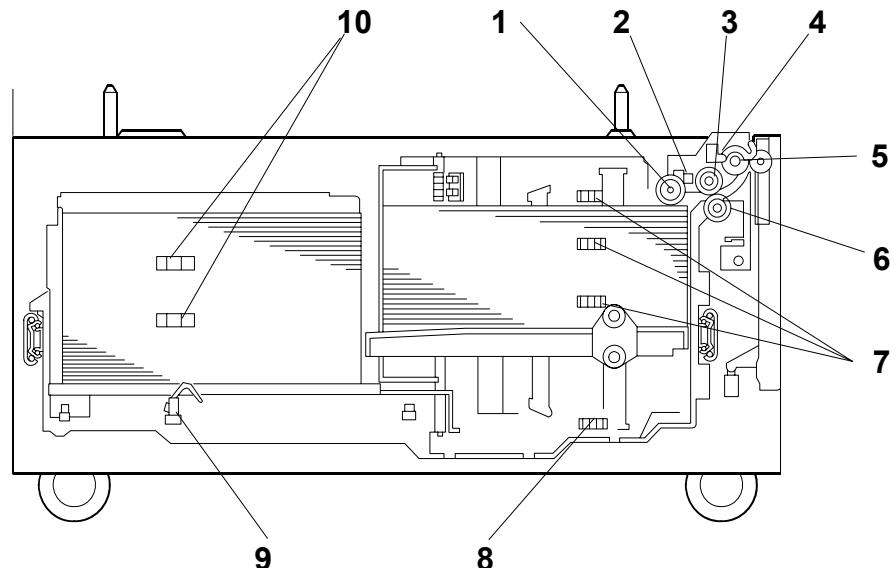
1.1 SPECIFICATIONS

| | |
|----------------------------|--|
| Paper Size: | A4 sideways/LT sideways |
| Paper Weight: | 60 g/m ² ~ 105 g/m ² , 16 lb ~ 28 lb |
| Tray Capacity: | 2,000 sheets (80 g/m ² , 20lb) |
| Remaining Paper Detection: | 5 steps (100%, 75%, 50%, 25%, Near end) |
| Power Source: | 24 Vdc, 5 Vdc (from copier/printer) |
| Power Consumption: | 26 W (Max.)/14 W (Ave.) |
| Weight: | 25 kg (55 lbs) |
| Size (W x D x H): | 550 mm x 520 mm x 271 mm |

Large
Capacity Tray
B391

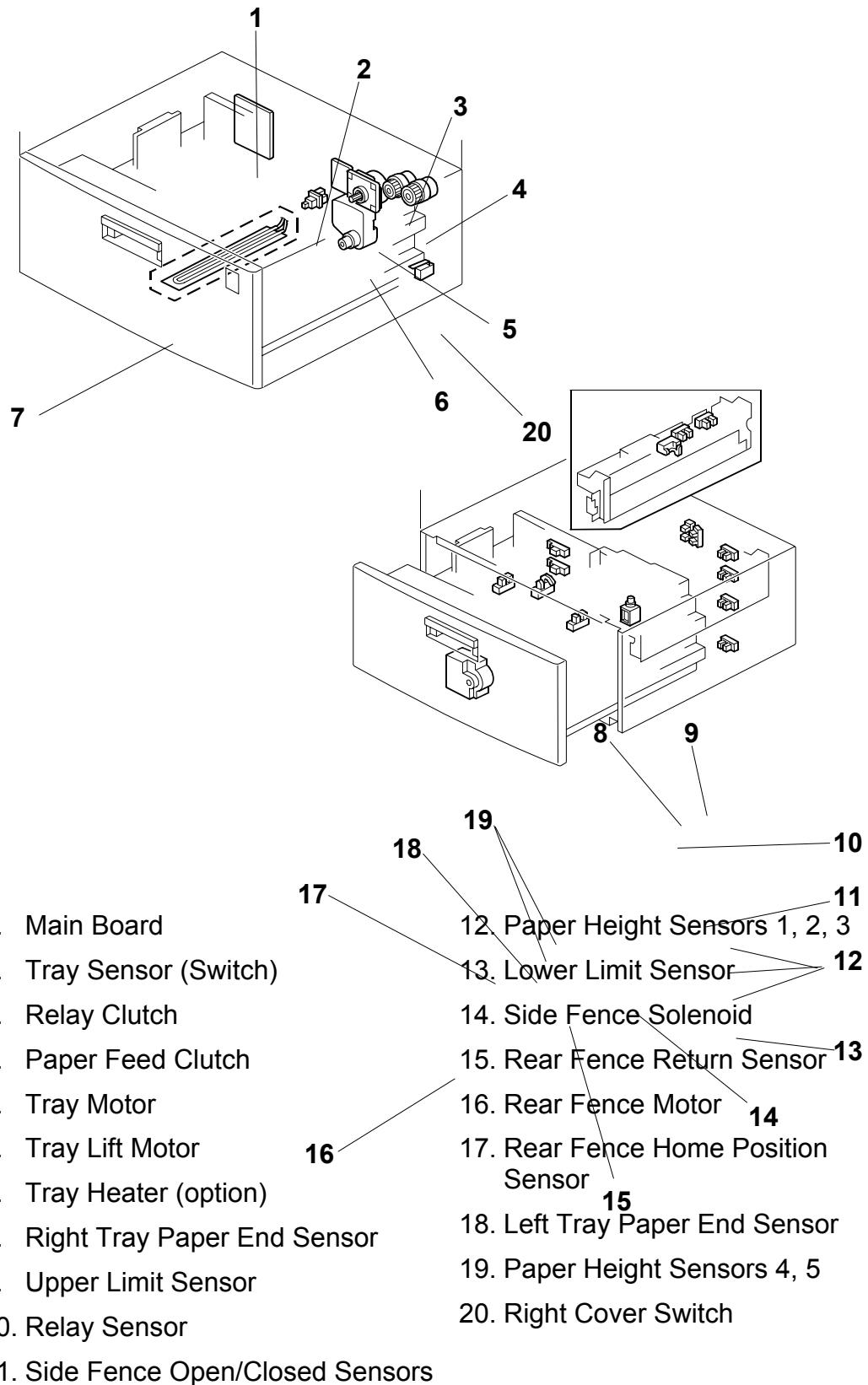
MECHANICAL COMPONENT LAYOUT

1.2 MECHANICAL COMPONENT LAYOUT



- | | |
|-----------------------|---------------------------------|
| 1. Pick-up Roller | 7. Paper Height Sensors 1, 2, 3 |
| 2. Upper Limit Sensor | 8. Lower Limit Sensor |
| 3. Paper Feed Roller | 9. Left Paper End Sensor |
| 4. Relay Sensor | 10. Paper Height Sensors 4,5 |
| 5. Relay Roller | |
| 6. Reverse Roller | |

1.3 ELECTRICAL COMPONENT LAYOUT



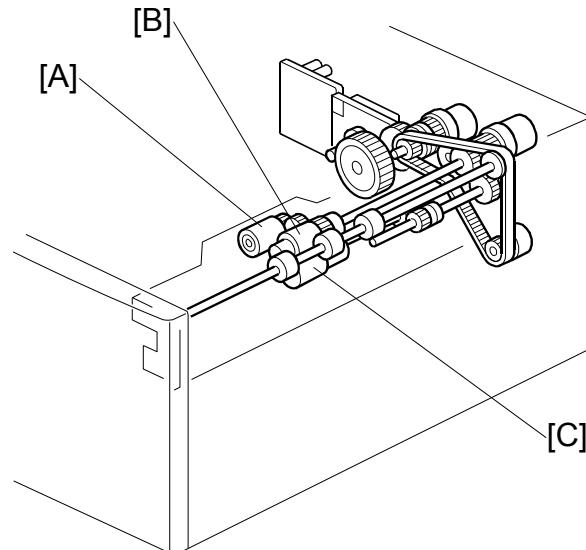
ELECTRICAL COMPONENT DESCRIPTIONS

1.4 ELECTRICAL COMPONENT DESCRIPTIONS

| Symbol | Name | Function | Index No. |
|--------------------------|--------------------------|--|-----------|
| Motors | | | |
| M1 | Tray Motor | Drives all rollers. | 5 |
| M2 | Tray Lift Motor | Drives the paper tray up or down. | 6 |
| M3 | Rear Fence Motor | Moves the rear fence to transfer the paper stack from the paper storage (left) side of the tray to the paper feed (right) side. | 16 |
| Sensors | | | |
| S1 | Right Tray Paper End | Informs the copier/printer when the paper in the right side (paper feed side) of the tray has been used up. If there is a paper stack in the left side (paper storage side), this is moved into the right tray. If there is no paper stack in the left side, paper end is indicated. | 8 |
| S2 | Relay | Detects the copy paper coming to the relay roller and checks for misfeeds. | 10 |
| S3 | Upper Limit | Detects when the paper is at the correct paper feed height. | 9 |
| S4 | Lower Limit | Detects when the tray is completely lowered, to stop the LCT motor. | 13 |
| S5 | Paper Height 1, 2, 3 | Detects the amount of paper remaining in the right side of the tray. | 12 |
| S6 | Paper Height 4, 5 | Detects the amount of paper remaining in the left side of the tray. | 19 |
| S7 | Rear Fence Home Position | Detects when the rear fence is at H.P. | 17 |
| S8 | Tray (Switch) | Detects whether the tray is correctly set. | 2 |
| S9 | Side Fence Open/Closed | Detects whether the side fence is opened or closed. | 11 |
| S10 | Rear Fence Return | Detects when the rear fence has moved the paper stack from the left side to the right side. | 15 |
| S11 | Left Tray Paper End | Informs the copier/printer when there is no paper in the left side (paper storage side) of the tray. | 18 |
| Solenoids | | | |
| SOL1 | Side Fence | Controls open-close movement of the side fence. | 14 |
| Magnetic Clutches | | | |
| MC1 | Paper Feed | Drives the paper feed roller. | 4 |
| MC2 | Relay | Drives the relay roller. | 3 |
| PCBs | | | |
| PCB1 | Main | Controls the LCT and communicates with the copier/printer. | 1 |
| Switches | | | |
| SW1 | Right Cover | Detects whether the right cover is open. | 20 |

2. DETAILED SECTION DESCRIPTIONS

2.1 PAPER FEED



Large
Capacity Tray
B391

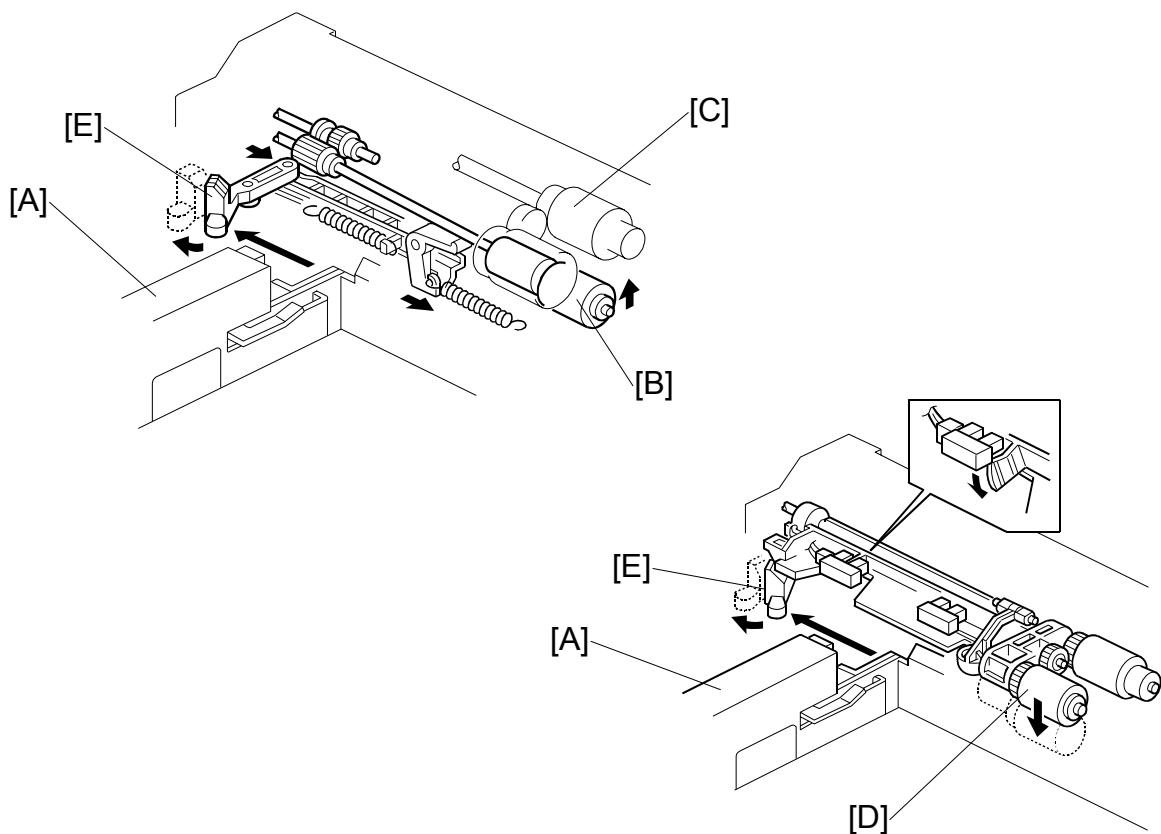
This product uses an FRR type paper feed mechanism.

The paper feed unit consists of the pickup roller [A], paper feed roller [B], reverse roller [C], and grip and transport rollers.

There is a torque limiter in the back of the reverse roller (ferrite powder type).

REVERSE ROLLER AND PICK-UP ROLLER RELEASE

2.2 REVERSE ROLLER AND PICK-UP ROLLER RELEASE

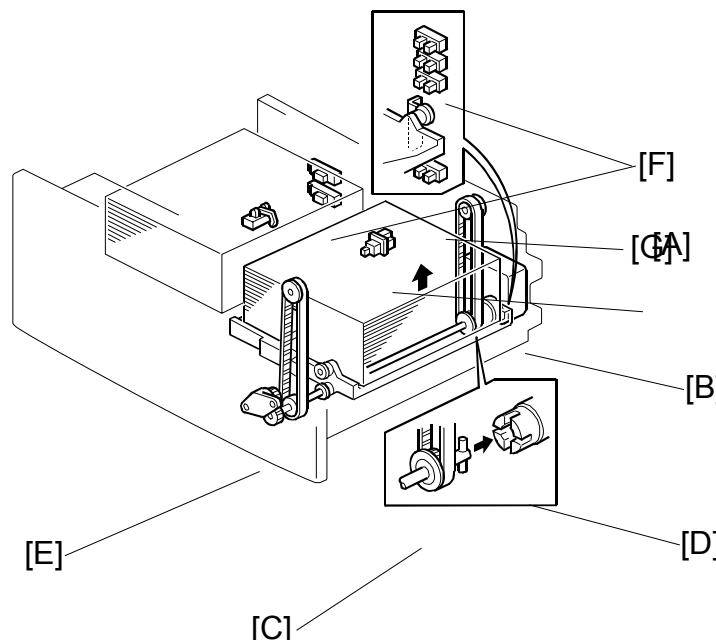


To prevent the paper from being torn when pulling out the paper feed tray, the reverse and pickup rollers are set so that they release automatically.

When the paper tray [A] is not inside the machine, the reverse roller [B] is away from the paper feed roller [C] and the pick-up roller [D] stays in the upper position.

When the paper tray is set into the machine, it pushes the release lever [E]. This causes the pick-up roller [D] to go down into contact with the top sheet of paper and the reverse roller [B] to move up and contact the paper feed roller.

2.3 TRAY LIFT



Large Capacity Tray
B391

When the paper feed tray is put in the machine, the tray switch [A] on the back face turns on and the tray lift motor [B] starts up. The base plate lift shaft [C] is coupled to the lift motor at shaft [D], so the base plate of the tray is lifted. After a short while, the top of the paper stack contacts the pick-up roller and lifts it up.

When this occurs, the actuator enters the upper limit sensor, the sensor turns off and the lift motor stops. When paper in the tray is used up, the pick-up roller is gradually lowered, and the actuator leaves the upper limit sensor (turning the sensor on). When this happens, the lift motor begins turning again. The tray will then be lifted until the actuator enters the upper limit sensor (turning the sensor off again).

When the tray is removed from the copier, the coupling between the lift motor [B] and base plate lift shaft [C] is broken and the base plate goes into a controlled free fall (using a damper [E] to slow the fall and prevent damage).

2.4 NEAR END/END DETECTION

This tray can hold two stacks of paper, so the machine needs to monitor the status of both these stacks. There are seven sensors to do this.

In the right tray (paper feed side), three height sensors measure the height of the stack, and an end sensor detects when all the paper is used up. As the amount of paper remaining in the tray decreases, the base plate rises and the actuator activates the paper height sensors. When paper runs out in the right tray, the stack in the left tray is moved across to the right tray.

There are also two height sensors ([F] in the diagram on the previous page) and an end sensor in the left tray (paper storage side) ([G] in the diagram on the previous page). When there is no paper in both trays, paper end is detected.

The machine determines the amount of remaining paper based on the sensor outputs, as shown in the following table.

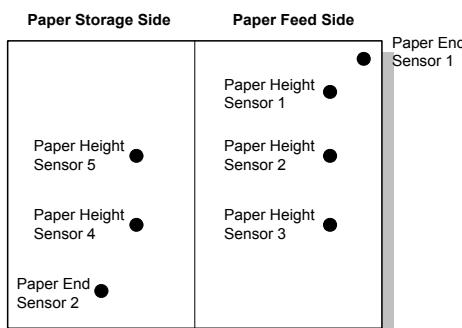
Paper end sensor 1: ○ = Low (no paper), ● = High (paper present)

Other sensors: ○ = Low (paper present), ● = High (no paper)

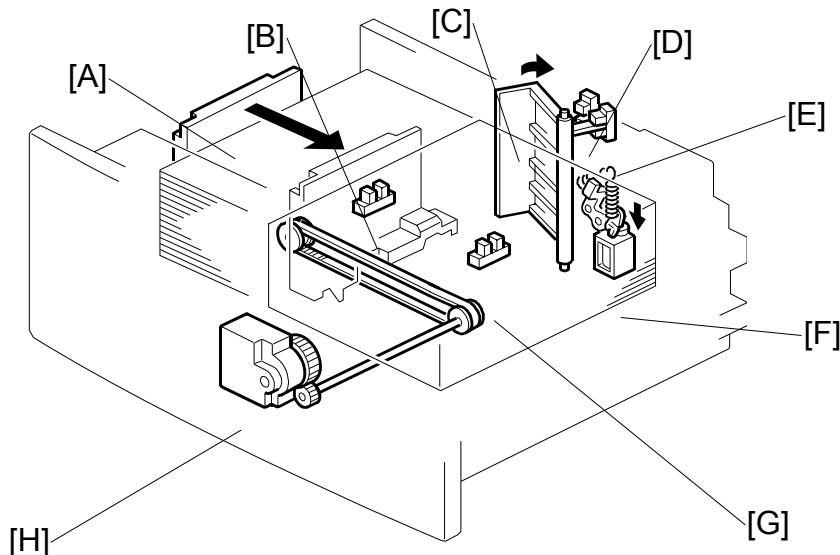
| | Amount of paper | | | | | | | | |
|-----------------------|-----------------|-----|---|-----|---|---|---|---|---|
| | 100% | 75% | | 50% | | | | | |
| Paper Height Sensor 1 | ○ | ○ | ○ | ○ | ○ | ○ | ● | ○ | ○ |
| Paper Height Sensor 2 | ○ | ○ | ○ | ○ | ○ | ● | - | ○ | ● |
| Paper Height Sensor 3 | ○ | ○ | ● | ○ | ○ | - | - | ● | - |
| Paper End Sensor 1 | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| Paper Height Sensor 4 | ○ | ● | ○ | ● | ● | ○ | ○ | ● | ● |
| Paper Height Sensor 5 | ○ | ○ | ○ | ● | ● | ○ | ○ | ○ | ○ |
| Paper End Sensor 2 | ○ | ○ | ○ | ○ | ● | ○ | ○ | ○ | ○ |

| | Amount of paper | | | | | | |
|-----------------------|-----------------|---|---|---|---|----------|-----|
| | 25% | | | | | Near-end | End |
| Paper Height Sensor 1 | ● | ○ | ○ | ○ | ○ | ● | ● |
| Paper Height Sensor 2 | - | - | ● | ○ | ● | - | - |
| Paper Height Sensor 3 | - | - | - | ● | - | - | - |
| Paper End Sensor 1 | ● | ● | ● | ● | ● | ● | ○ |
| Paper Height Sensor 4 | ○ | ● | ● | ● | ● | ● | ● |
| Paper Height Sensor 5 | ● | ○ | ● | ● | ● | ● | ● |
| Paper End Sensor 2 | ○ | ○ | ○ | ● | ● | ○ | ● |

The following diagram is the sensor layout, as viewed from the front.



2.5 RIGHT TRAY SIDE FENCE



Large Capacity Tray
B391

When the paper in the right tray is used up, the side fence solenoid [F] activates and stays on until the side fence open/closed sensor [E] detects that the fence is open. The rear fence [A] then moves the stack of paper from the left tray into the right tray, as described in the following section. When the stack has been transferred to the right tray, the rear fence return sensor [G] detects the rear fence and then the cpu turns off the side fence open solenoid (closing the side fence).

The side fence open/closed sensor [D] detects when the side fence is closed. When it is not closed, the user is prompted at the operation panel to free the mechanism.

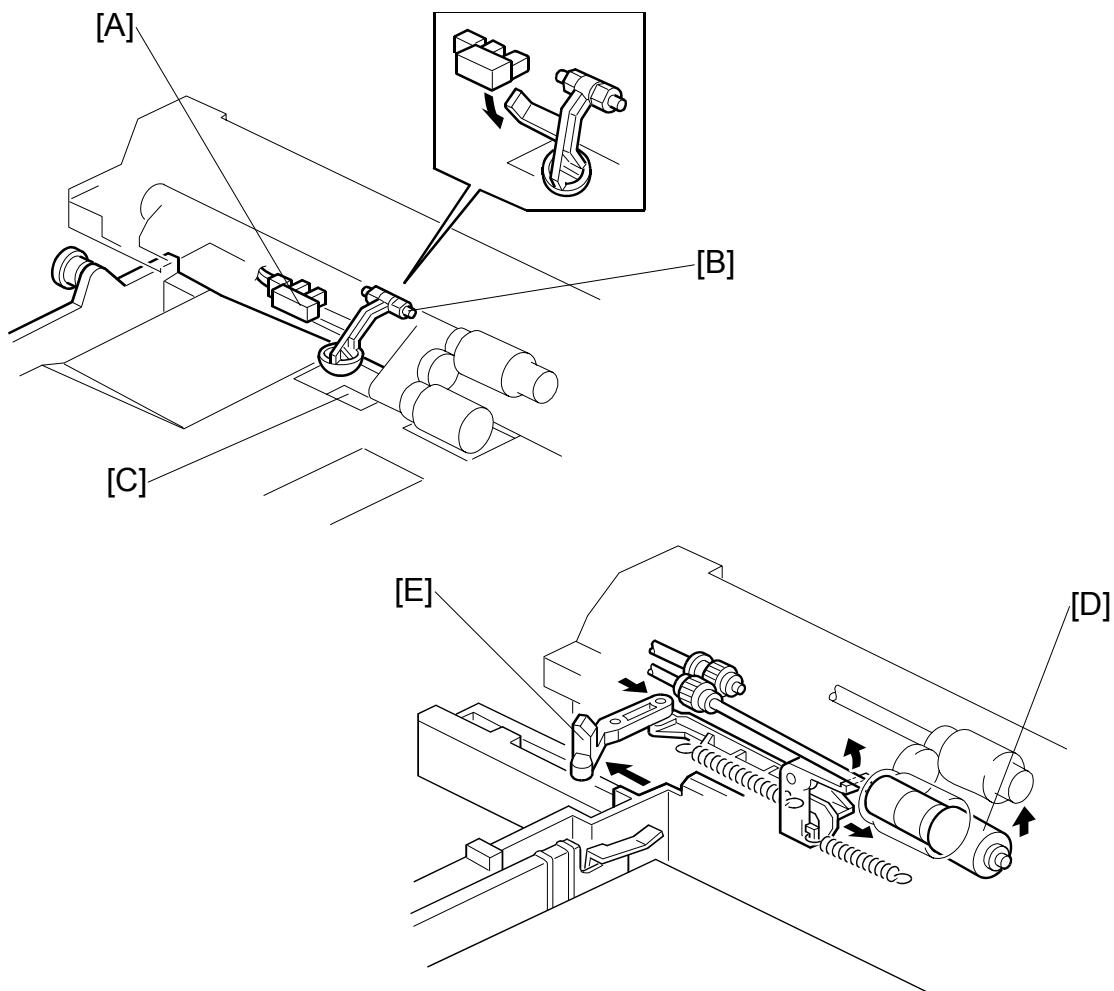
2.6 LEFT TRAY REAR FENCE

If the right tray paper end sensor detects that there is no paper in the tray (while the left tray sensor detects that there is still paper in the left tray), the right side fence [C] opens and the rear fence motor [H] turns on. The rear fence of the left tray moves and the paper stack is then transferred from the left tray to the right tray.

When the left tray rear fence activates the rear fence return sensor, the machine detects that the paper stack has been transferred to the right tray and the rear fence motor rotates in the opposite direction. When the rear fence HP sensor [B] comes on, the motor stops.

RIGHT TRAY PAPER END DETECTION

2.7 RIGHT TRAY PAPER END DETECTION



The paper end sensor [A] detects when copy paper in the right tray runs out.

When there is paper in the tray, the paper pushes up the paper end feeler [B] and causes the actuator to come between the LED and photo diode of the sensor.

When paper runs out, the feeler drops and the actuator leaves the photointerruptor, and the machine detects that there is no paper in the tray.

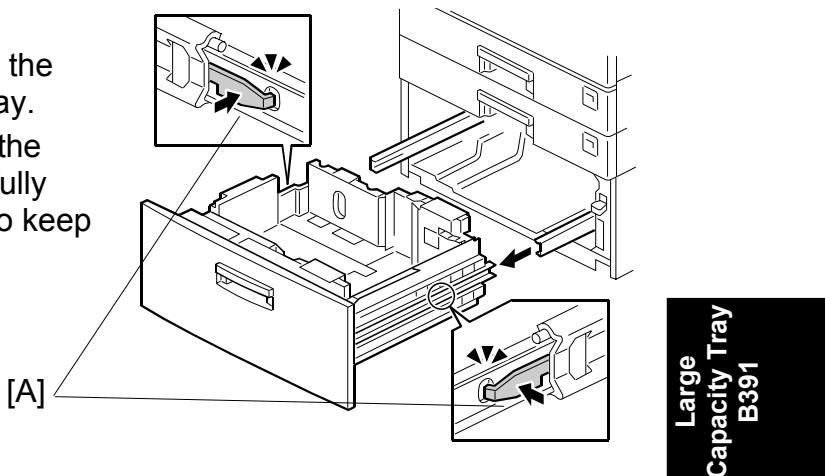
When the tray is being pulled out, the lever [E] lifts the pick-up roller and this also lifts up the feeler.

3. REPLACEMENT AND ADJUSTMENT

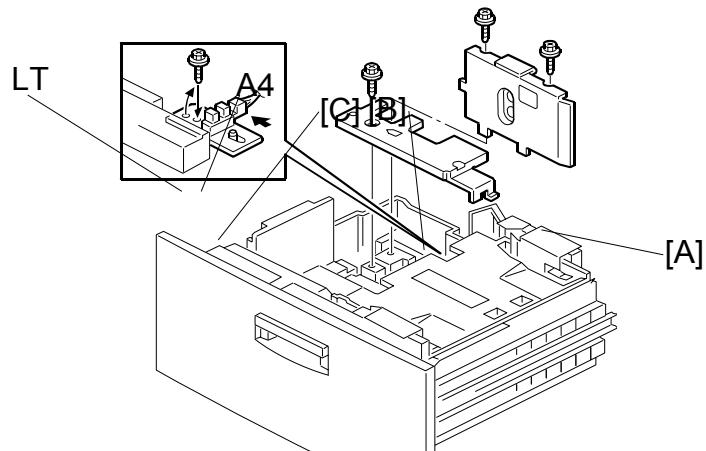
3.1 DETACHING THE TRAY FROM THE MAINFRAME

While pressing the stopper attached to the guide rail, pull out the large capacity tray.

NOTE: When reinstalling the tray, set the tray on the guide rail and carefully push the tray in, making sure to keep the tray level.



3.2 REAR FENCE HP SENSOR

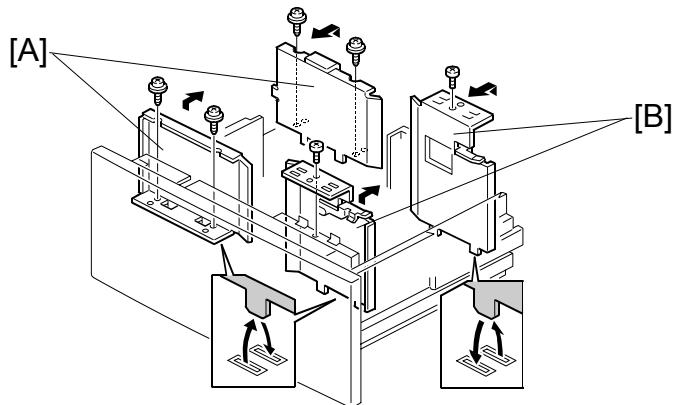


1. Pull out the large capacity tray.
2. Remove the left tray rear side fence [A] (2 screws).
3. Remove the rear fence bracket [B] (1 screw).
4. Remove the connector of the rear fence HP sensor.
5. Replace the rear fence HP sensor [C] (1 screw).

NOTE: When securing the sensor in place, be sure to fasten the screw in the proper position.

CHANGING THE TRAY PAPER SIZE

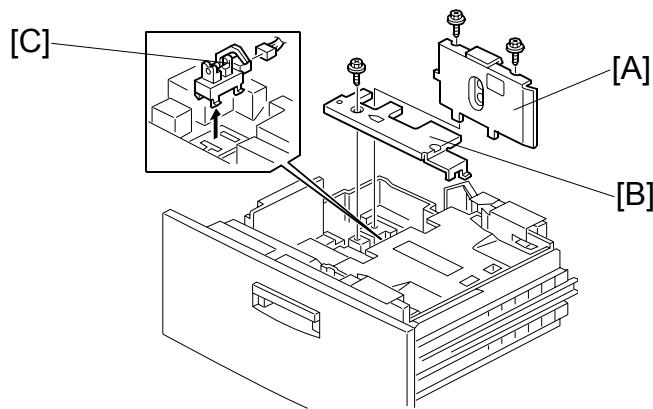
3.3 CHANGING THE TRAY PAPER SIZE



1. Remove the screws of all side fences [A], [B].
2. The position of the rear fence HP sensor can then be changed (see Rear Fence HP Sensor Removal).
3. The paper size display can then be changed with an SP mode.

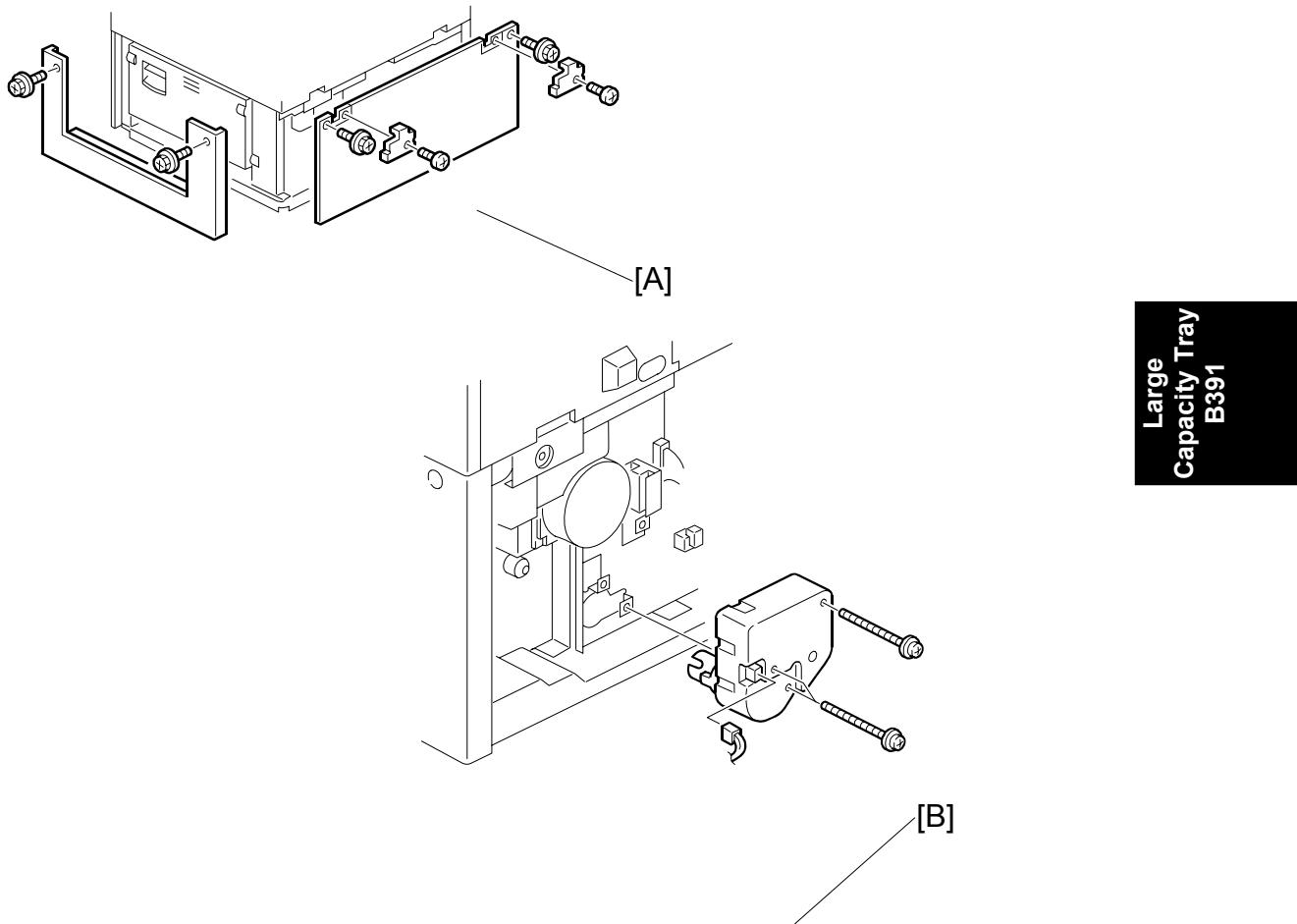
NOTE: When securing the right tray side fence, fasten the screw after setting the paper in the right tray and adjusting the fence to the width of the paper.

3.4 LEFT TRAY PAPER END SENSOR



1. Pull out the large capacity tray.
2. Remove the left tray side fence [A] (2 screws).
3. Remove the rear fence bracket [B] (1 screws).
4. Replace the left tray paper end sensor [C] (1 connector).

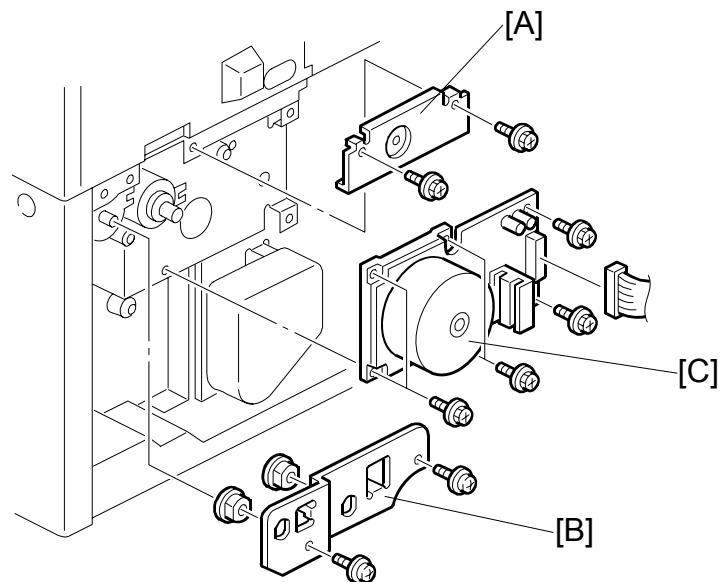
3.5 TRAY LIFT MOTOR



1. Remove the brackets (1 screw for each).
2. Remove the rear cover [A] (2 screws).
3. Remove the tray lift motor [B] (3 screws, 1 connector).

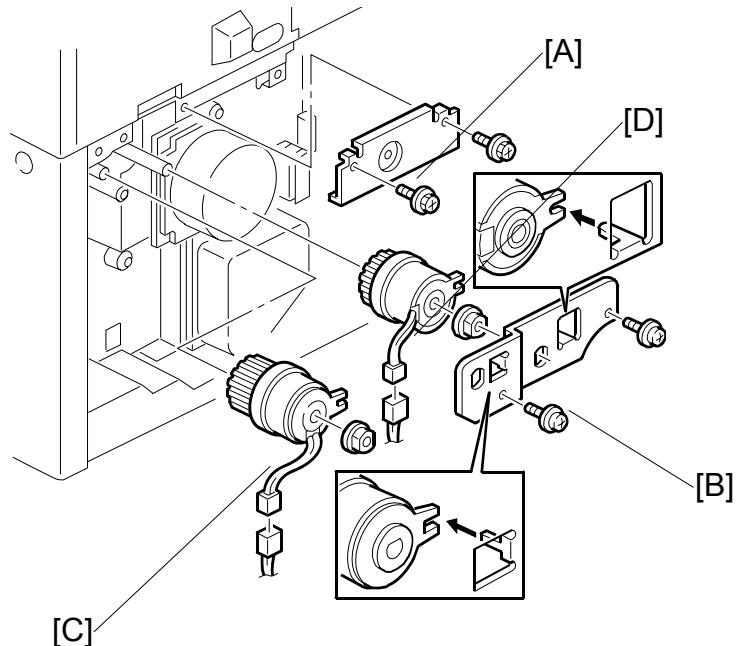
TRAY MOTOR

3.6 TRAY MOTOR



1. Remove the rear cover.
2. Remove bracket #1 [A] (2 screws).
3. Remove bracket #2 [B] (2 screws).
4. Remove the tray motor [C] (6 screws, 1 connector).

3.7 PAPER FEED CLUTCH AND RELAY CLUTCH



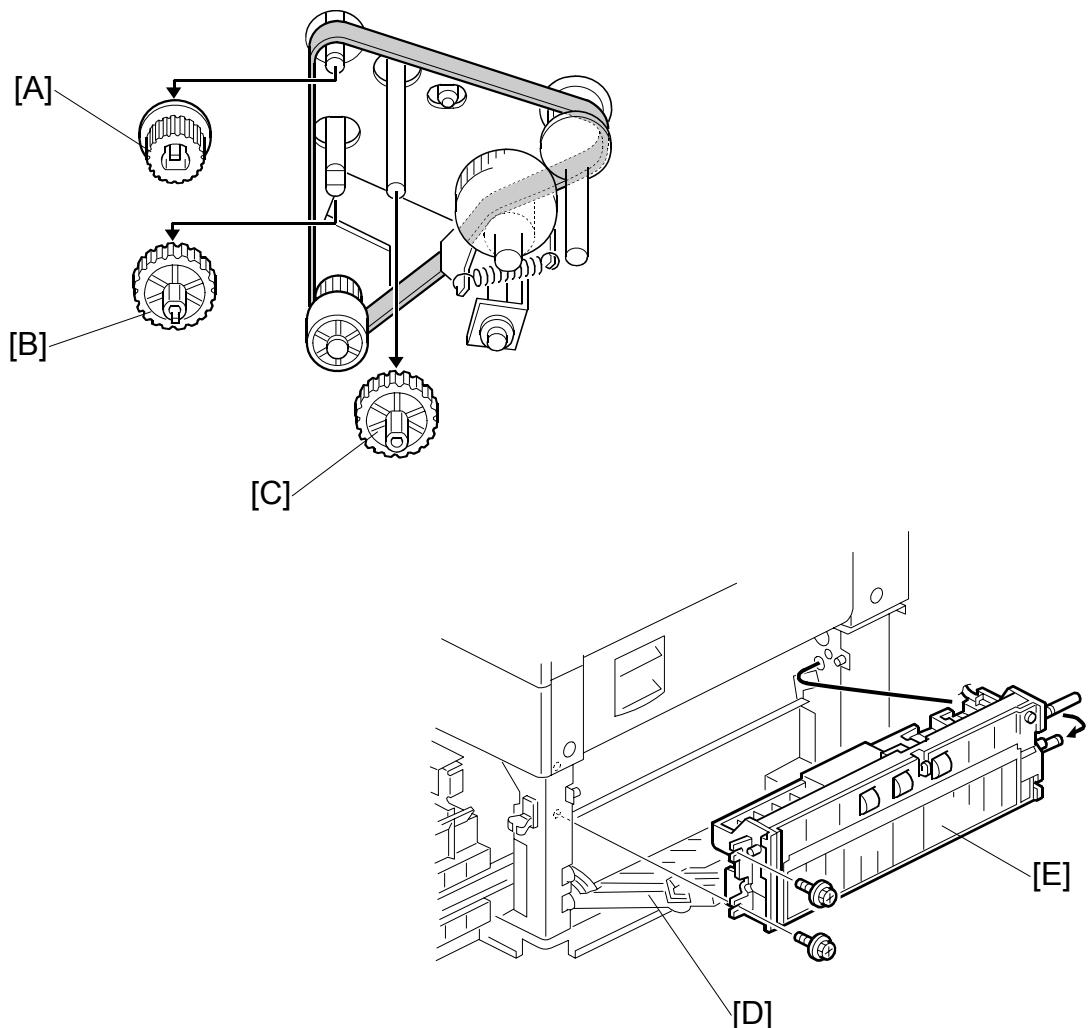
Large
Capacity Tray
B391

1. Remove the rear cover.
2. Remove bracket #1 [A] (2 screws).
3. Remove bracket #2 [B] (2 screws).
4. Remove all bushings.
5. Remove the paper feed clutch [C] and relay clutch [D].
6. Replace the required clutch.

NOTE: Make sure to properly secure both clutches before completing installation.

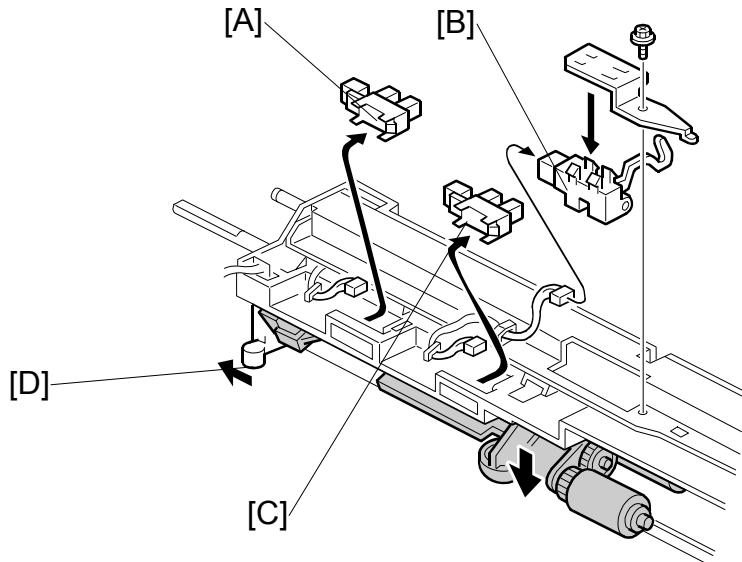
PAPER FEED UNIT

3.8 PAPER FEED UNIT



1. Remove the paper feed clutch and relay clutch (see Paper Feed Clutch and Relay Clutch Replacement).
2. Remove pulleys A [A], B [B], and C [C].
3. Remove the paper feed harness from the main board.
4. Open the vertical transport guide plate [D].
5. Remove the paper feed unit [E] (2 screws).

3.9 UPPER LIMIT, RIGHT TRAY PAPER END, AND RELAY SENSORS



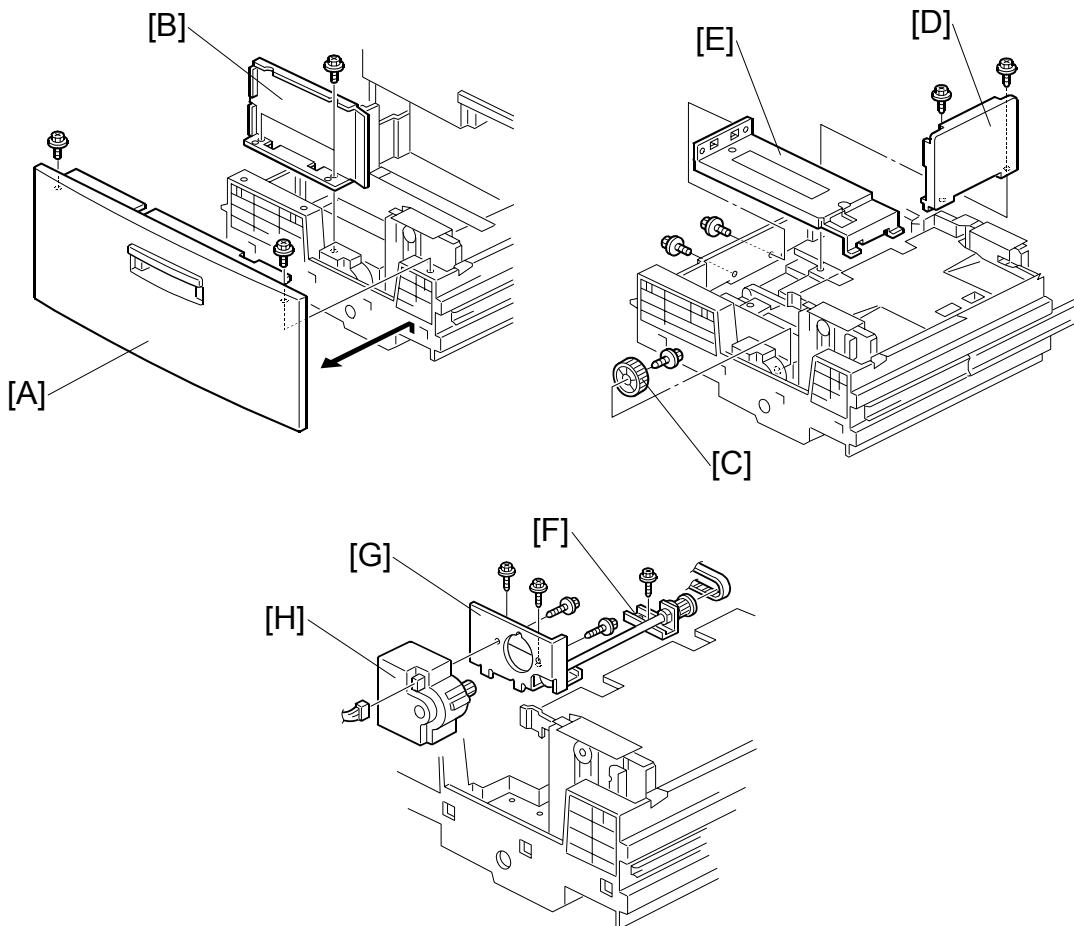
Large
Capacity Tray
B391

1. Remove the paper feed unit (see Paper Feed Unit Replacement).
2. Replace the required sensor.
 - Upper limit [A]
 - Relay [B]
 - Right tray paper end [C]

NOTE: When replacing the upper limit [A] and paper end sensor [C], please be sure to do so while pushing the release lever [D].

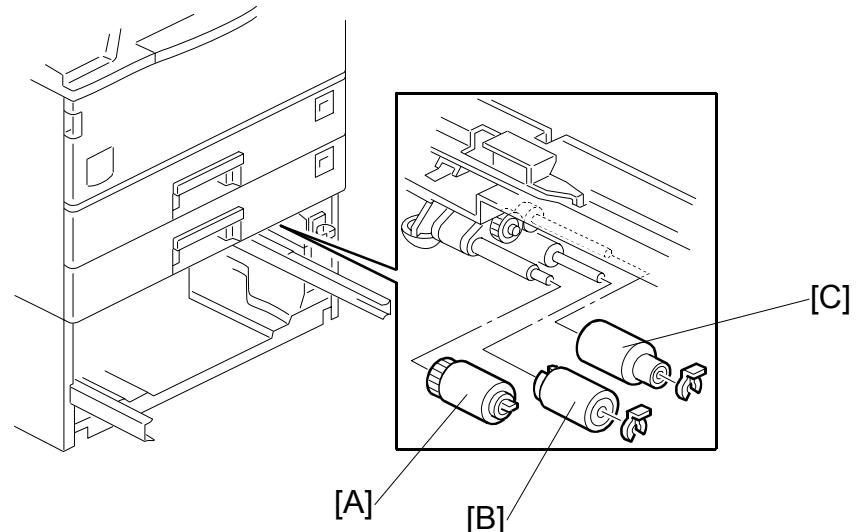
REAR FENCE MOTOR

3.10 REAR FENCE MOTOR



1. Pull out the paper feed tray unit.
2. Remove the paper feed tray front cover [A] (2 screws).
3. Remove the left side fence [B].
4. Remove the rear fence drive gear [C] (1 screw). This is in order to free the end fence [D].
5. Move the end fence to the right (toward the center).
6. Remove the end fence (1 screw).
7. Remove the end fence bracket [E] (2 screws).
8. Remove the bracket [F] (1 screw).
9. Remove the bracket [G] of the rear fence motor assembly (2 screws).
10. Remove the rear fence motor assembly (2 screws).
11. Replace the motor [H] (1 connector).

3.11 PICK-UP/PAPER FEED/REVERSE ROLLERS



Large
Capacity Tray
B391

1. Remove the paper tray unit (see Paper Tray Unit Replacement).
2. Remove the snap ring (1 each for the paper feed and reverse rollers).
3. Remove the pick up roller [A].
4. Replace each roller [B], [C].

NOTE: Install the paper feed rollers the correct way round, as shown in the illustration. If the rollers are installed incorrectly, this will cause the one-way clutch to lock.

1000-SHEET FINISHER SR790
B408

1000-SHEET FINISHER SR790 B408

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 MAIN PCB | 1 |
| 1.2 STAPLER UNIT | 2 |
| 1.3 MOTORS..... | 3 |
| 1.3.1 SHIFT MOTOR | 3 |
| 1.3.2 STAPLER MOTOR..... | 3 |
| 1.3.3 UPPER TRANSPORT MOTOR AND EXIT MOTOR | 4 |
| 1.3.4 LOWER TRANSPORT MOTOR | 4 |
| 1.4 MOTORS AND SENSORS..... | 5 |
| 1.4.1 PREPARATION | 5 |
| 1.4.2 STACK HEIGHT SENSOR | 6 |
| 1.4.3 STAPLER TRAY PAPER SENSOR..... | 6 |
| 1.4.4 LOWER TRAY LIFT MOTOR | 7 |
| 1.4.5 STACK FEED-OUT MOTOR | 7 |
| 2. TROUBLESHOOTING | 8 |
| 2.1 JAM DETECTION..... | 8 |
| 3. SERVICE TABLES..... | 9 |
| 3.1 DIP SWITCH SETTINGS | 9 |
| 4. DETAILED DESCRIPTIONS | 10 |
| 4.1 GENERAL LAYOUT | 10 |
| 4.2 ELECTRICAL COMPONENT LAYOUT | 11 |
| 4.3 ELECTRICAL COMPONENT DESCRIPTION..... | 13 |
| 4.4 DRIVE LAYOUT | 15 |
| 4.5 JUNCTION GATES | 16 |
| Upper Tray Mode | 16 |
| Sort/Stack Mode | 16 |
| Staple Mode..... | 16 |
| 4.6 UPPER TRAY..... | 17 |
| 4.7 LOWER TRAY UP/DOWN MECHANISMS | 18 |
| 4.8 PAPER SHIFT MECHANISM | 19 |
| 4.9 JOGGER UNIT PAPER POSITIONING MECHANISM..... | 20 |
| 4.10 EXIT GUIDE PLATE..... | 21 |
| 4.11 STAPLER MECHANISM | 22 |
| 4.12 STAPLER UNIT MOVEMENT MECHANISM | 23 |
| 4.13 PAPER FEED-OUT MECHANISM | 24 |

1. REPLACEMENT AND ADJUSTMENT

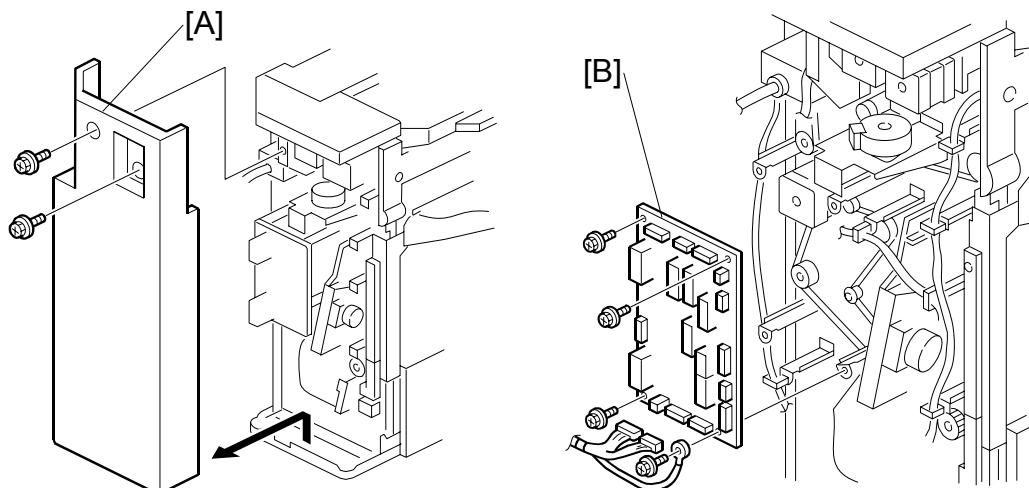
⚠ CAUTION

Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

NOTE: This manual uses the following symbols.

☞ : See or Refer to ⚡ : Screws ━━ : Connector ⚡ : Clip ring
⌚ : E-ring

1.1 MAIN PCB



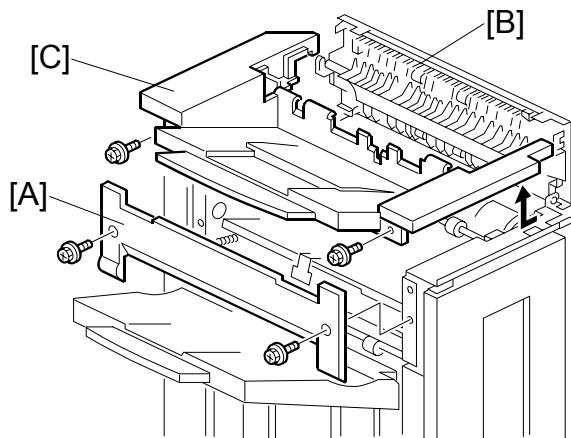
1000-Sheet
Finisher
B408

1. Rear cover [A] (⚡ x 2)
2. Main PCB [B] (⚡ x 4, All ━━)

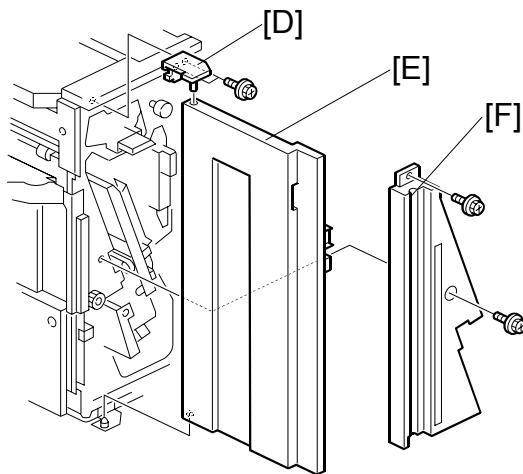
STAPLER UNIT

1.2 STAPLER UNIT

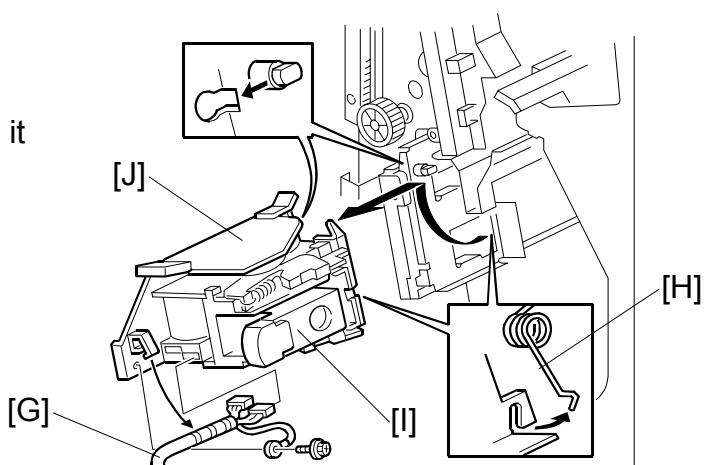
1. Side cover [A] (\wedge x 2)
2. Open exit guide plate [B]
3. Upper side cover [C] (\wedge x 2)



4. Front cover support plate [D] (\wedge x 1)
5. Front cover [E]
6. Front inner cover [F] (\wedge x 2)



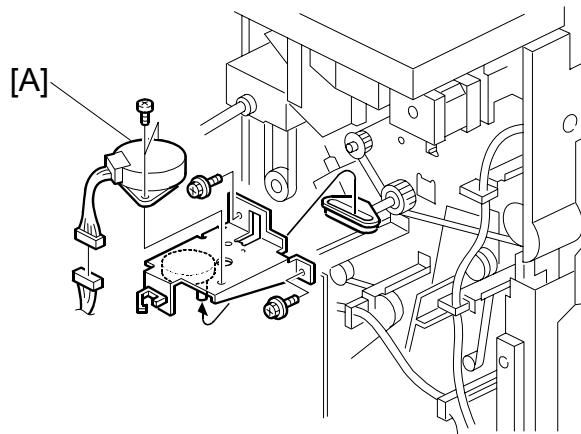
7. Harness [G]
8. Unhook the spring [H]
9. Turn the stapler unit [I] and take it out.
10. Bracket [J] (\wedge x 2)



1.3 MOTORS

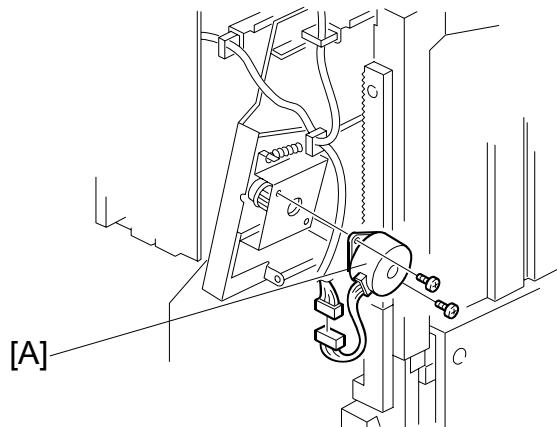
1.3.1 SHIFT MOTOR

1. Rear cover (●1.1)
2. Shift motor [A] (● x 2, ● x 1)



1.3.2 STAPLER MOTOR

1. Rear cover (●1.1)
2. Stapler motor [A] (● x 2, ● x 1)

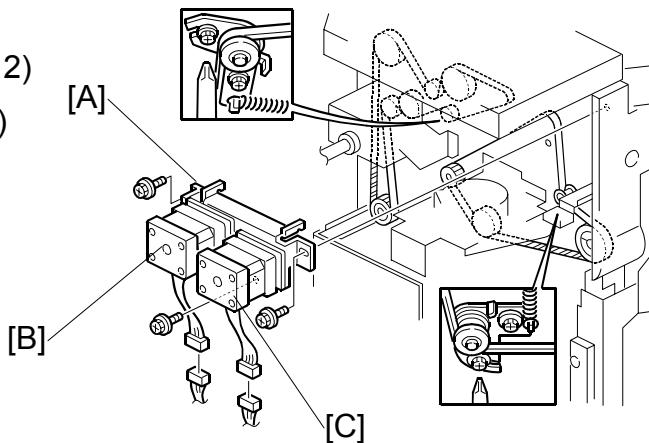


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MOTORS

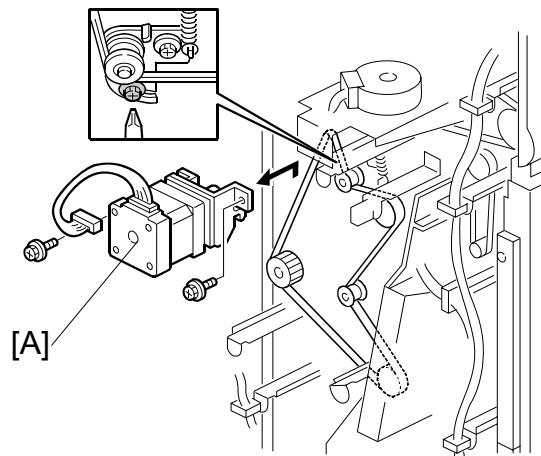
1.3.3 UPPER TRANSPORT MOTOR AND EXIT MOTOR

1. Rear cover (●1.1)
2. Motor assembly [A] (● x 4, ● x 2)
3. Upper transport motor [B] (● x 4)
4. Exit motor [C] (● x 4)



1.3.4 LOWER TRANSPORT MOTOR

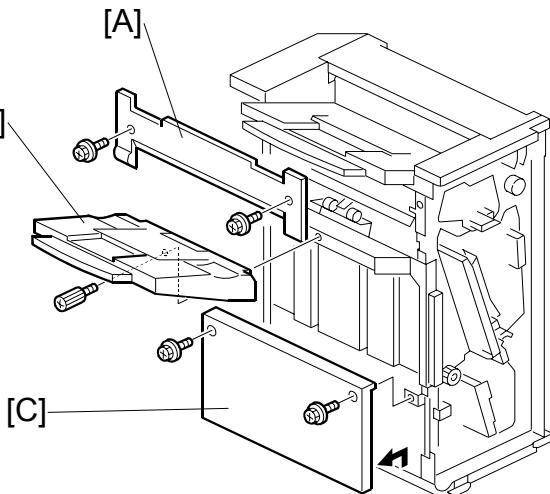
1. Main PCB (●1.1)
2. Lower transport motor [A] (● x 2, ● x 1)



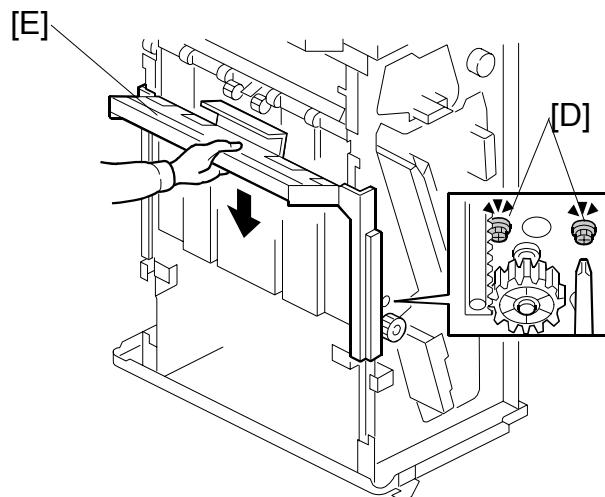
1.4 MOTORS AND SENSORS

1.4.1 PREPARATION

1. Front cover and inner cover (1.2)
2. Upper side cover [A] (2 x 1)
3. Upper tray [B] (1 x 1)

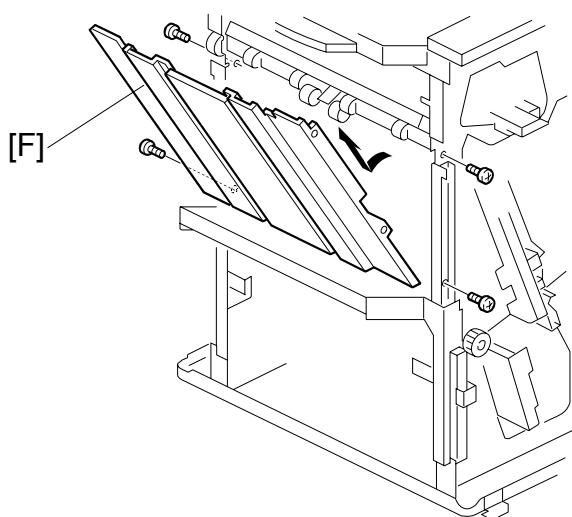


4. Lower side cover [C] (2 x 1)
5. Loosen the 2 screws [D].
6. Lower the lower tray guide plate [E].



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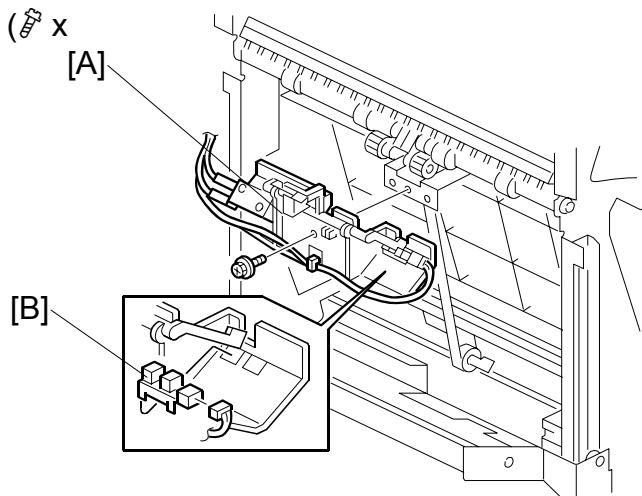
7. Guide plate [F] (4 x 1)



MOTORS AND SENSORS

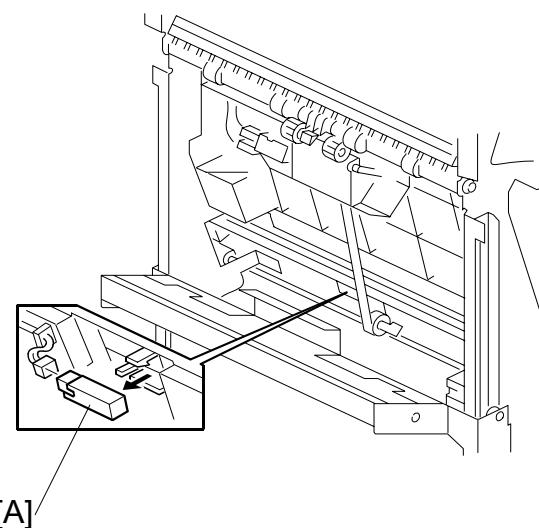
1.4.2 STACK HEIGHT SENSOR

1. Stack height sensor assembly [A] (掣 x 1)
2. Stack height sensor [B] (掣 x 1)



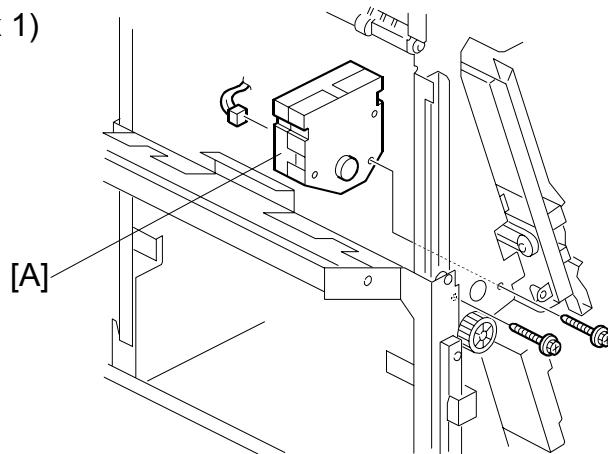
1.4.3 STAPLER TRAY PAPER SENSOR

1. Stapler tray paper sensor [A] (掣 x 1)



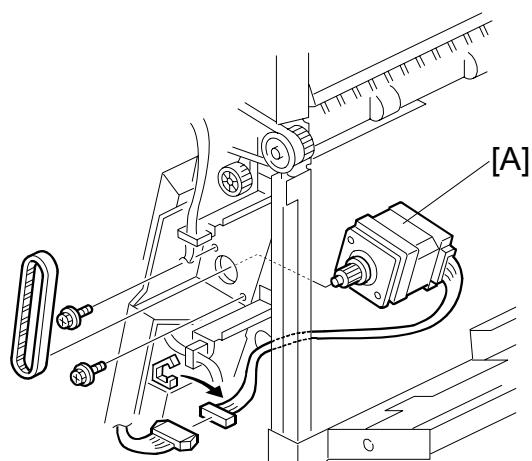
1.4.4 LOWER TRAY LIFT MOTOR

1. Lower tray lift motor [A] (掣 x 2, 插头 x 1)



1.4.5 STACK FEED-OUT MOTOR

1. Stack feed-out motor [A] (掣 x 2, 插头 x 1)



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2. TROUBLESHOOTING

2.1 JAM DETECTION

| Mode | | Jam | Content |
|-------|--------|--|---|
| Shift | Staple | | |
| ✓ | ✓ | Entrance sensor: On check | The entrance sensor does not turn on within the normal time after the main machine exit sensor turns on. |
| ✓ | ✓ | Entrance sensor: Off check | The entrance sensor does not turn off within the normal time after it turns on. |
| ✓ | | Lower tray exit sensor: On check | The lower tray exit sensor does not turn on within the normal time after the entrance sensor turns off. |
| ✓ | | Tray exit sensor: Off check | The tray exit sensor does not turn off within the normal time after it turns on. |
| | ✓ | Stapler tray entrance sensor: On check | The stapler tray entrance sensor does not switch on within the normal time after the entrance sensor switched on. |
| | ✓ | Stapler tray entrance sensor: Off check | The staple tray entrance sensor does not turn off within the normal time after it turns on. |
| | ✓ | Lower tray exit sensor: On check | The lower exit sensor does not turn on after the feed-out pawl feeds out the outputs. |
| | ✓ | Lower tray exit sensor: Off check | The lower exit sensor turns on when the feed-out pawl returns to its home position after feeding out the outputs. |

3. SERVICE TABLES

3.1 DIP SWITCH SETTINGS

The DIP switches should not be set to any combination other than those listed in the table below.

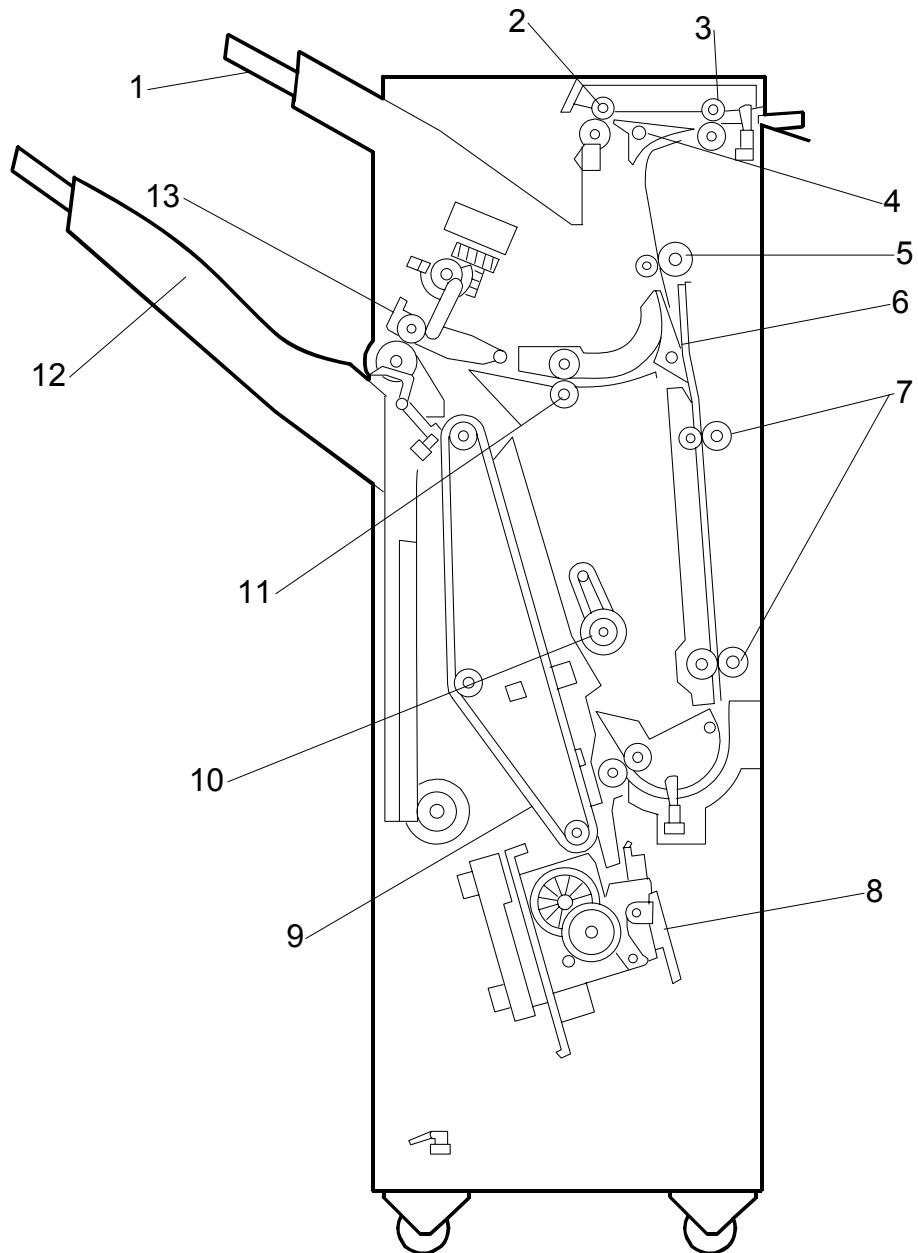
| SW100 | | Description |
|-------|---|---------------------------------|
| 1 | 2 | |
| 0 | 0 | Normal operation mode (Default) |
| 1 | 0 | Packing mode. |

- Before packing the machine, do the following: Set switch 1 to 1 then back to zero. The lower tray moves to the lowest position. Then turn off the main switch.
- After unpacking the machine, do the following: After turning the main switch back on, the lower tray returns to home position automatically.

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B408

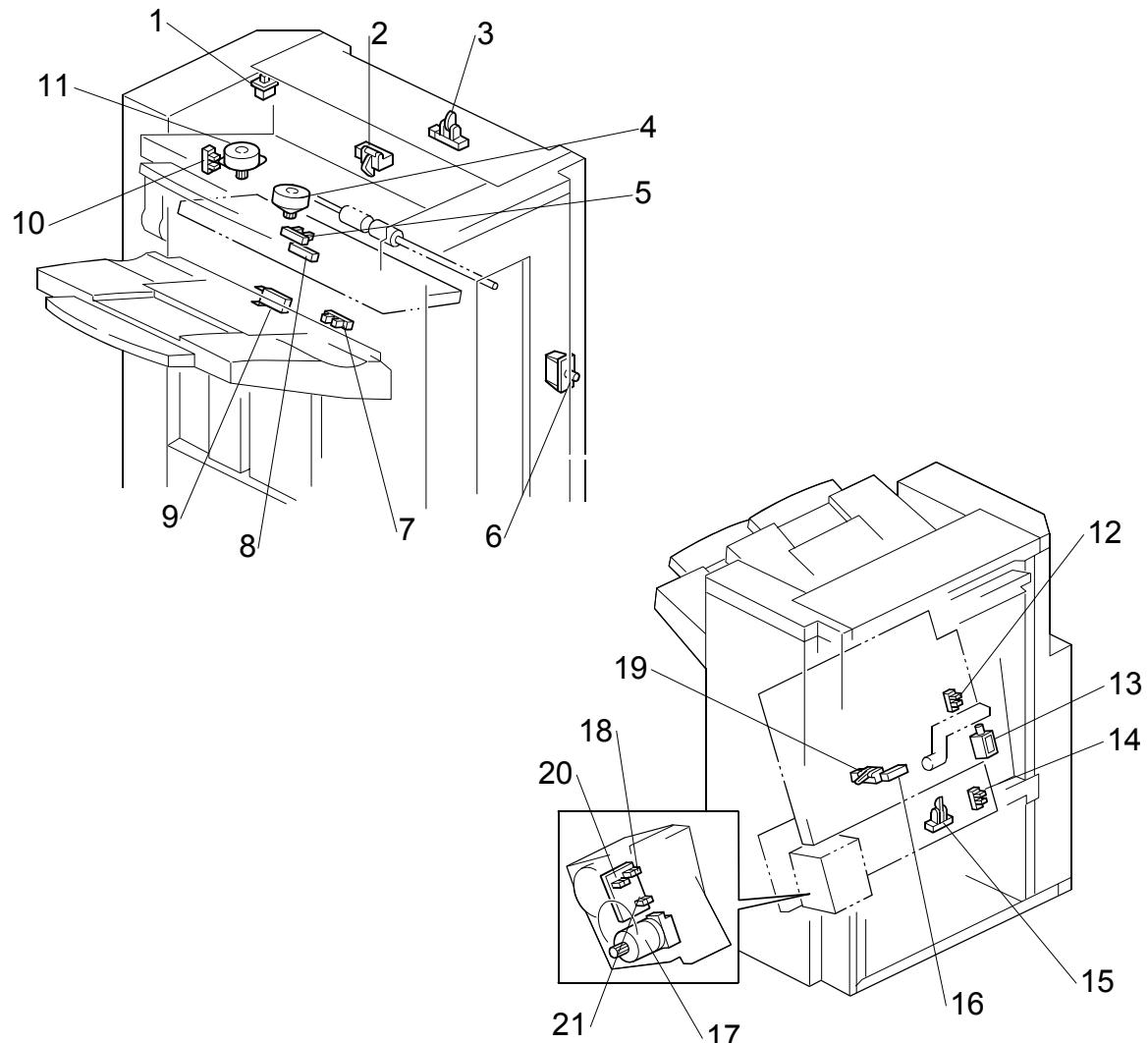
4. DETAILED DESCRIPTIONS

4.1 GENERAL LAYOUT



- | | |
|----------------------------|----------------------------|
| 1. Upper Tray | 8. Stapler |
| 2. Upper Tray Exit Roller | 9. Stack Feed-out Belt |
| 3. Entrance Roller | 10. Positioning Roller |
| 4. Tray Junction Gate | 11. Shift Roller |
| 5. Upper Transport Roller | 12. Lower Tray |
| 6. Stapler Junction Gate | 13. Lower Tray Exit Roller |
| 7. Lower Transport Rollers | |

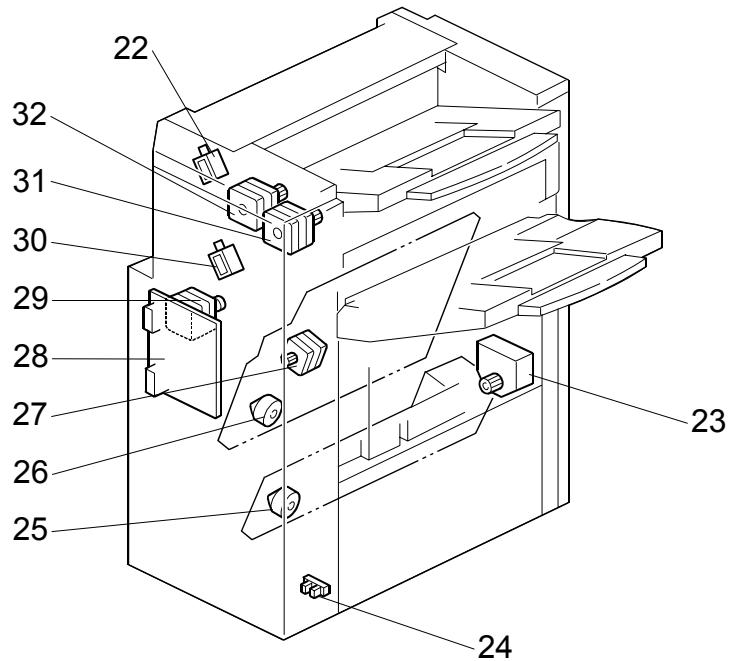
4.2 ELECTRICAL COMPONENT LAYOUT



1. Upper Cover Switch
2. Paper Limit Sensor
3. Entrance Sensor
4. Exit Guide Plate Motor
5. Exit Guide Plate HP Sensor
6. Front Door Safety Switch
7. Stack Height Sensor
8. Lower Tray Exit Sensor
9. Lower Tray Upper Limit Switch
10. Shift HP Sensor
11. Shift Motor

12. Jogger Fence HP Sensor
13. Positioning Roller Solenoid
14. Stapler HP Sensor
15. Stapler Tray Entrance Sensor
16. Stapler Tray Paper Sensor
17. Stapler Hammer Motor
18. Staple Sheet Sensor
19. Stack Feed-out Belt HP Sensor
20. Stapler Rotation HP Sensor
21. Staple Sensor

ELECTRICAL COMPONENT LAYOUT



- 22. Tray Junction Gate Solenoid
- 23. Lower Tray Lift Motor
- 24. Lower Tray Lower Limit Sensor
- 25. Stapler Motor
- 26. Jogger Fence Motor
- 27. Stack Feed-out Motor
- 28. Main Board
- 29. Lower Transport Motor
- 30. Stapler Junction Gate Solenoid
- 31. Exit Motor
- 32. Upper Transport Motor

4.3 ELECTRICAL COMPONENT DESCRIPTION

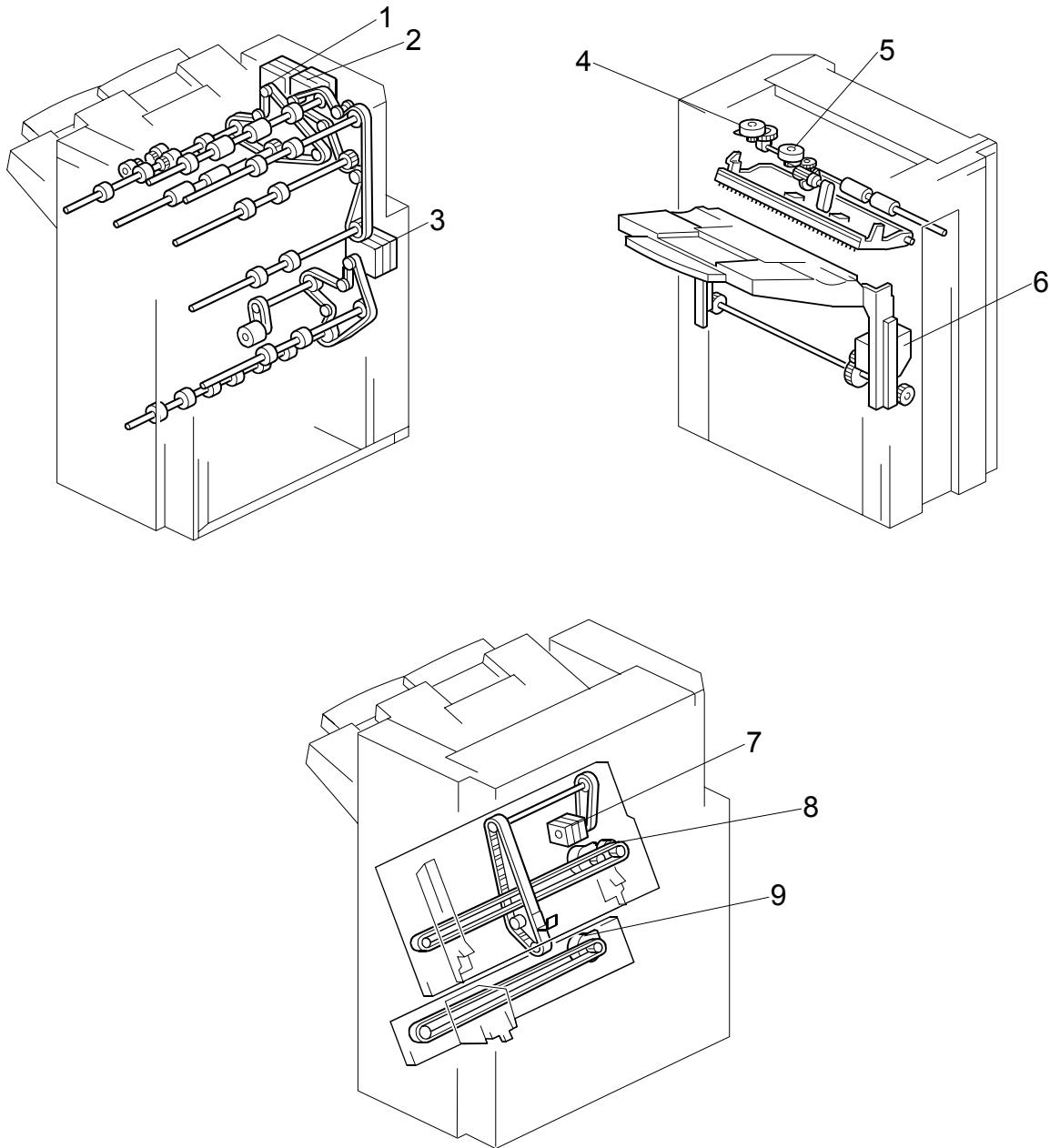
| Symbol | Name | Function | Index No. |
|------------------|------------------------|--|-----------|
| Motors | | | |
| M1 | Upper Transport | Drives the entrance roller and upper transport rollers. | 32 |
| M2 | Lower Transport | Drives the lower transport rollers and the positioning roller. | 29 |
| M3 | Jogger Fence | Drives the jogger fences. | 26 |
| M4 | Staple Hammer | Drives the staple hammer. | 17 |
| M5 | Stack Feed-out | Drives the stack feed-out belt. | 27 |
| M6 | Exit Guide Plate | Opens and closes the exit guide plate. | 4 |
| M7 | Exit | Drives the exit roller. | 31 |
| M8 | Lower Tray Lift | Moves the lower tray up or down. | 23 |
| M9 | Shift | Moves the shift roller from side to side. | 11 |
| M10 | Stapler | Moves the stapler unit from side to side. | 25 |
| | | | |
| Sensors | | | |
| S1 | Entrance | Detects copy paper entering the finisher and checks for misfeeds. | 3 |
| S2 | Paper Limit | Detects when the paper stack height in the upper tray is at its limit. | 2 |
| S3 | Jogger Fence HP | Detects when the jogger fence is at home position. | 12 |
| S4 | Shift HP | Detects when the shift roller is at home position. | 10 |
| S5 | Stack Feed-out Belt HP | Detects when the stack feed-out belt is at home position. | 19 |
| S6 | Stapler HP | Detects when the stapler is at home position. | 14 |
| S7 | Exit Guide Plate HP | Detects when the exit guide plate is at home position. | 5 |
| S8 | Stapler Tray Entrance | Detects copy paper entering the stapler tray and checks for misfeeds. | 15 |
| S9 | Lower Tray Exit | Checks for misfeeds. | 8 |
| S10 | Stack Height | Detects the top of the copy paper stack. | 7 |
| S11 | Lower Tray Lower Limit | Detects when the lower tray is at its lower limit position. | 24 |
| S12 | Stapler Tray Paper | Detects when there is copy paper in the stapler tray. | 16 |
| S13 | Staple Sheet | Detects the leading edge of the staple sheet. | 18 |
| S14 | Stapler Rotation HP | Detects when the staple hammer is at home position. | 20 |
| S15 | Staple | Detects whether there are staples in the staple cartridge. | 21 |
| | | | |
| Solenoids | | | |
| SOL1 | Tray Junction Gate | Drives the tray junction gate. | 22 |
| SOL2 | Stapler Junction Gate | Drives the stapler junction gate. | 30 |

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B408

ELECTRICAL COMPONENT DESCRIPTION

| Symbol | Name | Function | Index No. |
|-----------------|------------------------|---|------------------|
| SOL3 | Positioning Roller | Moves the positioning roller. | 13 |
| Switches | | | |
| SW1 | Lower Tray Upper Limit | Detects when the lower tray is at its upper limit position. | 9 |
| SW2 | Front Door Safety | Cuts the dc power when the front door is opened. | 6 |
| SW3 | Upper Cover | Cuts the dc power when the upper cover is opened. | 1 |
| PCBs | | | |
| PCB1 | Main | Controls the finisher and communicates with the copier/printer. | 28 |
| | | | |

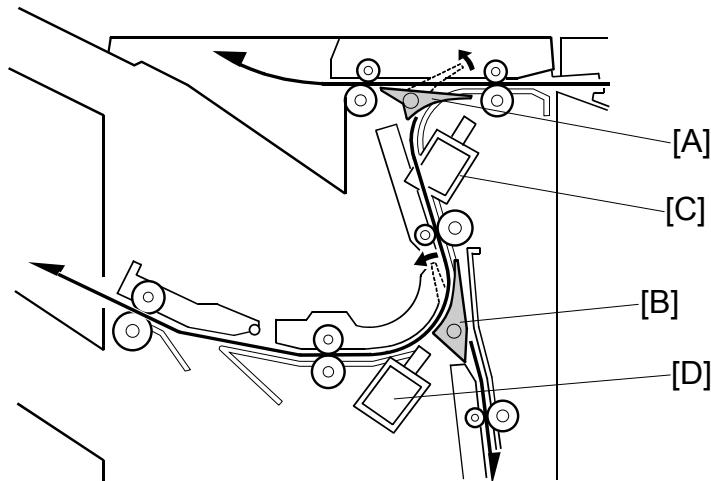
4.4 DRIVE LAYOUT



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B408

- | | |
|---------------------------|--------------------------|
| 1. Exit Motor | 6. Lower Tray Lift Motor |
| 2. Upper Transport Motor | 7. Stack Feed-out Motor |
| 3. Lower Transport Motor | 8. Jogger Motor |
| 4. Shift Motor | 9. Stapler Motor |
| 5. Exit Guide Plate Motor | |

4.5 JUNCTION GATES



Depending on the finishing mode, the copies are directed up, straight through, or down by the combination of the tray junction gate [A] and stapler junction gate [B]. These gates are controlled by the tray junction gate solenoid [C] and stapler junction gate solenoid [D].

Upper Tray Mode

The tray junction gate solenoid remains off. The copies go up to the upper tray.

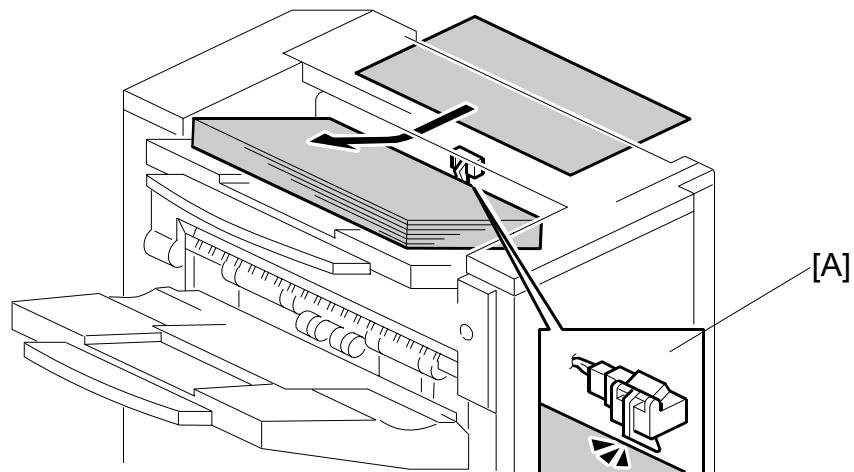
Sort/Stack Mode

The tray junction gate solenoid turns on and the stapler junction gate solenoid remains off. The copies are sent to the lower tray directly.

Staple Mode

The tray junction gate solenoid and the stapler junction gate solenoid both turn on. The copies go down to the jogger unit.

4.6 UPPER TRAY

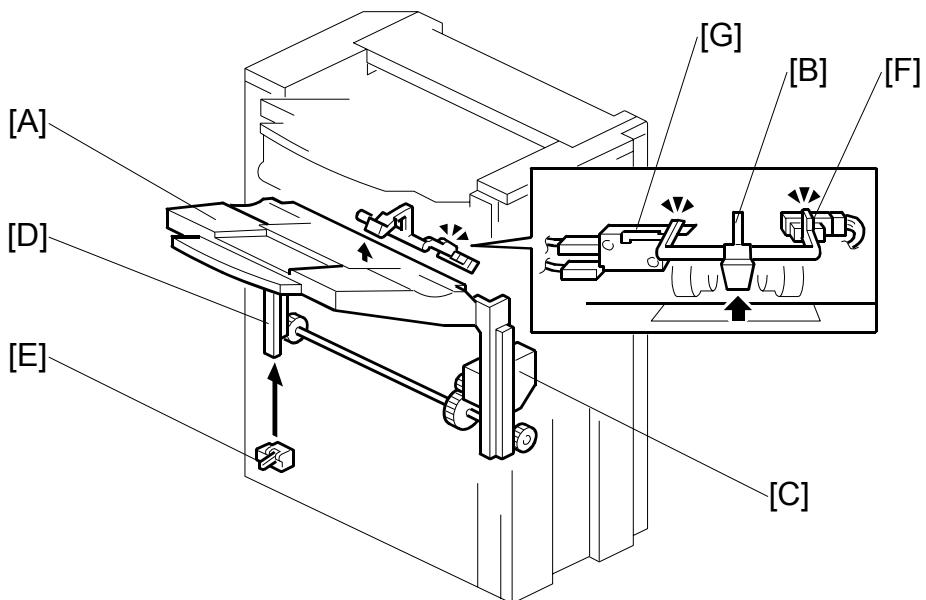


When the paper limit sensor [A] switches on during feed-out for each of three consecutive sheets of paper, paper overflow is detected.

1000-Sheet
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LOWER TRAY UP/DOWN MECHANISMS

4.7 LOWER TRAY UP/DOWN MECHANISMS



The vertical position of the lower tray [A] depends on the height of the copied paper stack on the lower tray. The stack height sensor feeler [B] contacts the top of the stack, and the lower tray lift motor [C] controls the tray height.

When the lower tray reaches its lowest possible position, the actuator [D] turns on the lower tray lower limit sensor [E], and copying stops.

Tray Up

When the copy paper on the tray is removed, the stack height sensor [F] turns off and the tray lifts up. Then, the tray stops when the sensor turns on again (the tray pushes up the feeler).

If the stack height sensor fails, the lower tray upper limit switch [G] detects the tray and stops the motor. This is a safety measure against stack height sensor failure.

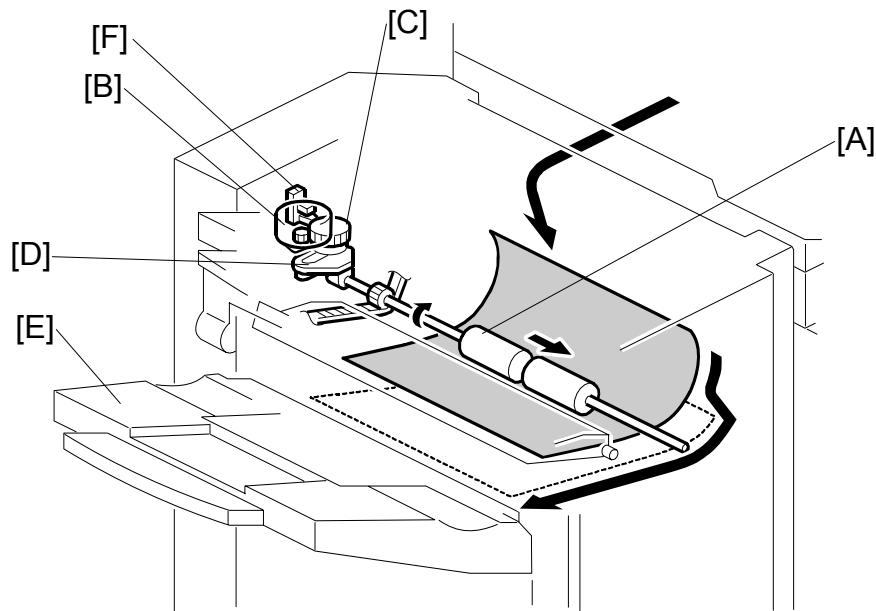
Sort/Stack Mode (Tray Down)

Every five sheets of paper, the tray goes down until the sensor turns off again. Then, it goes up until the sensor is on again.

Staple Mode (Tray Down)

After a stapled copy is fed out, the tray goes up for 220 ms and stops for 300 ms. Then, it goes down for 1 second, waits for 500 ms, then goes up until the sensor turns on.

4.8 PAPER SHIFT MECHANISM



1000-Sheet
Finisher
B408

In the sort/stack mode, the shift roller [A] moves from side to side to separate the sets of copies.

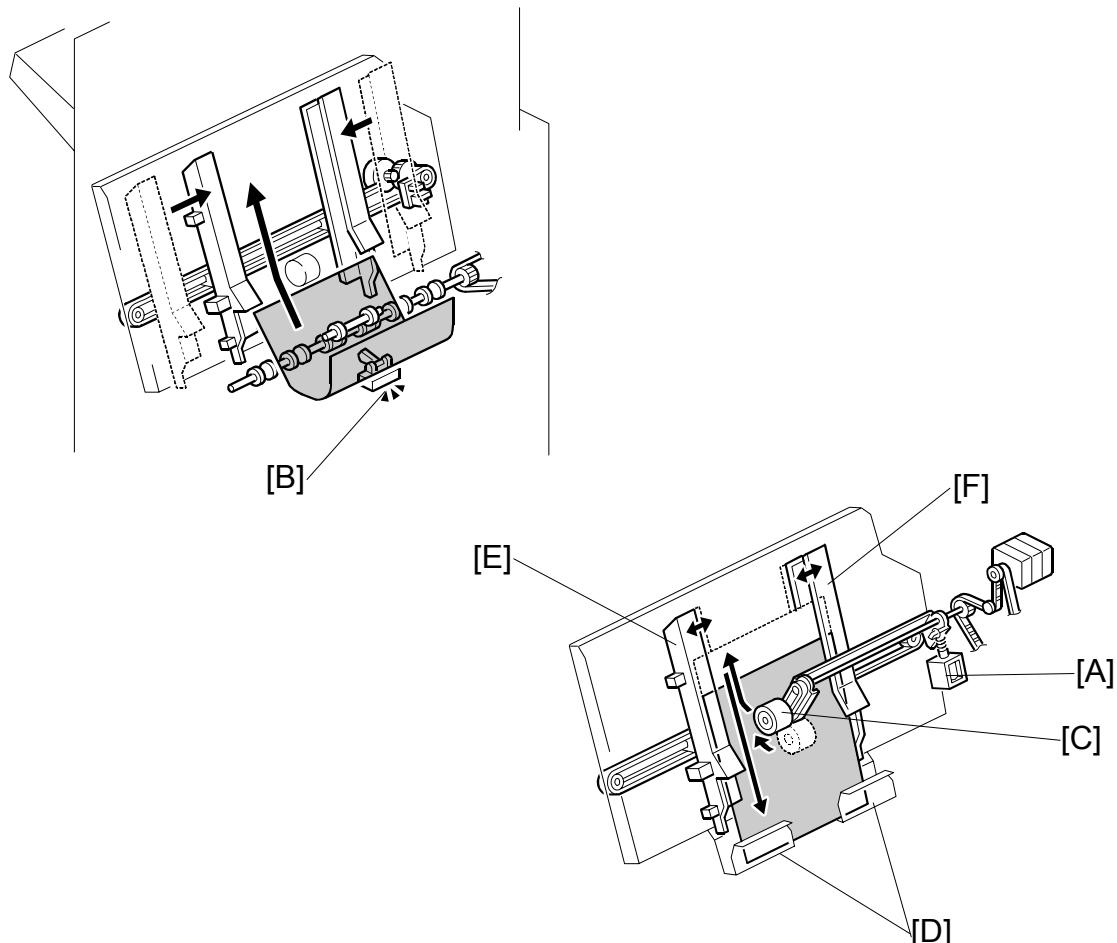
The horizontal position of the shift roller is controlled by the shift motor [B] and the shift gear disk [C]. After the trailing edge of the copy passes the upper transport roller, the shift motor turns on, driving the shift gear disk and the link [D].

After the paper is delivered to the lower tray [E], the shift roller moves to its home position, which is detected by the shift HP sensor [F]. Then, when the trailing edge of the next copy passes the upper transport roller, the shift roller shifts again. This operation is done every sheet.

When the trailing edge of each page in the next set of copies passes the upper transport roller, the shift roller shifts in the opposite direction.

JOGGER UNIT PAPER POSITIONING MECHANISM

4.9 JOGGER UNIT PAPER POSITIONING MECHANISM

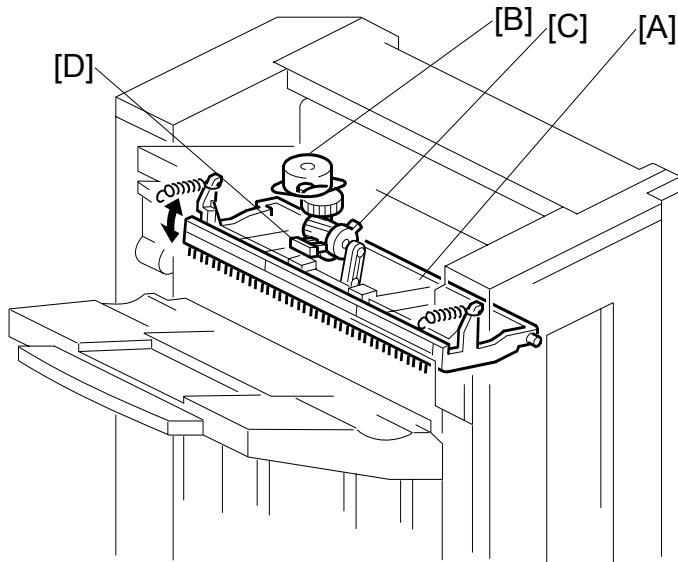


In staple mode, each sheet of copy paper is vertically and horizontally aligned when it arrives in the jogger unit.

For the vertical paper alignment, the positioning roller solenoid [A] turns on shortly after the stapler tray entrance sensor [B] turns off, and the positioning roller [C] pushes the copy against the bottom of the stack stopper [D].

For the horizontal paper alignment, the jogger front fence [E] and the rear fence [F] move to the waiting position, which is 18 mm away from the side of the paper. When aligning the paper vertically, the jogger fence moves in 14 mm from the waiting position. After the vertical position has been aligned, the jogger fence pushes the paper 4 mm against the rear fence to align the paper horizontally. Then the jogger fence moves back to the previous position.

4.10 EXIT GUIDE PLATE



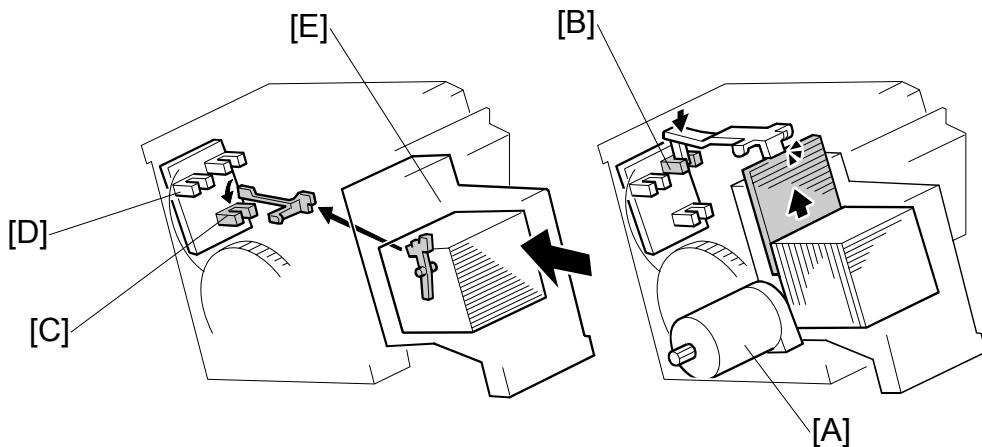
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B408

When stacking a large size of paper (such as A3, DLT) in the jogger unit, the leading edge of the paper reaches the exit rollers. To prevent the paper from running into the exit rollers and not being aligned correctly, the exit guide plate [A] is moved up to make a gap between the exit rollers. This operation is done for all paper sizes, but is only needed for the larger sizes.

The exit guide plate motor [B] and exit roller release cam [C] control the exit guide plate movement. When the exit guide plate motor starts, the cam turns and the exit guide plate moves up. When stapling is finished, the exit guide plate motor turns on again to close the exit guide plate. When the exit guide plate HP sensor [D] turns on, the motor stops.

STAPLER MECHANISM

4.11 STAPLER MECHANISM



The staple hammer motor [A] drives the staple hammer.

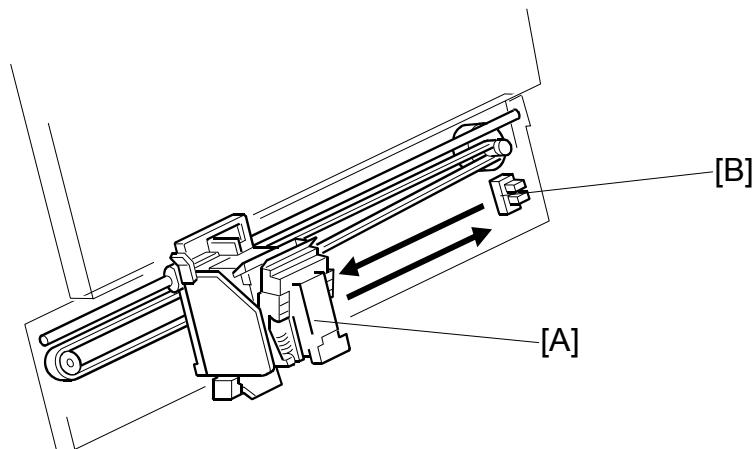
The staple sheet sensor [B] detects the leading edge of the staple sheet at the stapling position to prevent the hammer from operating if there are no staples at the stapling position.

If there is no staple cartridge in the stapler unit or no staples in the staple cartridge, staple end is indicated on the operation panel. The stapler sensor [C] detects this.

The stapler rotation HP sensor [D] checks whether the staple hammer mechanism returns to home position after each stack has been stapled.

When excessive load is applied to the staple hammer motor, the copier detects a staple jam. When a staple jam has occurred, the jammed staple is inside the staple cartridge [E]. Therefore, the jammed staple can be removed easily after pulling out the staple cartridge.

4.12 STAPLER UNIT MOVEMENT MECHANISM



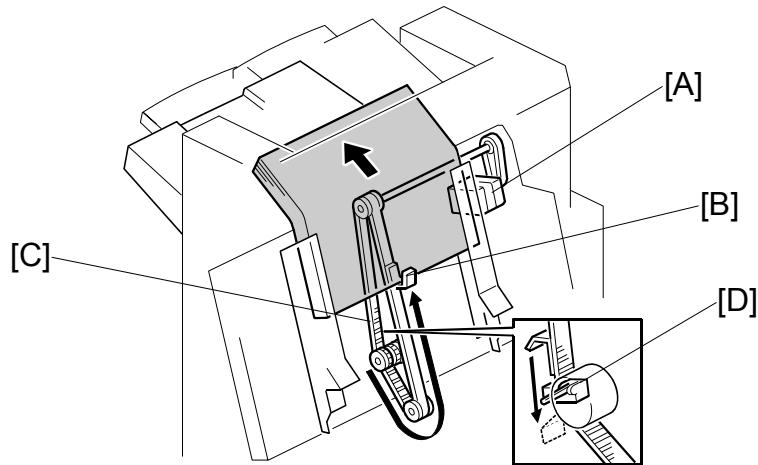
The stapler motor moves the stapler [A] from side to side. After the start key is pressed, the stapler moves from its home position to the stapling position.

If two-staple-position mode is selected, the stapler moves to the front stapling position first, then moves to the rear stapling position. However, for the next copy set, it staples in the reverse order (at the rear side first, then at the front side).

After the job is completed, the stapler moves back to its home position. The stapler HP sensor [B] detects this.

1000-Sheet
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4.13 PAPER FEED-OUT MECHANISM



After the copies have been stapled, the stack feed-out motor [A] starts. The pawl [B] on the stack feed-out belt [C] transports the set of stapled copies up and feeds it to the shift roller. The shift roller takes over stack feed-out after the leading edge reaches this roller.

Just before the stapled stack passes through the lower tray exit sensor, the stack-feed-out motor turns off until the shift rollers have completely fed the stack out to the lower tray. Then, the stack-feed-out motor turns on again until the pawl [B] actuates the stack feed-out belt home position sensor [D].

BOOKLET FINISHER SR3000

B793

BOOKLET FINISHER SR3000 B793

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 COVERS | 1 |
| 1.1.1 FRONT/INNER/REAR COVERS | 1 |
| 1.1.2 UPPER COVERS | 2 |
| 1.2 MAIN BODY | 4 |
| 1.2.1 POSITIONING ROLLER | 4 |
| 1.2.2 SHIFT TRAY POSITION SENSOR, UPPER LIMIT SWITCH | 4 |
| 1.2.3 PROOF TRAY EXIT / FULL SENSOR | 5 |
| 1.2.4 FINISHER ENTRANCE SENSOR | 6 |
| 1.2.5 SHIFT TRAY EXIT SENSOR | 7 |
| 1.2.6 STAPLE TRAY PAPER SENSOR | 8 |
| 1.2.7 SHIFT TRAY MOTOR | 8 |
| 1.2.8 ENTRANCE MOTOR | 9 |
| 1.2.9 UPPER TRANSPORT MOTOR | 9 |
| 1.2.10 LOWER TRANSPORT MOTOR | 10 |
| 1.2.11 SHIFT MOTOR | 11 |
| 1.3 FOLDER | 12 |
| 1.3.1 STAPLE FOLDER UNIT | 12 |
| 1.3.2 FOLDER UNIT | 13 |
| 1.3.3 FOLDER UNIT EXIT SENSOR | 14 |
| 1.3.4 FOLDER UNIT ENTRANCE SENSOR | 15 |
| 1.3.5 STAPLER UNIT | 15 |
| 1.4 OTHERS | 26 |
| 1.4.1 MAIN BOARD | 26 |
| 1.5 DIP SWITCHES | 27 |
| 2. DETAILED SECTION DESCRIPTIONS | 28 |
| 2.1 COMPONENT LAYOUT | 28 |
| 2.1.1 MECHANICAL COMPONENT LAYOUT | 28 |
| 2.1.2 ELECTRICAL COMPONENT LAYOUT | 30 |
| 2.2 JUNCTION GATES | 39 |

| | |
|--|----|
| 2.3 PROOF TRAY..... | 40 |
| 2.4 SHIFT TRAY | 41 |
| 2.4.1 UP/DOWN MOTION | 41 |
| 2.4.2 SIDE-TO-SIDE MOTION..... | 42 |
| 2.5 BOOKLET TRAY..... | 43 |
| 2.6 JOGGER UNIT..... | 46 |
| 2.7 EXIT GUIDE PLATE, PAPER FEED OUT | 47 |
| 2.8 STAPLER UNIT MOVEMENT..... | 48 |
| 2.9 STACKING FOR BOOKLET STAPLING..... | 49 |
| 2.9.1 OVERVIEW..... | 49 |
| 2.9.2 8.5 X 14 (LEGAL) OR SHORTER..... | 49 |
| 2.9.3 LONGER THAN 8.5 X 14 INCHES | 50 |
| 2.10 MOVING THE STACK TO THE FOLDING POSITION..... | 52 |
| 2.11 FOLDER..... | 53 |
| 2.11.1 OVERVIEW | 53 |
| 2.11.2 FOLD PLATE | 53 |
| 2.11.3 FOLD ROLLERS | 54 |
| 2.12 PUNCH UNIT | 55 |
| 2.12.1 OVERVIEW OF OPERATION | 55 |
| 2.12.2 PAPER POSITION DETECTION | 57 |
| 2.12.3 PUNCH UNIT MOVEMENT..... | 58 |
| 2.12.4 PUNCH SELECTION AND FIRING..... | 58 |
| 2.12.5 PUNCH HOPPER MECHANISM..... | 59 |

Read This First

Safety and Symbols

Replacement Procedure Safety

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

When taking apart the bridge unit, first take the unit out of the copier.

Symbols Used in this Manual

This manual uses the following symbols.

: See or Refer to

: Screws

: Connector

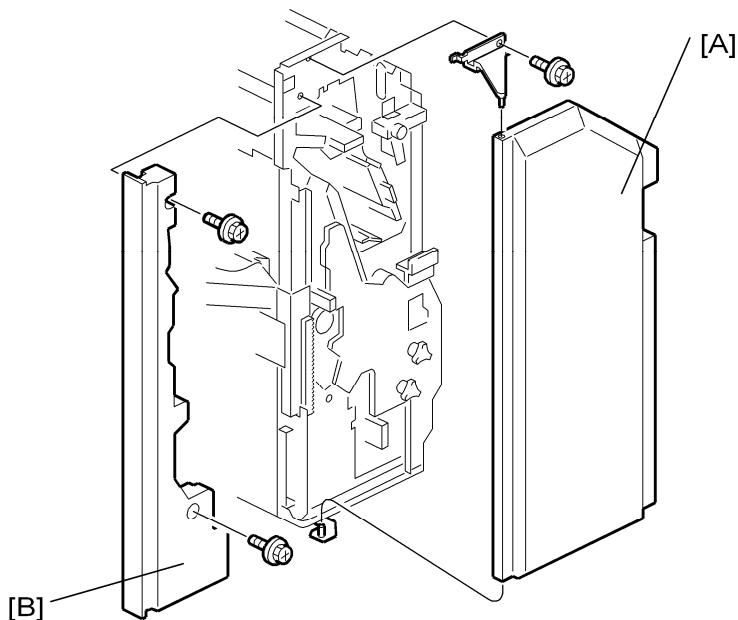
: Clip ring

: E-ring

1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS

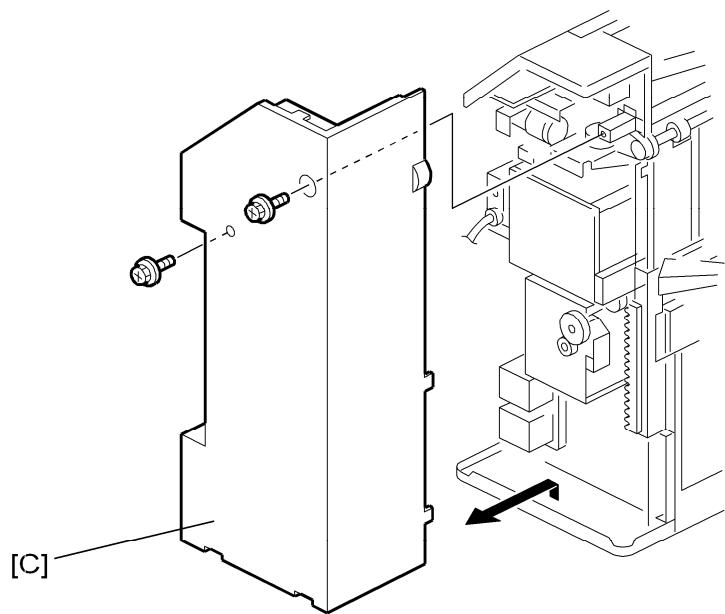
1.1.1 FRONT/INNER/REAR COVERS



Booklet
Finisher
B793

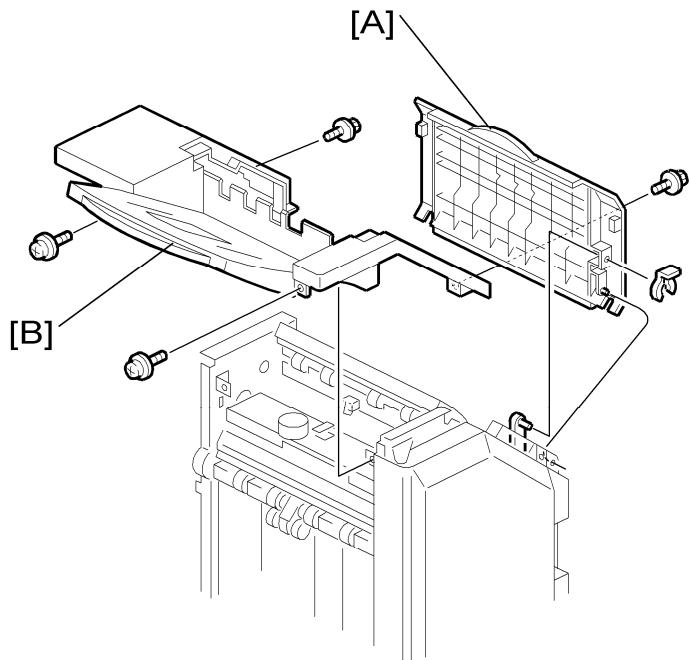
1. Remove the front cover [A] (x 1).
2. Remove the inner cover [B] (x 2).

Covers

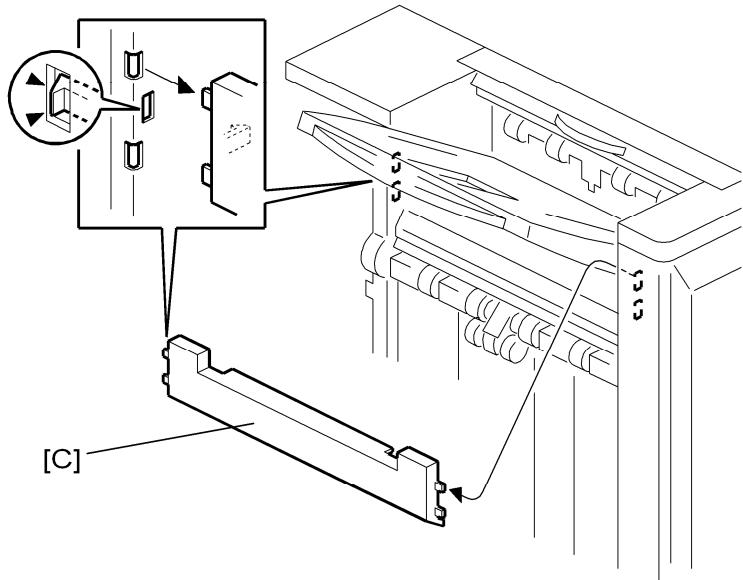


3. Remove the rear cover [C] (x 2).

1.1.2 UPPER COVERS



1. Remove the upper cover [A] (x 1).
2. Remove the proof tray [B] (x 4).



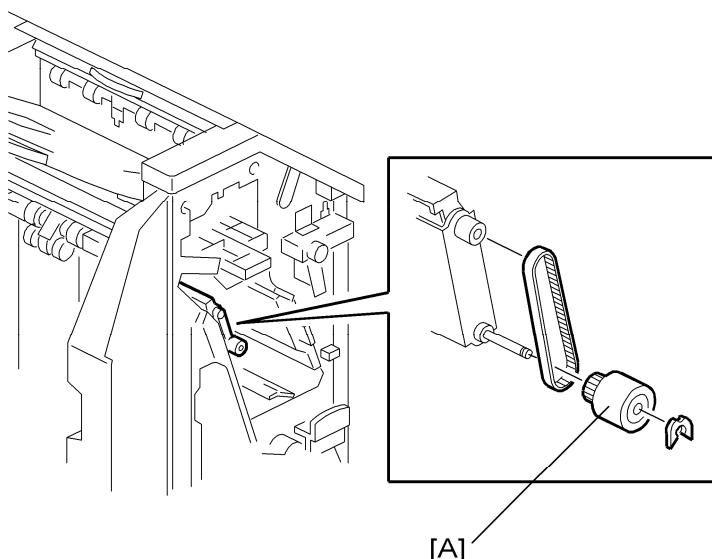
3. Remove the upper left cover [C].

Booklet
Finisher
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Main Body

1.2 MAIN BODY

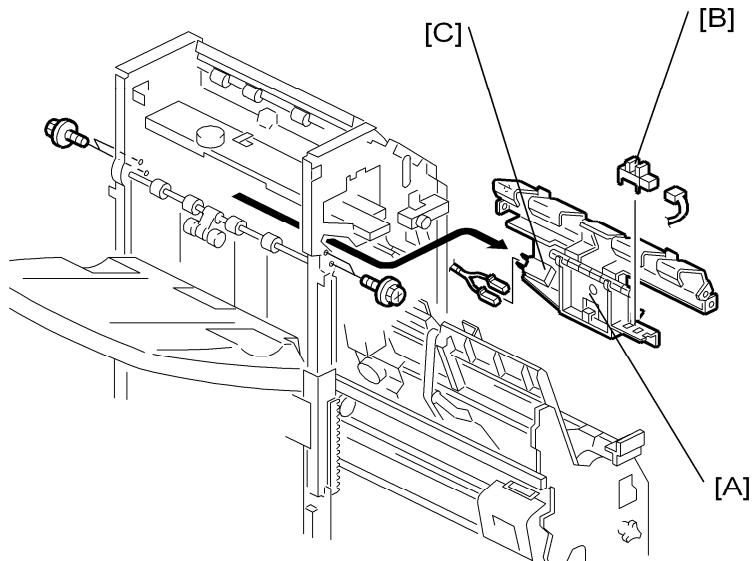
1.2.1 POSITIONING ROLLER



1. Open the front cover.
2. Remove the positioning roller [A] (Ø10 x 1).

1.2.2 SHIFT TRAY POSITION SENSOR, UPPER LIMIT SWITCH

1. Remove the following items.
 - Front Cover
 - Inner Cover
 - Rear Cover
 - Proof Tray
 - Upper Left Cover

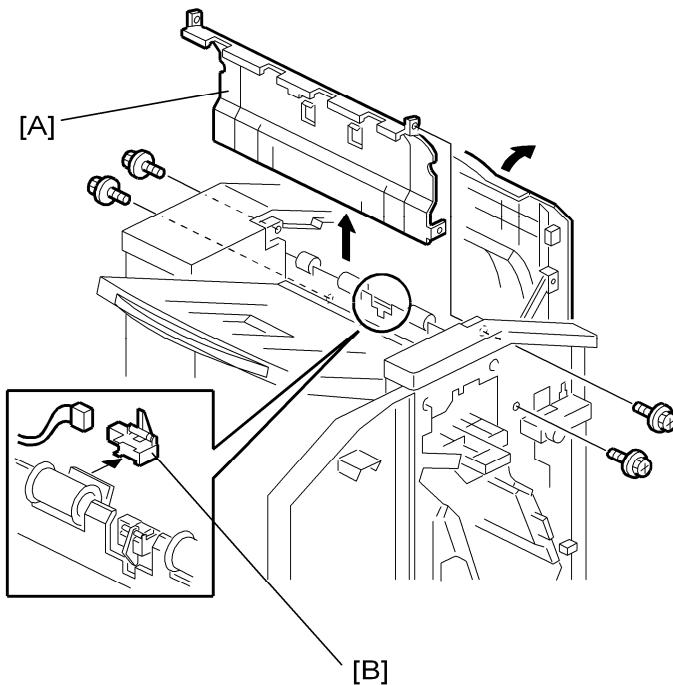


2. Remove the lower guide unit [A] (x 4, x 2).
3. Remove the shift tray position sensor [B] (x 1).
4. Remove the upper limit switch [C] (x 2). (Pull it out from the assembly.)

Booklet
Finisher
B793

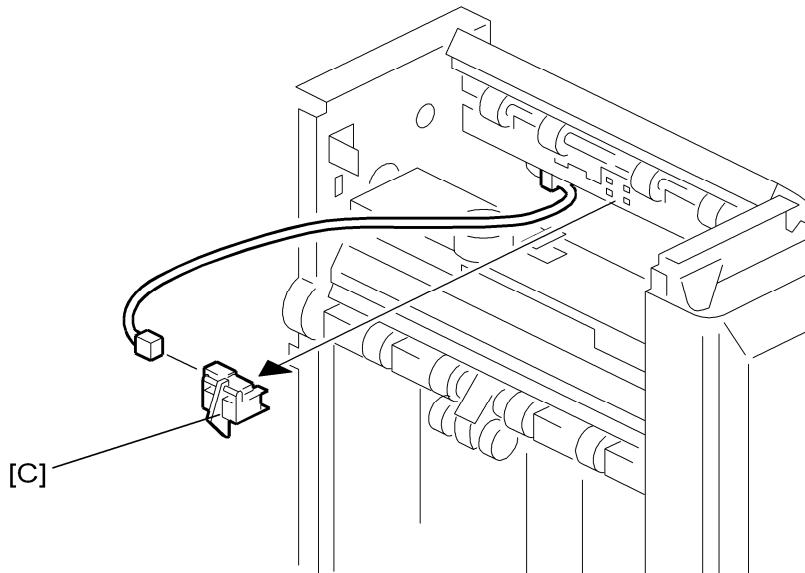
1.2.3 PROOF TRAY EXIT / FULL SENSOR

1. Remove the front cover, rear cover and proof tray.
2. Open the upper cover.



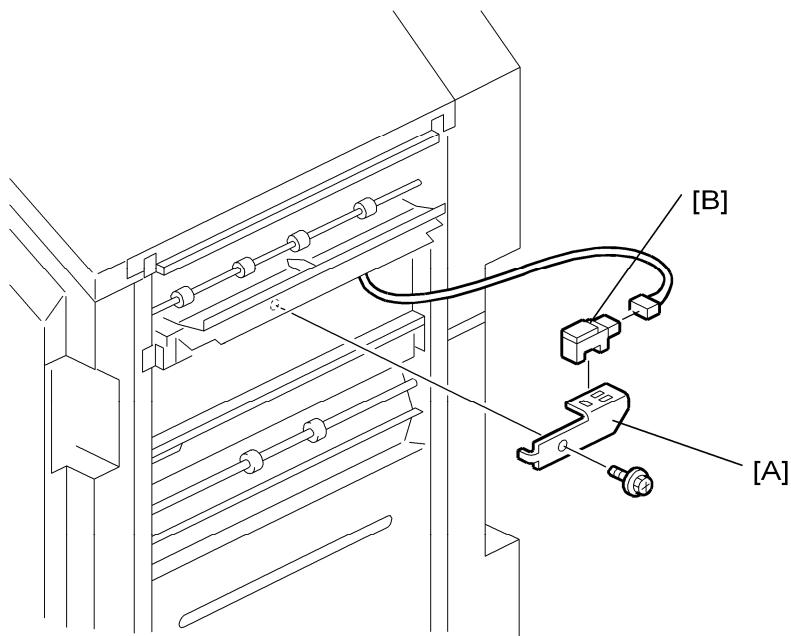
Main Body

3. Remove the vertical transport guide [A] ( x 4).
4. Remove the exit sensor [B] ( x 1).



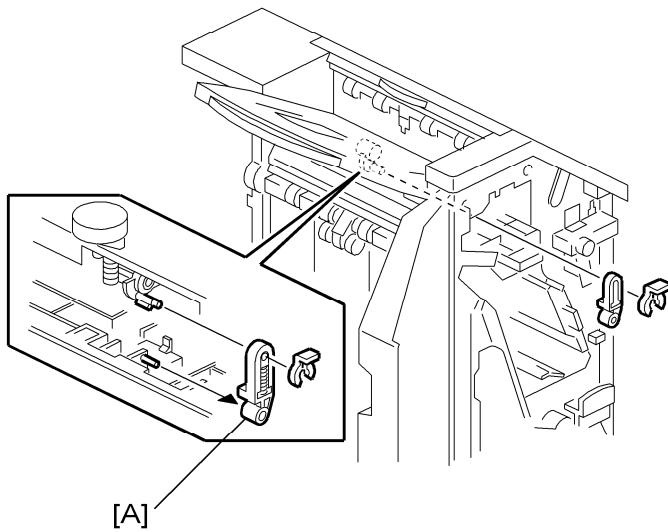
5. Remove the tray full sensor [C] ( x 1).

1.2.4 FINISHER ENTRANCE SENSOR



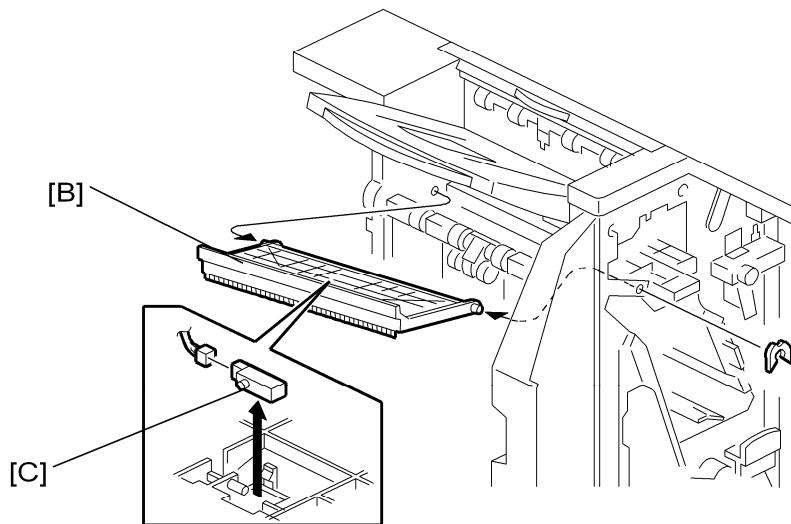
1. Remove the finisher entrance sensor with bracket [A] ( x 1).
2. Remove the finisher entrance sensor [B] ( x 1).

1.2.5 SHIFT TRAY EXIT SENSOR



Booklet
Finisher
B793

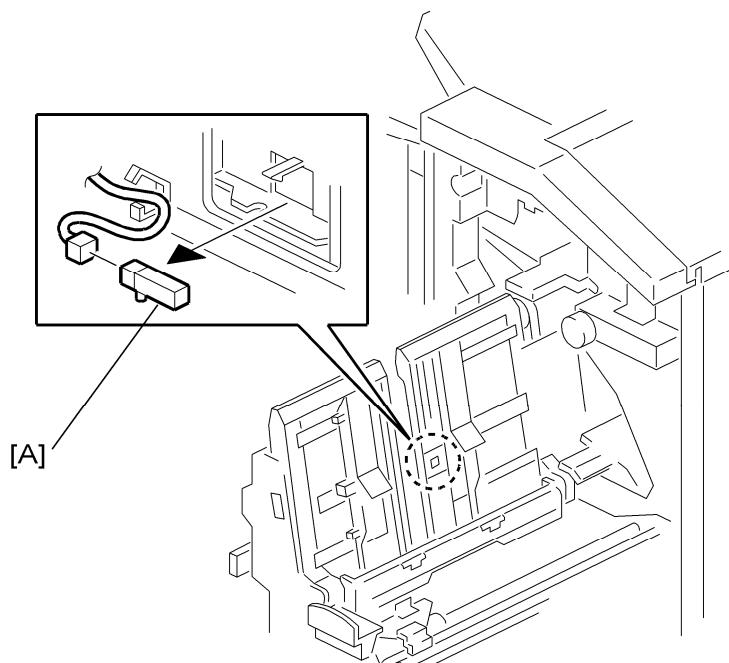
1. Remove the front cover and upper left cover.
2. Remove the link [A] (x 1).



3. Remove the exit guide unit [B].
4. Remove the sensor [C] (x 1).

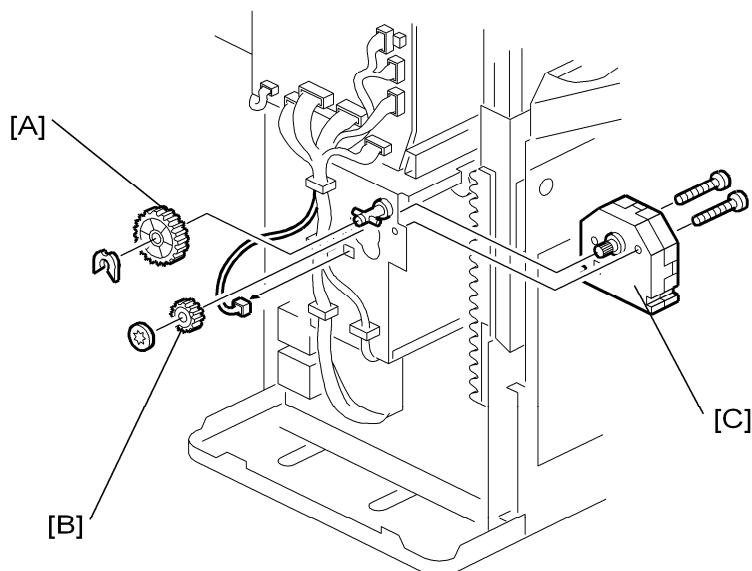
Main Body

1.2.6 STAPLE TRAY PAPER SENSOR



1. Open the front cover.
2. Pull out the staple/fold unit.
3. Remove the staple tray paper sensor [A] (掣子 x 1).

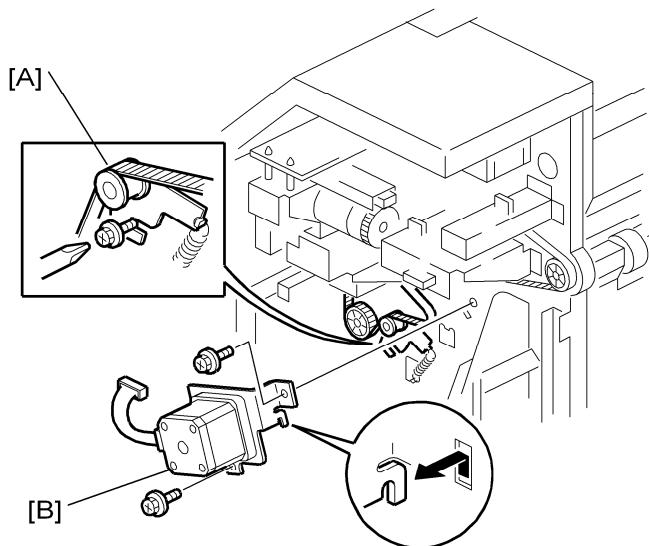
1.2.7 SHIFT TRAY MOTOR



1. Remove the rear cover.
2. Open the front cover, and then pull out the staple/fold unit.

3. Remove the two gears [A], [B].
4. Remove the shift tray motor [C] ( x 2,  x 1)

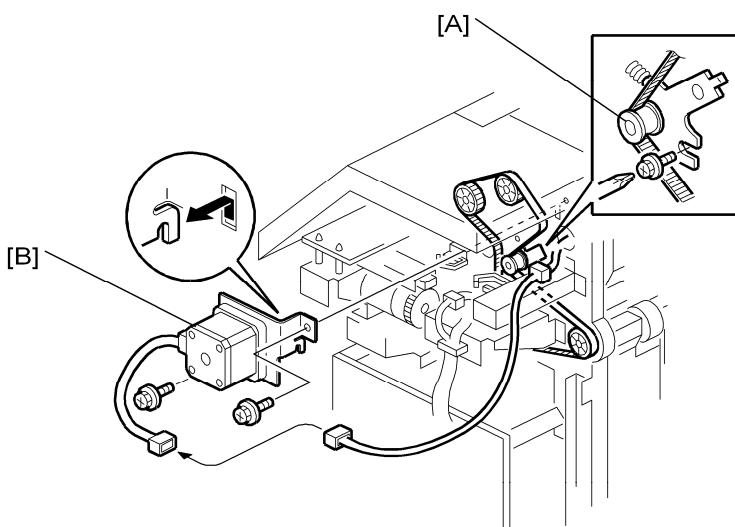
1.2.8 ENTRANCE MOTOR



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B793

1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the entrance motor [B] ( x 2,  x 1).

1.2.9 UPPER TRANSPORT MOTOR

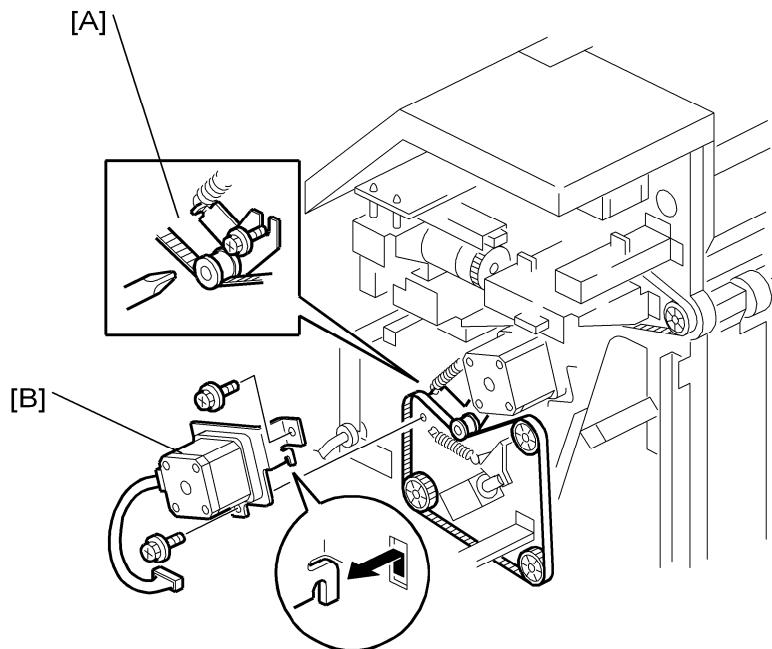


1. Remove the rear cover.

Main Body

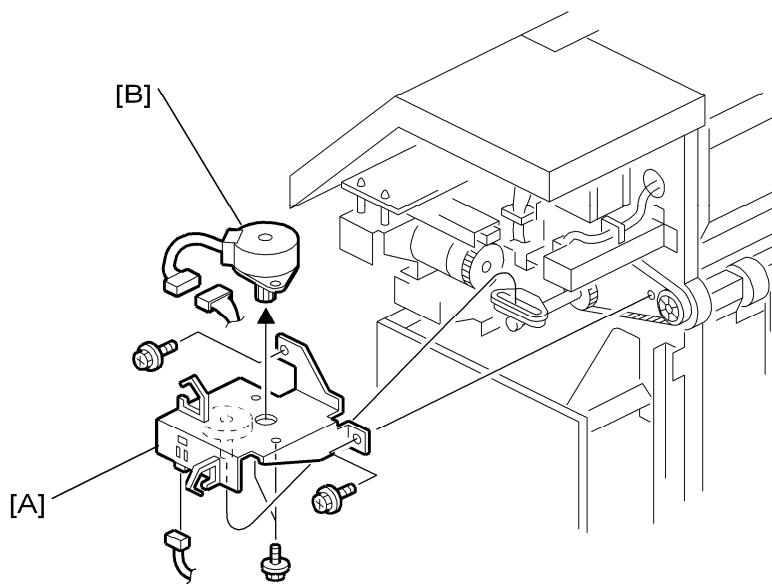
2. Release the belt tension [A].
3. Remove the upper transport motor [B] ( x 2,  x 1).

1.2.10 LOWER TRANSPORT MOTOR



1. Remove the rear cover.
2. Release the belt tension [A].
3. Remove the lower transport motor [B] ( x 2,  x 1).

1.2.11 SHIFT MOTOR

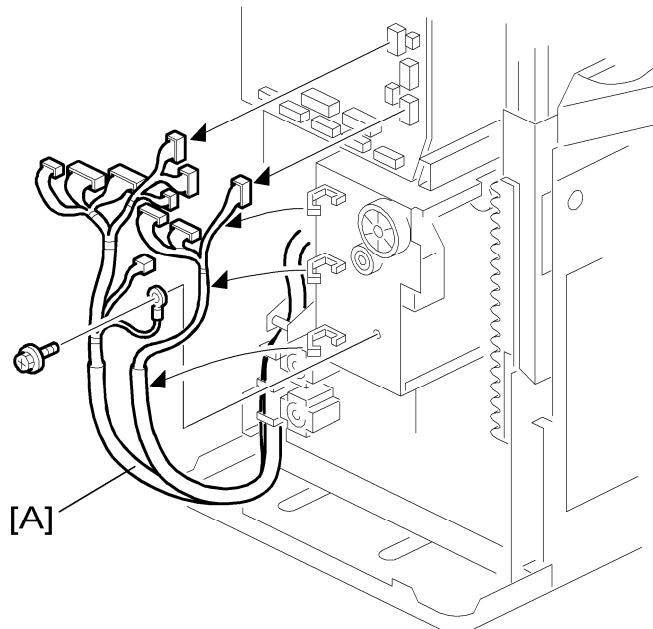


1. Remove the rear cover.
2. Remove the shift motor with bracket [A] (x 1, x 4)
3. Remove the shift motor [B] (x 1).

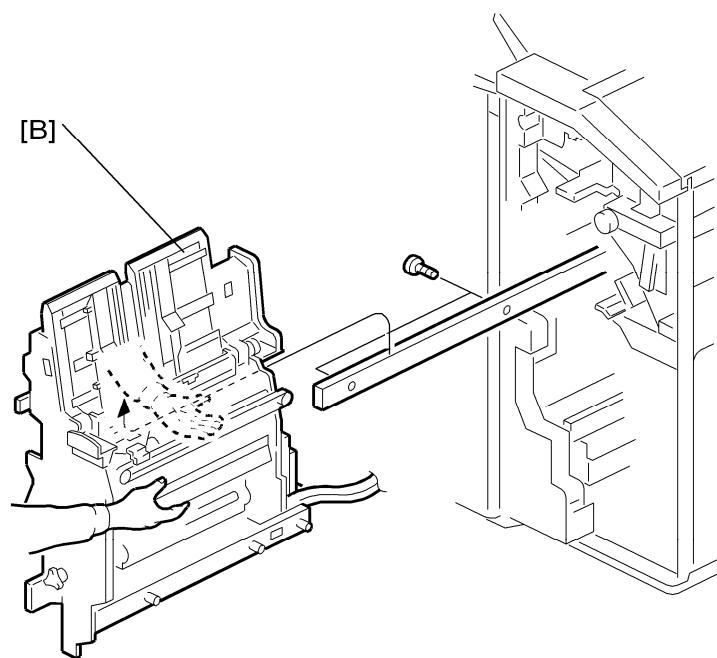
Folder

1.3 FOLDER

1.3.1 STAPLE FOLDER UNIT



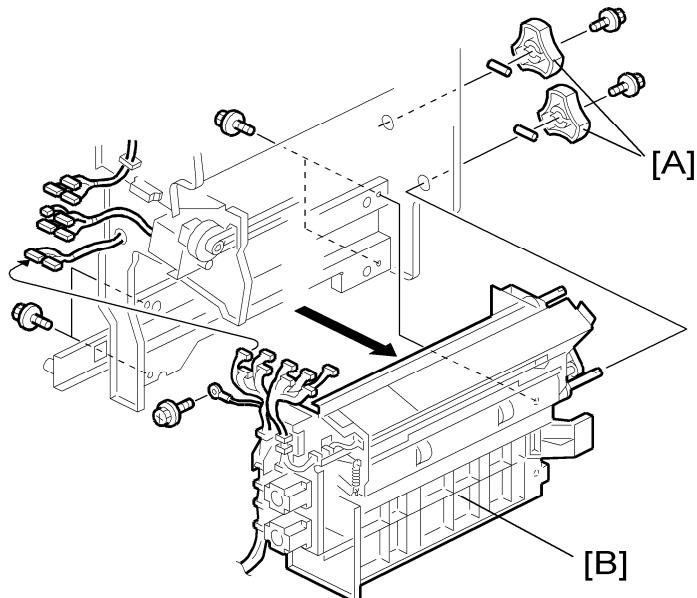
1. Remove the rear cover.
2. Disconnect all connectors and release the harness [A] for the staple folder unit ( x 1,  x 3).
3. Open the front cover.



4. Pull out and remove the staple folder unit [B] (x 2).

1.3.2 FOLDER UNIT

1. Remove the staple folder unit.

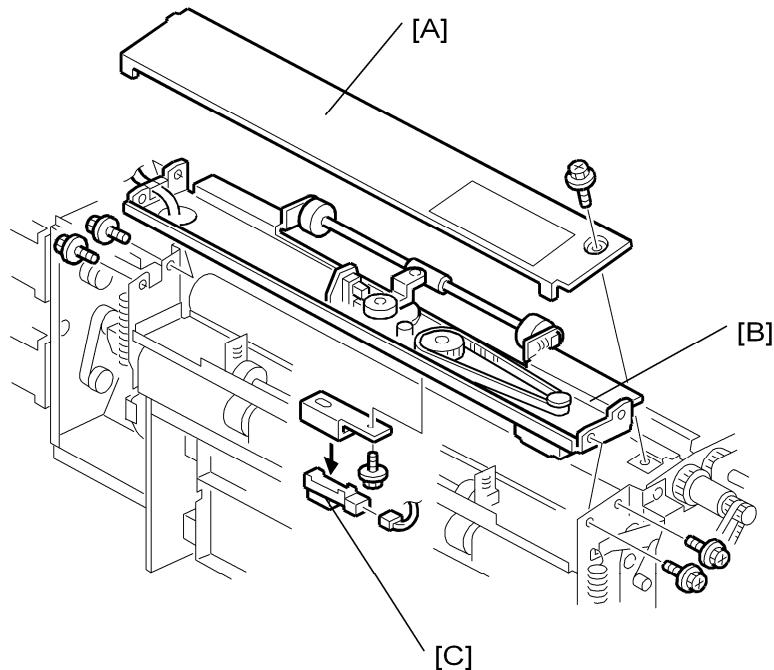


2. Remove the knobs [A] (x 1 each).
3. Disconnect the connectors.
4. Remove the folder unit [B] (x 4).

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Finisher
B793

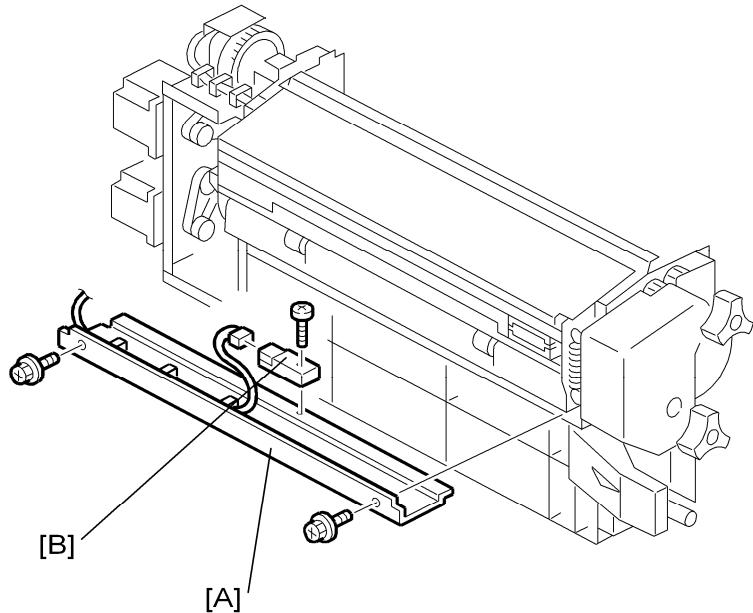
Folder

1.3.3 FOLDER UNIT EXIT SENSOR



1. Remove the folder unit.
2. Remove the folder unit upper cover [A] (x 1).
3. Remove the lower clamp roller unit [B] (x 4).
4. Remove the folder unit exit sensor [C] (x 1, x 1).

1.3.4 FOLDER UNIT ENTRANCE SENSOR

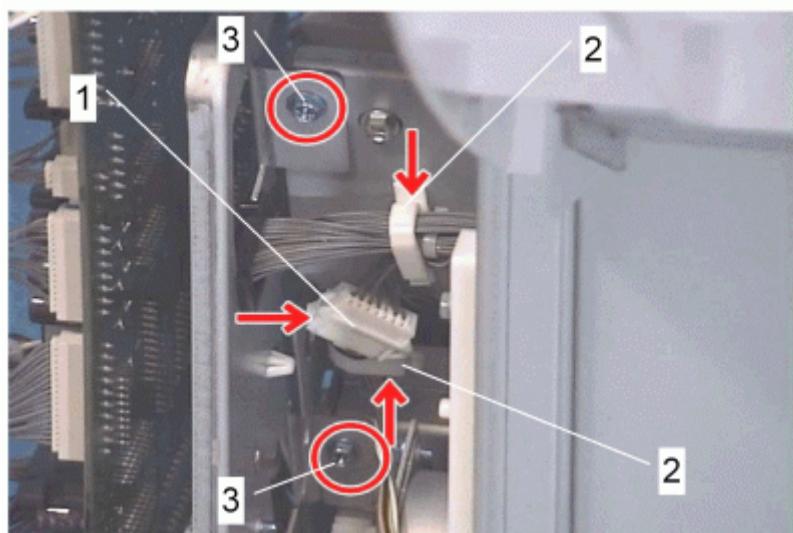


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Finisher
B793

1. Open the front cover.
2. Pull out the staple folder unit.
3. Remove the exit cover [A] (x 2).
4. Remove the entrance sensor [B] (x 1, x 1).

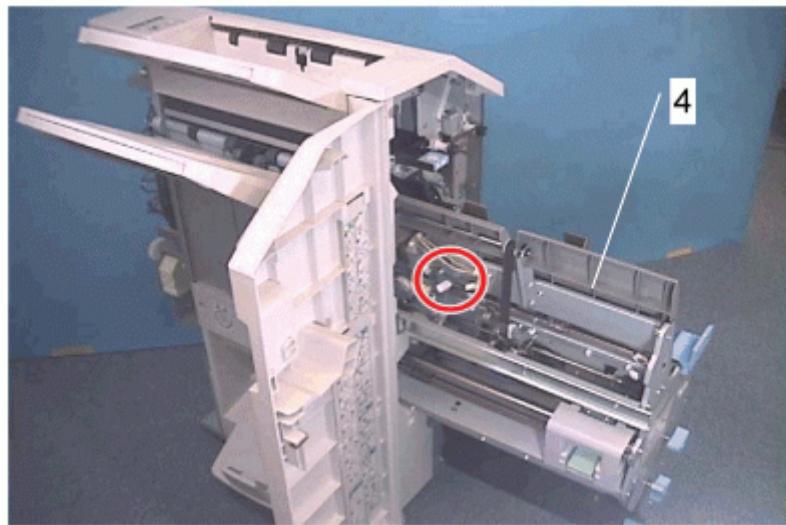
1.3.5 STAPLER UNIT

1. Remove the rear cover.

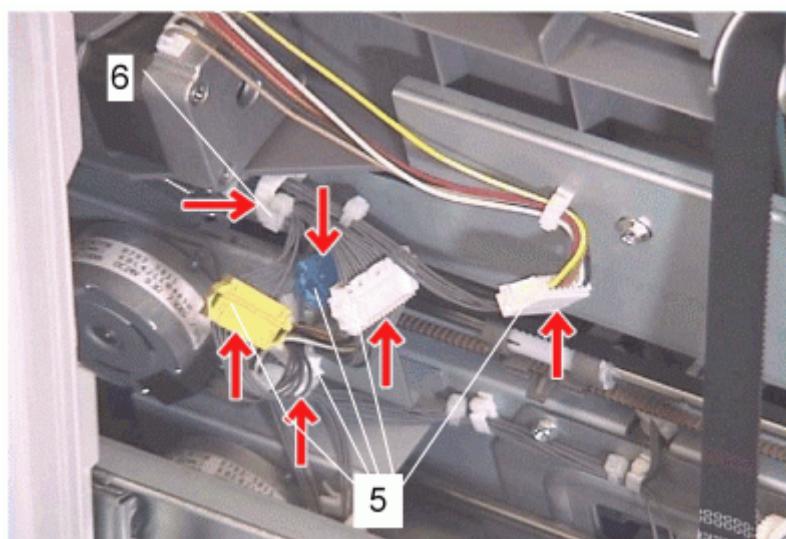


2. Disconnect the connector [1] and release the harness (x 2 [2]).
3. Remove two screws [3].

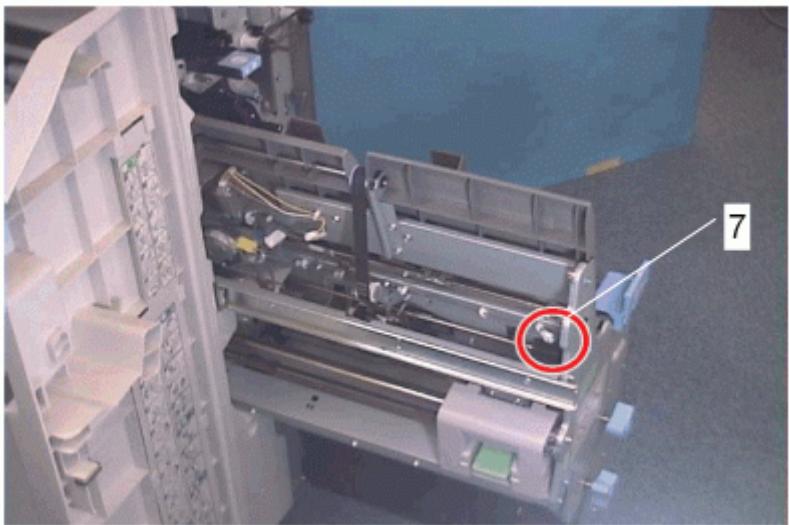
Folder



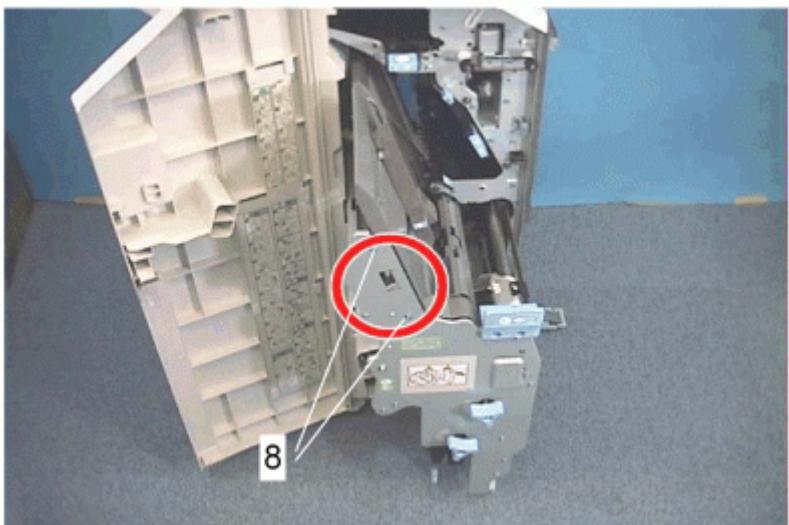
4. Open the front cover and pull out the staple folder unit [4].



5. Disconnect the connectors and release the harness. (4 connectors [5], 1 clamp [6])



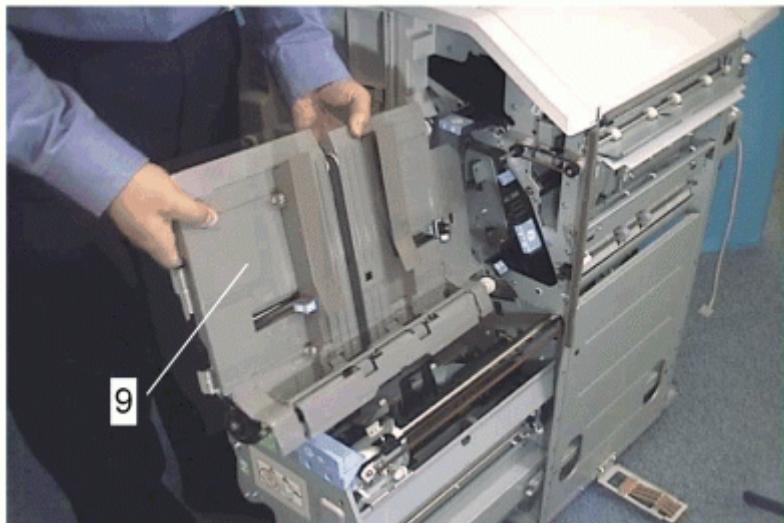
6. Remove a connector [7].



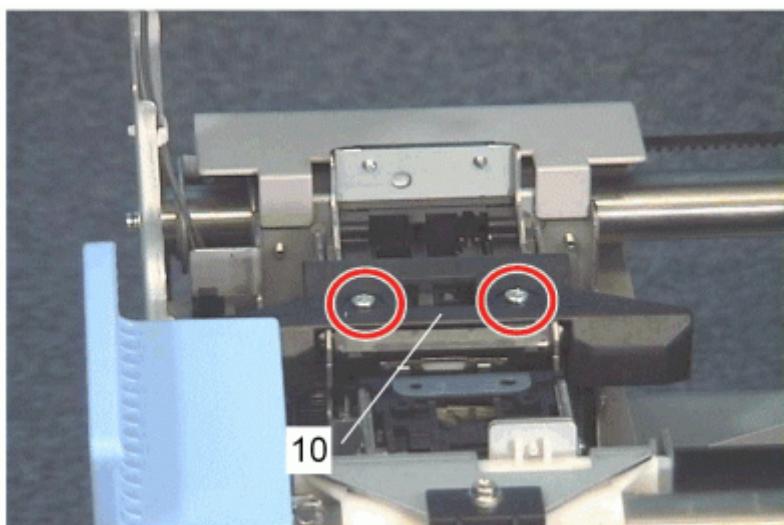
Booklet
Finisher
B793

7. Remove 2 screws [8].

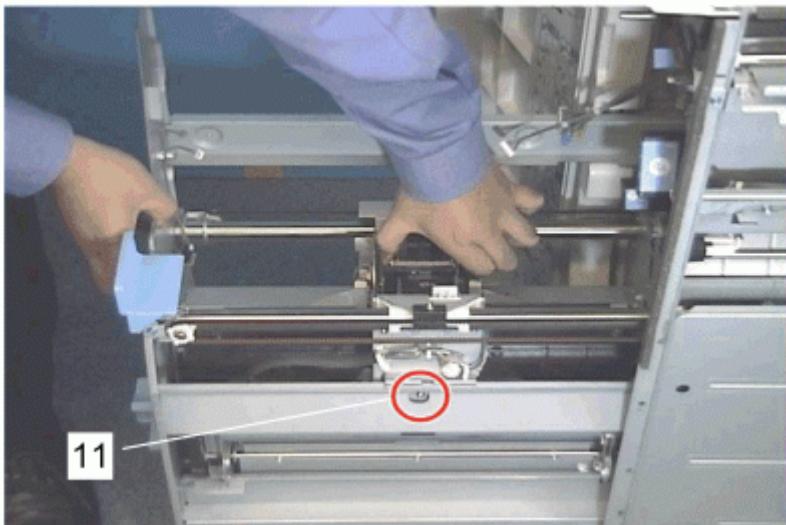
Folder



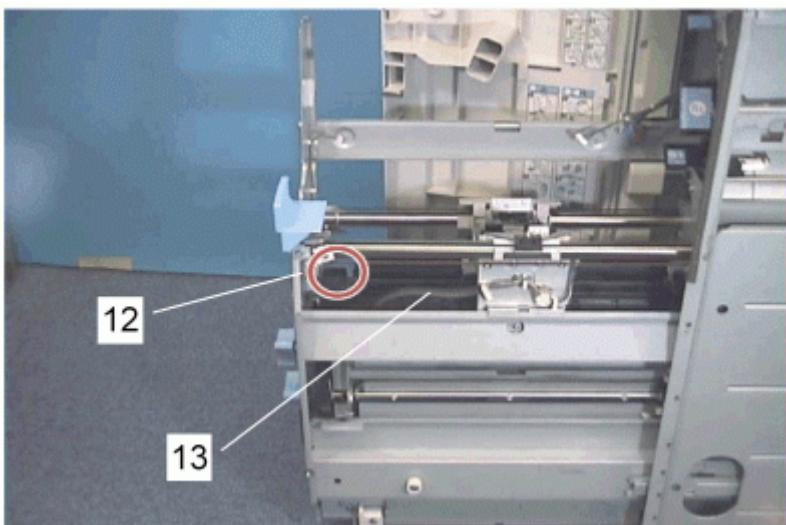
8. Remove the staple tray [9].



9. Remove the guide [10]. (2 screws)



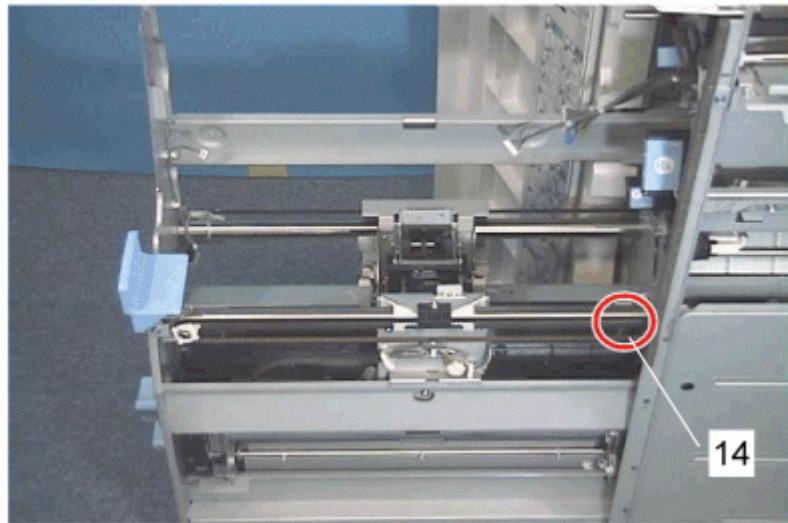
10. Move the stapler unit until its screw come to the hole [11] on the stay.



Booklet
Finisher
B793

11. Remove the screw [12] that holds the front of the guide plate [13].

Folder

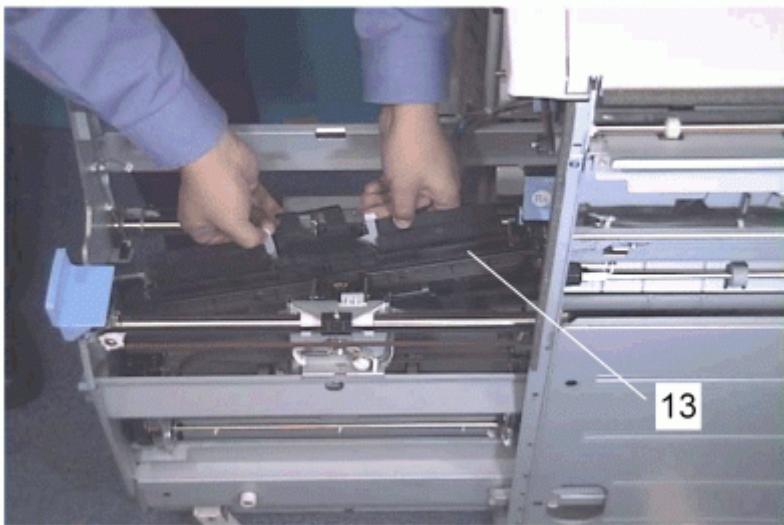


12. Remove the screw [14] that holds the rear of the guide plate.

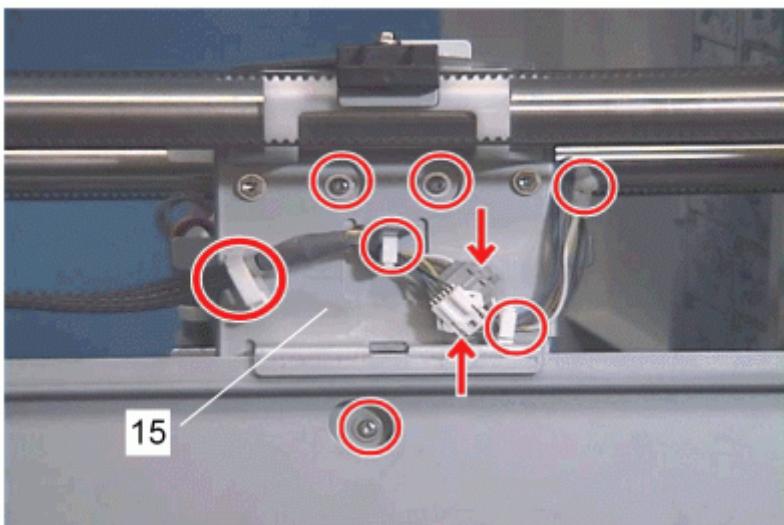


↓ Note

- Remove the rear side screw through the hole in the stay.



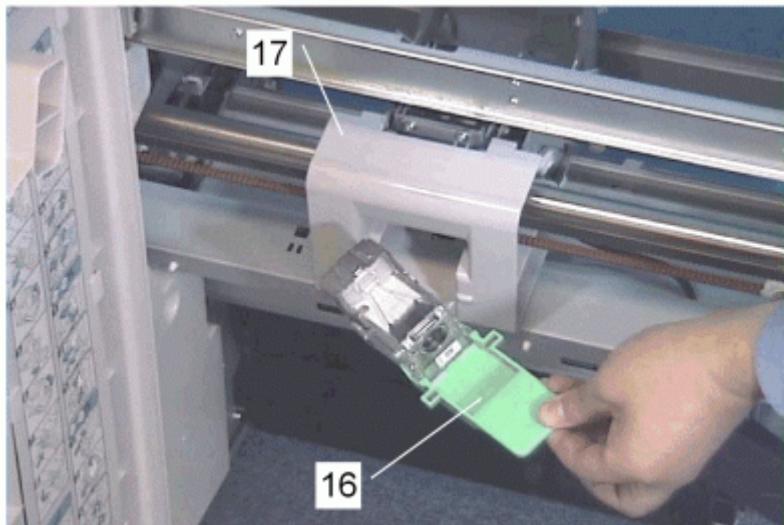
13. Remove the guide plate [13].



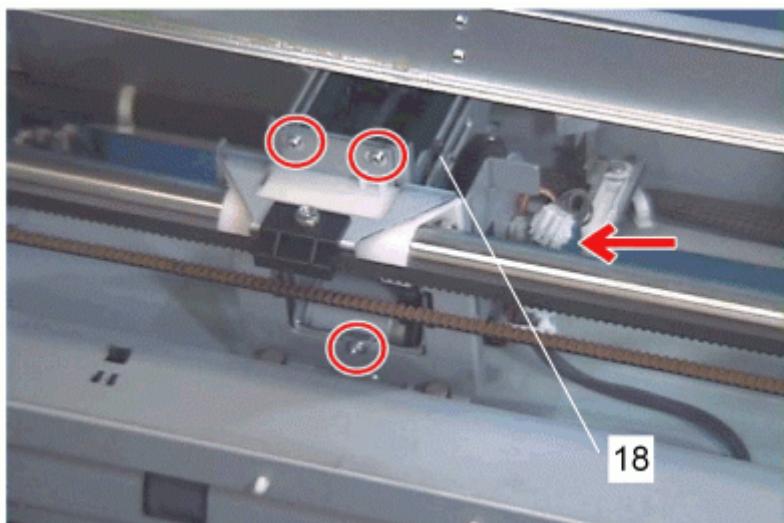
Booklet
Finisher
B793

14. Remove the staple folding unit [15] (3 screws, 2 connectors).

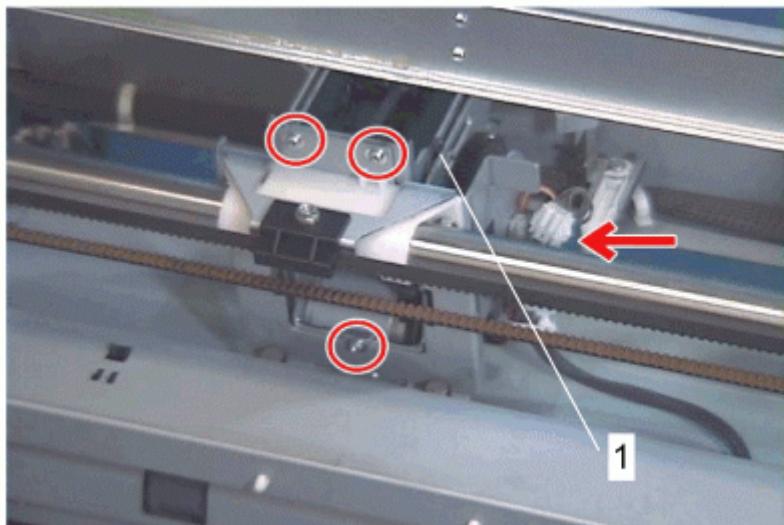
Folder



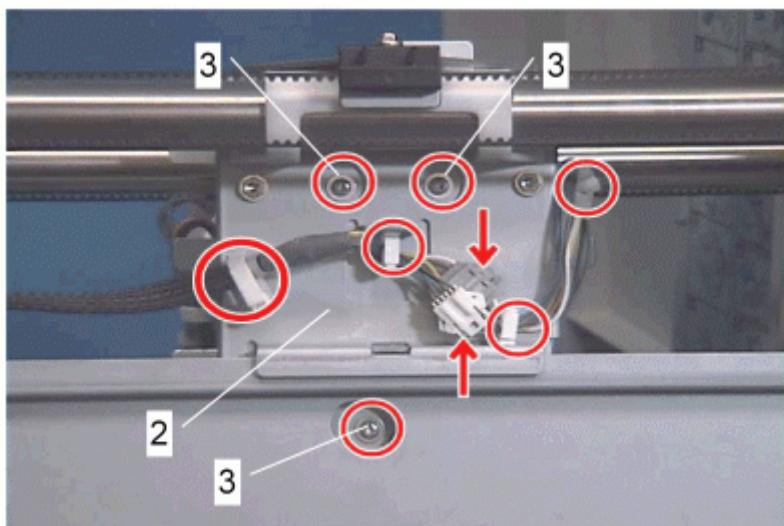
15. Remove the staple cartridge [16].
16. Remove the stapler unit cover [17].



17. Remove the stapler drive unit [18].

Reassembly

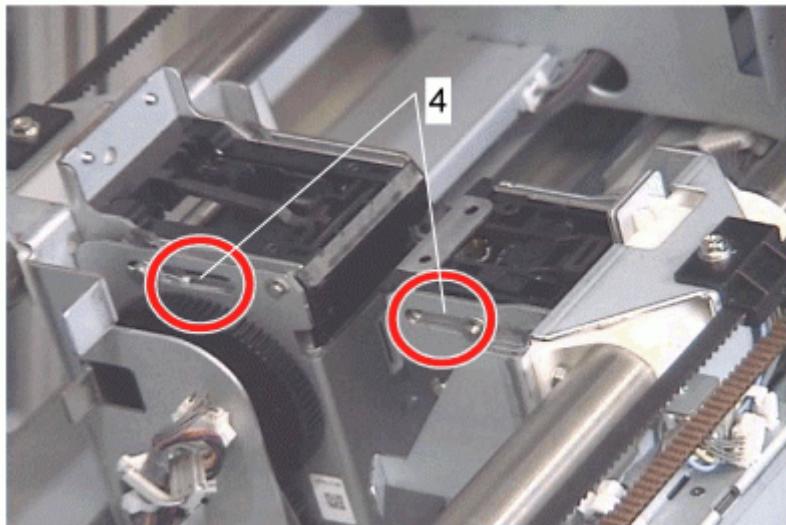
1. Mount the stapler drive unit [1].



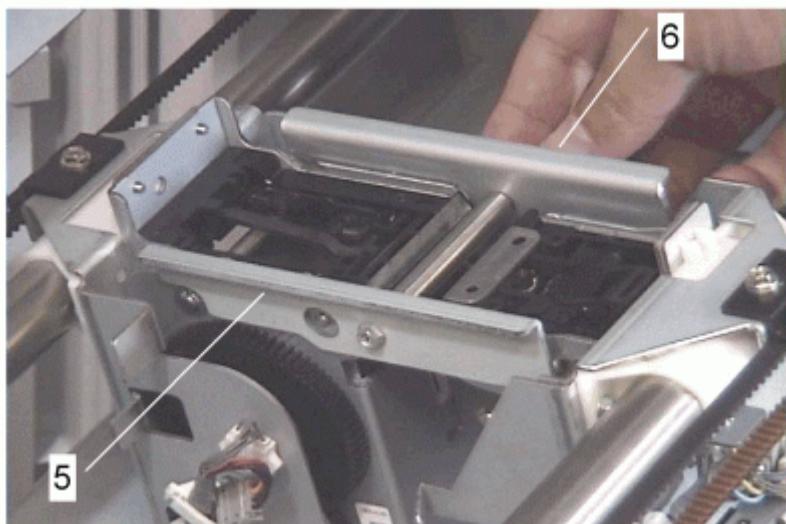
Booklet
Finisher
B793

2. Mount the staple folder unit [2]. Do not tighten the screws [3] at this time.

Folder

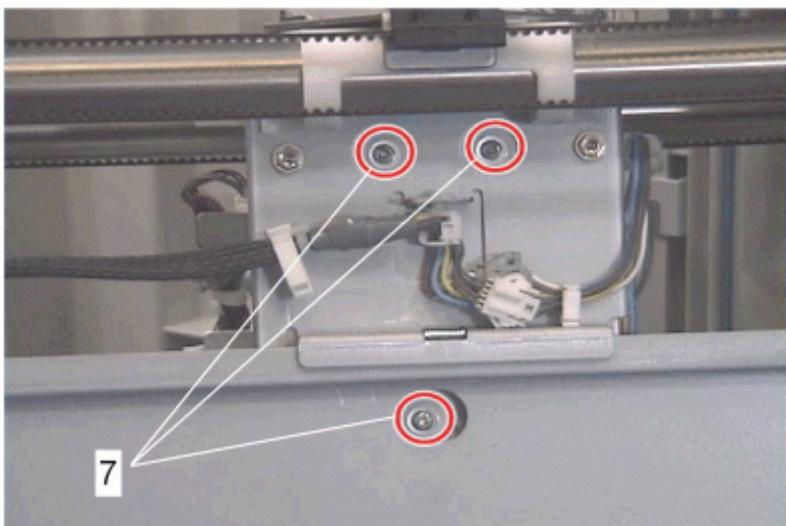


3. Set the special tool in the long hole [4] on both units.



4. Secure the special tool [5] with the knob [6].

Folder



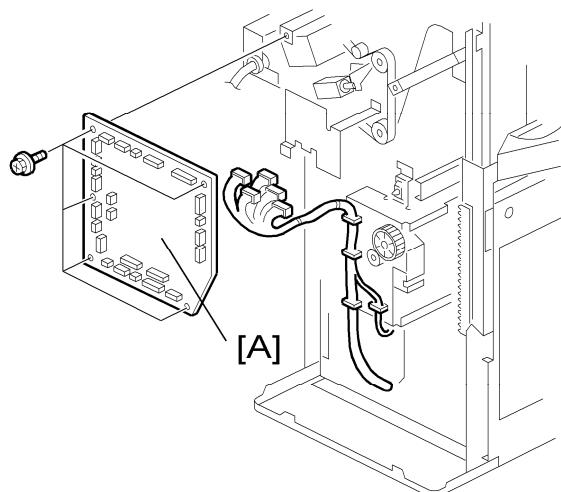
5. Tighten the screws [7] for the stapler folder unit.
6. Reassemble the machine.

Booklet
Finisher
B793

Others

1.4 OTHERS

1.4.1 MAIN BOARD



1. Remove the rear cover.
2. Remove the main board [A] (x 5).

1.5 DIP SWITCHES

SW100: Adjust the staple position for booklet mode

| No. | Function |
|-----|---|
| 1 | ON: 0.3 mm |
| 2 | ON: 0.6 mm |
| 3 | ON: 1.2 mm |
| 4 | Direction OFF: Towards the trailing edge, ON: Towards the leading edge |

SW101: Adjust the fold position

| No. | Function |
|-----|---|
| 1 | ON: 0.2 mm |
| 2 | ON: 0.4 mm |
| 3 | ON: 0.8 mm |
| 4 | Direction OFF: Towards the trailing edge, ON: Towards the leading edge |

Booklet
Finisher
B793

SW102: Move the tray position

| No. | Function |
|-----|---|
| 1 | OFF → ON → OFF Turn the switch from off to on, then turn it to off again. Then, the tray moves down to the shipping position |
| 2 | Not used |

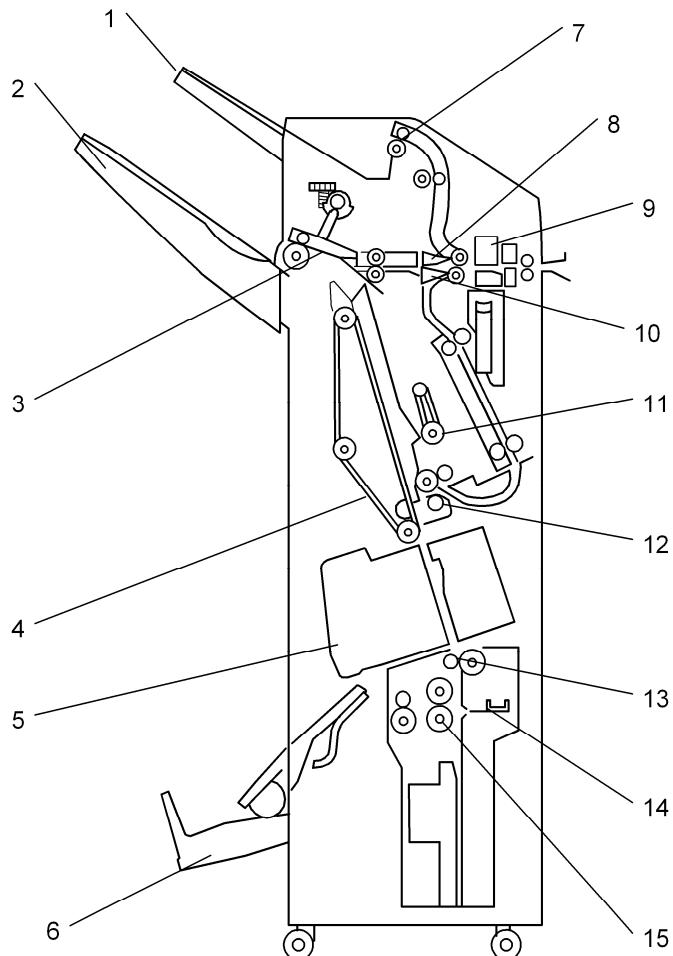


- After you change any of these dip switch settings, open and close the finisher cover to activate the new setting. It is not necessary to turn the main power off/on.

2. DETAILED SECTION DESCRIPTIONS

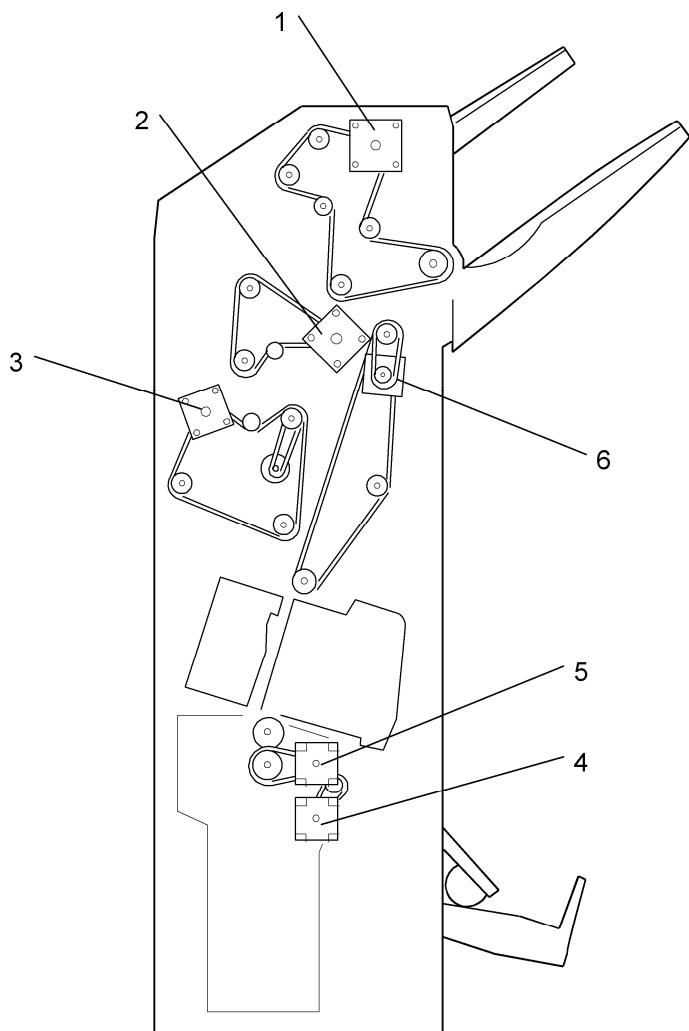
2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT



- | | | |
|-------------------------------|-----------------------------|----------------------|
| 1. Proof Tray | 2. Shift Tray | 3. Exit Guide Plate |
| 4. Stack Feed Out Belt | 5. Staple Unit | 6. Booklet Tray |
| 7. Proof Tray Exit Roller | 8. Proof Tray Junction Gate | 9. Punch Unit |
| 10. Staple Tray Junction Gate | 11. Positioning Roller | 12. 1st Clamp Roller |
| 13. 2nd Clamp Roller | 14. Folder Plate | 15. Folder Roller |

Drive Layout

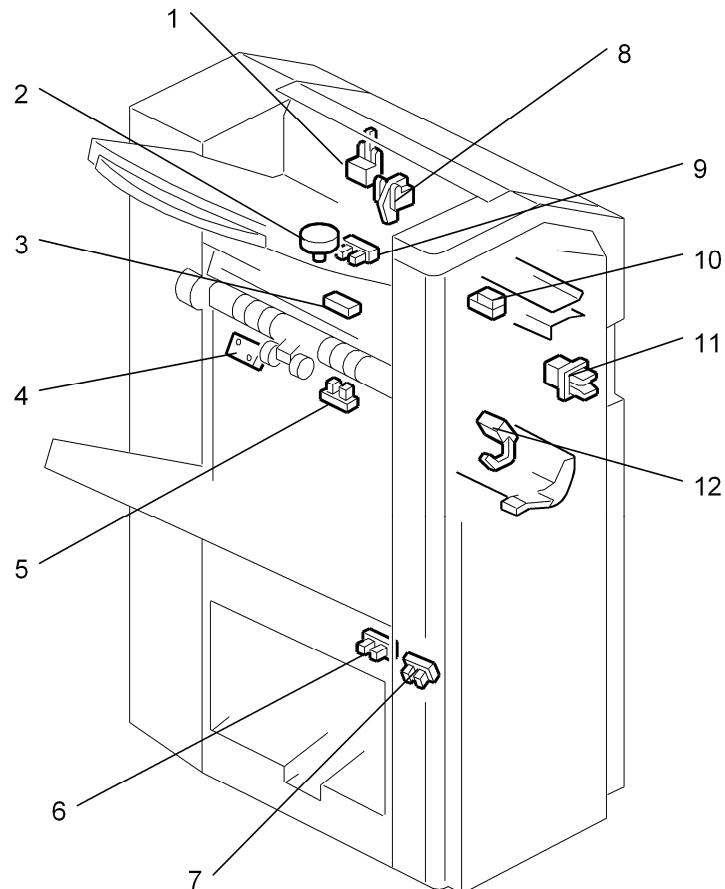


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Finisher
B793

1. Upper Transport Motor
2. Entrance Motor
3. Lower Transport Motor
4. Fold Plate Motor
5. Fold Roller Motor
6. Stack Feed-out Motor

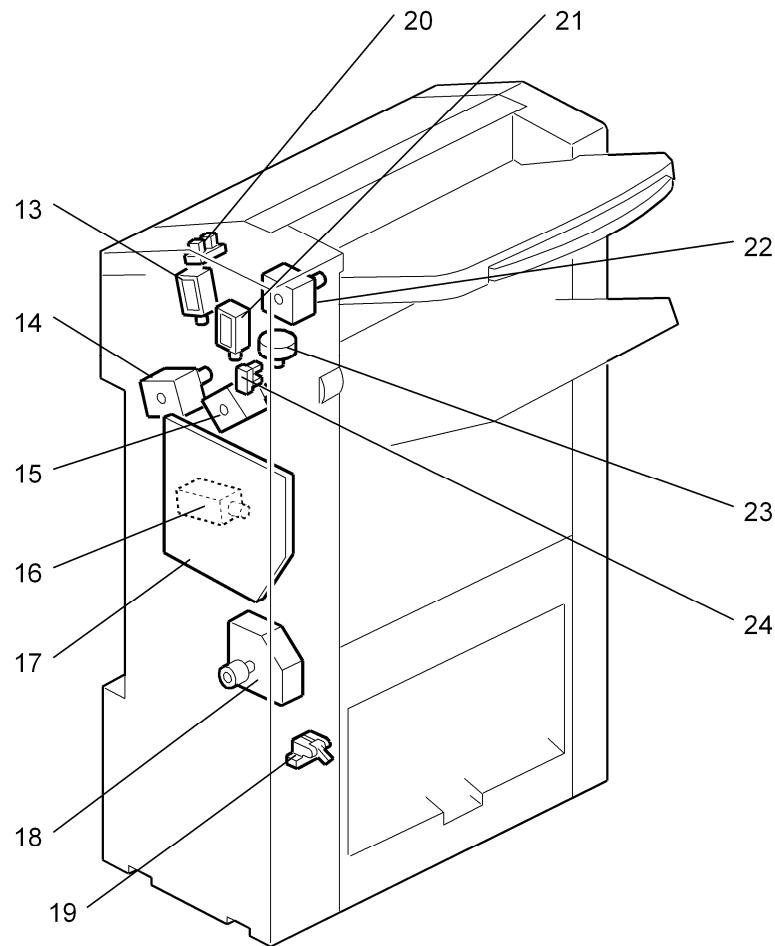
Component Layout

2.1.2 ELECTRICAL COMPONENT LAYOUT



1. Proof Tray Exit Sensor
2. Exit Guide Plate Motor
3. Shift Tray Exit Sensor
4. Upper Limit Switch
5. Shift Tray Position Sensor
6. Rear Booklet Tray Full Sensor
7. Front Booklet Tray Full Sensor
8. Proof Tray Full Sensor
9. Exit Guide Plate HP Sensor
10. Entrance Sensor
11. Front Door Safety Switch
12. Staple Tray Exit Sensor

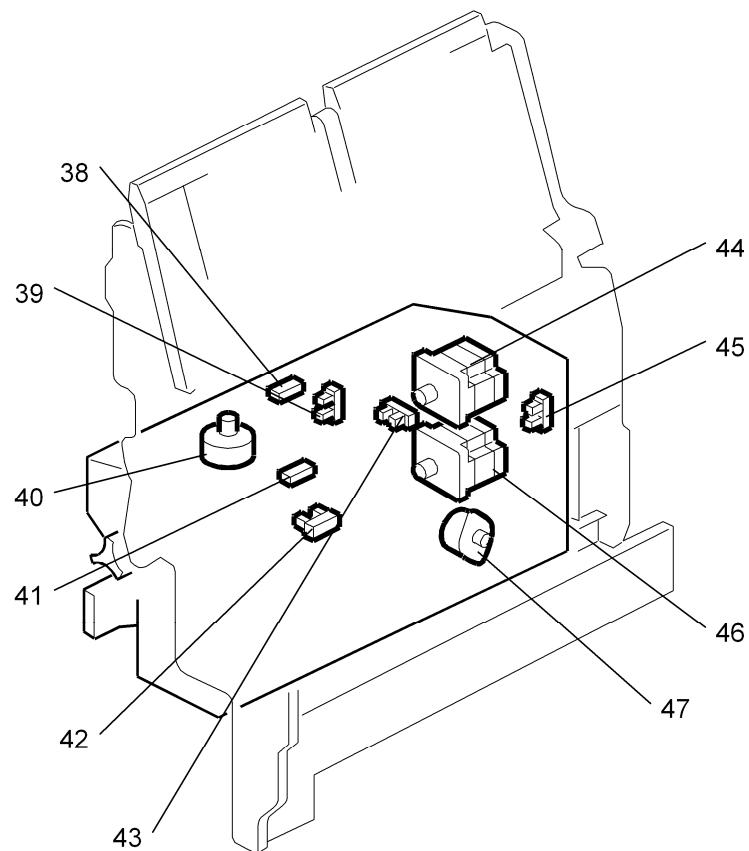
Component Layout



Booklet
Finisher
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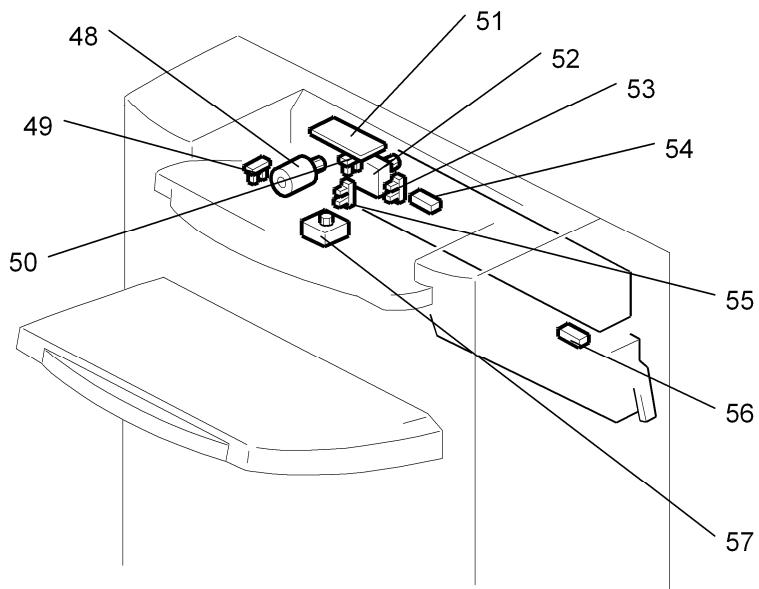
- 13. Proof Tray Gate Solenoid
- 14. Lower Transport Motor
- 15. Entrance Motor
- 16. Positioning Roller Solenoid
- 17. Main Board
- 18. Shift Tray Motor
- 19. Lower Limit Sensor
- 20. Upper Cover Sensor
- 21. Staple Tray Gate Solenoid
- 22. Upper Transport Motor
- 23. Shift Motor
- 24. Shift Motor HP Sensor

Component Layout



- 38. Fold Unit Exit Sensor
- 39. Lower Clamp Roller HP Sensor
- 40. Lower Retraction Motor
- 41. Fold Unit Entrance Sensor
- 42. Bottom Fence HP Sensor
- 43. Fold Cam HP Sensor
- 44. Fold Roller Motor
- 45. Fold Plate HP Sensor
- 46. Fold Plate Motor
- 47. Bottom Fence Lift Motor

Component Layout



- 48. Punch Motor
- 49. Punch Encoder Sensor
- 50. Punch HP Sensor
- 51. Punch Board
- 52. Paper Position Sensor Slide Motor
- 53. Paper Position Slide HP Sensor
- 54. Paper Position Sensor
- 55. Punch Movement HP Sensor
- 56. Punch Hopper Full Sensor
- 57. Punch Movement Motor

Booklet
Finisher
B793

Component Layout

Electrical Component Descriptions

Boards

| Item | No. | Purpose |
|-------------|-----|--------------------------|
| Main Board | 17 | Controls the finisher. |
| Punch Board | 51 | Controls the punch unit. |

Sensors

| Item | No. | Purpose |
|--------------------------------|-----|---|
| Proof Tray Exit Sensor | 1 | Detects paper when it is fed out to the proof tray. |
| Shift Tray Exit Sensor | 3 | Detects paper when it is fed out to the shift tray. |
| Shift Tray Position Sensor | 5 | Detects when the shift tray is at the correct height to receive paper. |
| Rear Booklet Tray Full Sensor | 6 | One of two sensors that the machine uses to determine when the booklet tray is full. |
| Front Booklet Tray Full Sensor | 7 | One of two sensors that the machine uses to determine when the booklet tray is full. |
| Proof Tray Full Sensor | 8 | Detects when the proof tray is full. |
| Exit Guide Plate HP Sensor | 9 | Detects when the exit guide plate is at home position |
| Entrance Sensor | 10 | Detects when paper comes into the finisher |
| Staple Tray Exit Sensor | 12 | Detects paper leaving the bottom of the stapler |
| Lower Limit Sensor | 19 | Detects when the shift tray has moved to its lowest possible position (the shift tray is full). |
| Upper Cover Sensor | 20 | Detects when the upper cover is open |
| Shift Motor HP Sensor | 24 | Detects when the side-to-side motion of the shift roller is at home position |

Component Layout

| Item | No. | Purpose |
|------------------------------|-----|--|
| Stopper S HP Sensor | 28 | Detects when the 'stopper S' mechanism is at home position. |
| Stack Feed Out HP Sensor | 29 | Detects when the stack feed-out belt is at home position |
| Staple Unit HP Sensor | 30 | Detects when the side-to-side motion of the stapler unit is at home position |
| Jogger HP Sensor | 34 | Detects when the jogger unit is at home position |
| Staple Tray Paper Sensor | 35 | Detects when paper is fed into the stapler tray |
| Stapler Safety Sensor | 37 | Stops side-to-side movement of the stapler until stopper S and the stack feed-out pawl mechanisms are at home position, to prevent damage to the machine. |
| Fold Unit Exit Sensor | 38 | 1) Detects the folded edge of the stack as it feeds out from the nip of the fold rollers so the fold feeds back into the nip, 2) when the folded booklet finally emerges from the nip of the fold rollers, detects the leading and trailing edge of the booklet to make sure that it feeds out correctly. |
| Lower Clamp Roller HP Sensor | 39 | Detects when the lower clamp roller is at home position |
| Fold Unit Entrance Sensor | 41 | Detects 1) the leading edge of the stack during booklet stapling, and 2) also used to signal an alarm if a paper is detected at the entrance of the fold unit when the copier is turned on. |
| Bottom Fence HP Sensor | 42 | Detects when the bottom fence of the booklet folding mechanism is at home position |
| Fold Cam HP Sensor | 43 | Along with the fold plate HP sensor, this sensor controls the movement of the fold plate. The actuator mounted on the end of the roller that drives the folder plate forward and back makes three full rotations, i.e. the actuator passes the sensor gap twice and stops on the 3rd rotation and reverses. This accounts for the left and right movement of the fold plate. |
| Fold Plate HP Sensor | 45 | Along with the fold plate HP sensor this sensor controls the movement of the fold plate. The fold plate has arrived at the home position when the edge of the plate enters the gap of this sensor. |
| Punch Encoder Sensor | 49 | Controls the timing for activating the punches, to punch holes in the paper at the correct position. |

Booklet
Finisher
B793

Component Layout

| Item | No. | Purpose |
|--------------------------------|-----|---|
| Punch HP Sensor | 50 | Detects when the hole-punch firing mechanism is at home position |
| Paper Position Slide HP Sensor | 53 | Detects when the mechanism that measures the paper position in the punch unit is at home position |
| Paper Position Sensor | 54 | Detects the side edge of the paper, to tell the machine where to put the punch holes. |
| Punch Movement HP Sensor | 55 | Detects when the side-to-side motion of the punch unit is at home position. |
| Punch Hopper Full Sensor | 56 | Detects when the punch hopper is full. Also checks if the hopper is installed correctly. |

Motors

| Item | No. | Purpose |
|------------------------|-----|--|
| Exit Guide Plate Motor | 2 | Controls the exit guide plate mechanism. |
| Lower Transport Motor | 14 | Controls the positioning roller, and other rollers in the finisher (see 'Drive Layout' for details). |
| Entrance Motor | 15 | Controls the rollers at the entrance of the finisher. |
| Shift Tray Motor | 18 | Moves the shift tray up and down. |
| Upper Transport Motor | 22 | Controls the rollers that feed paper from the junction gate to the proof tray and to the shift tray (see 'Drive Layout' for details). |
| Shift Motor | 23 | Moves the shift tray from side to side. |
| Stack Feed Out Motor | 25 | Controls the stack feed-out belt |
| Jogger Motor | 26 | Controls the jogger in the stapler tray |
| Upper Retraction Motor | 27 | Controls the 'stopper S' mechanism. Also moves the upper clamp roller into contact and away from the stack of paper in the stapler tray. |
| Upper | 33 | Rotates the upper clamp roller. |

Component Layout

| Item | No. | Purpose |
|-----------------------------------|-----|---|
| Clamp Roller Motor | | |
| Stapler Unit Motor | 36 | Moves the stapler from side to side. |
| Lower Retraction Motor | 40 | Drives a large cam that alternately clamps and unclamps the lower clamp roller, which is the idle roller of the clamp roller pair. When these rollers are clamped, they are part of the paper feed path and feed the stack toward the bottom fence of the fold unit. When the idle roller is retracted, the stacks falls a very short distance (3 mm) onto the fold unit bottom fence below. These rollers remain unclamped while the bottom fence positions the stack for folding and while the stack is folded by the fold rollers. |
| Fold Roller Motor | 44 | Controls the rollers that fold the paper. |
| Fold Plate Motor | 46 | Controls the plate that makes the fold in the paper. |
| Bottom Fence Lift Motor | 47 | Raises the bottom fence and stapled stack to the correct fold position for the paper size. |
| Punch Motor | 48 | Punches the holes in the paper. |
| Paper Position Sensor Slide Motor | 52 | Controls side-to-side movement of the paper position sensor in the punch unit. |
| Punch Movement Motor | 57 | Moves the punch from side to side. |

Booklet Finisher
B793

Solenoids

| Item | No. | Purpose |
|-----------------------------|-----|--|
| Proof Tray Gate Solenoid | 13 | Controls the proof tray junction gate |
| Positioning Roller Solenoid | 16 | Controls the positioning roller. |
| Staple Tray Gate Solenoid | 21 | Controls the staple tray junction gate |

Switches

| Item | No. | Purpose |
|--------------------|-----|--|
| Upper Limit Switch | 4 | Detects when the shift tray is at the highest possible position, and cuts power to the shift tray motor. |

Component Layout

| Item | No. | Purpose |
|--------------------------|-----|--|
| Front Door Safety Switch | 11 | Cuts dc power when the front door is opened. |

Others

| Item | No. | Purpose |
|--------------------|-----|--|
| Staple Driver Unit | 31 | Pushes the staples into the paper. |
| Staple Folder Unit | 32 | Folds the ends of the staples after stapling |

2.2 JUNCTION GATES

Two junction gates control the path of paper.

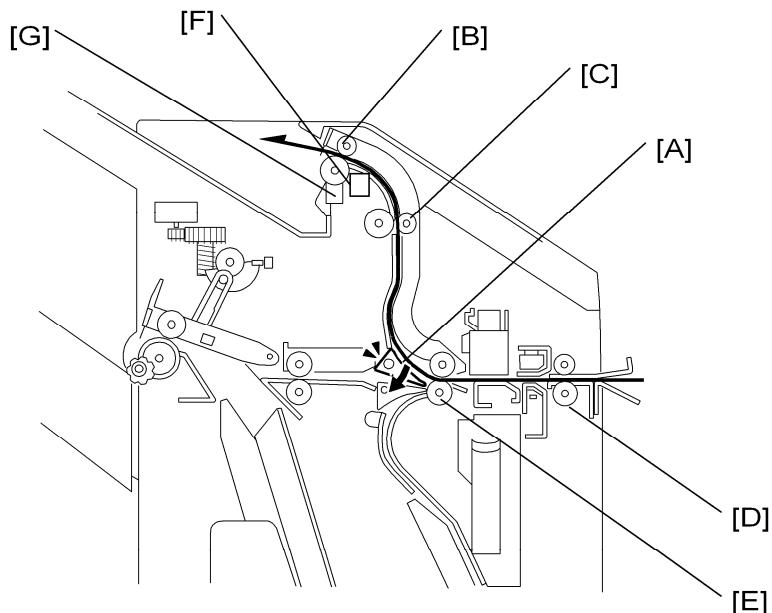
Each junction gate is controlled by a solenoid.

Junction gate operation is summarized in the following table.

| Mode | Proof | Shift | Staple |
|---------------------------|-------|-------|--------|
| Paper Path | | | |
| Proof Tray Gate Solenoid | ON | OFF | OFF |
| Staple Tray Gate Solenoid | OFF | OFF | ON |

Proof Tray

2.3 PROOF TRAY



Proof Tray Junction Gate Control [A]: Proof Tray Gate Solenoid

Roller Drive:

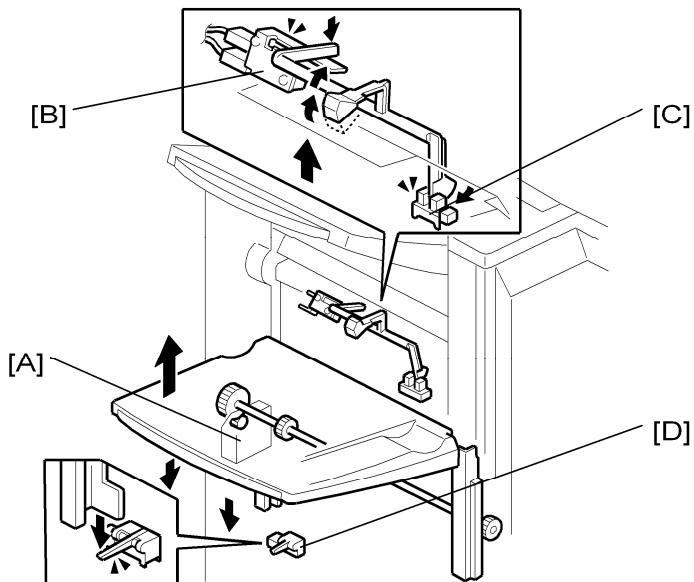
- Proof Tray Exit Roller [B], Proof Tray Transport Roller [C]: Controlled by the Upper Transport Motor
- Entrance Roller [D], Transport Roller [E]: Controlled by the Entrance Motor

Jam Detection: Proof Tray Exit Sensor [F]

Tray Full Detection: Proof Tray Full Sensor [G]

2.4 SHIFT TRAY

2.4.1 UP/DOWN MOTION



Booklet
Finisher
B793

The shift tray motor [A] moves the tray up and down.

The upper limit switch [B] detects when the tray moves up too far, and cuts power to the shift tray motor.

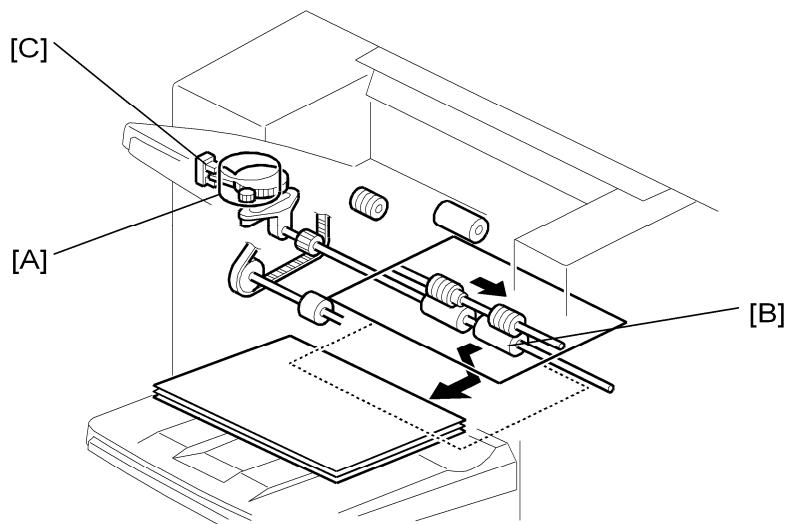
The shift tray position sensor [C] checks when the tray (or the top of the stack) is at the correct height to receive paper.

- Shift Mode: This is checked every 5 sheets
- Staple Mode: This is checked every stack

The lower limit sensor [D] detects when the tray is full. At this point, the tray cannot move down any more.

Shift Tray

2.4.2 SIDE-TO-SIDE MOTION



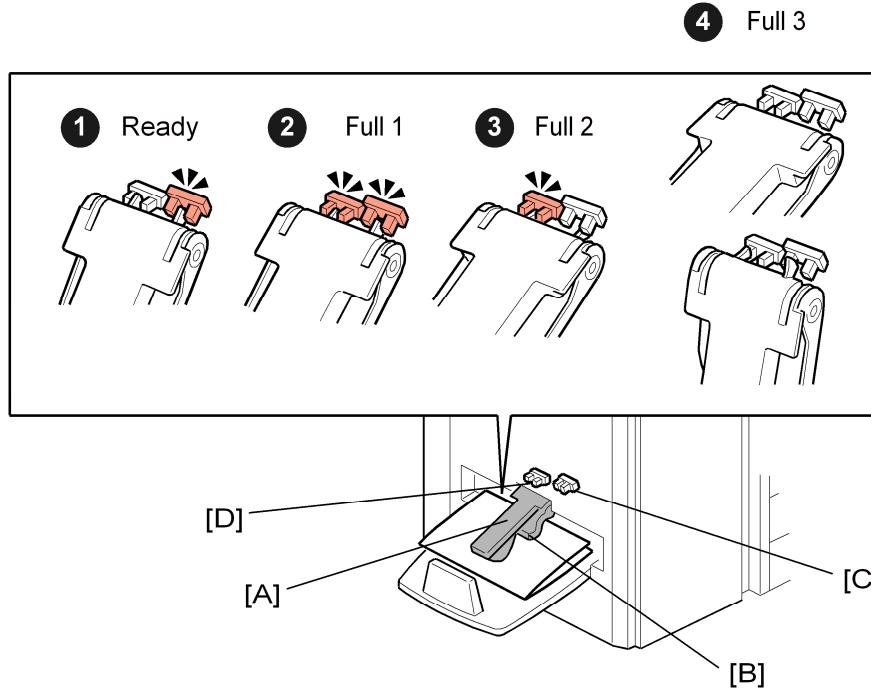
The shift motor [A] moves the shift roller [B] from side to side.

The shift motor HP sensor [C] detects when the mechanism is at home position.

The upper transport motor rotates the shift roller.

When shift mode is used, the shift motor turns on after each page is fed out. Then, for the next set, the shift motor turns the other way. In this way, the user can easily divide the sets.

2.5 BOOKLET TRAY



Booklet
Finisher
B793

The sensor actuator arm [A] rests on the top of the stack of stapled booklets as they are output to the lower tray. A flap depressor [B] keeps the open ends of the booklets down. The front booklet tray full sensor [C] and rear booklet tray full sensor [D] detect when the tray is full of booklets.

Note

- The front booklet tray full sensor is mounted higher than the rear booklet tray full sensor.
- The booklet tray is stationary. When it becomes full, the stapling and folding job stops until booklets are removed from the tray.
- If the booklet tray is not installed (this is detected if the front and rear sensors remain OFF), the machine will not operate in the booklet staple and fold mode. When booklet mode is selected, the tray full message appears on the operation panel.

The combinations of the two actuators and two sensors when the actuator arm rises determines the number of booklets that the tray can hold before the job stops.

Tray full detection depends on the size of the paper and the number of sheets in one stapled and folded booklet.

The condition detected by the machine (① Ready ② Full 1, ③ Full 2, ④ Full 3; see the illustration above) depends on the states of the sensors, as shown in the table below.

Booklet Tray

| Condition | Front Sensor | Rear Sensor |
|--|--------------|-------------|
| Ready | ON | OFF |
| Full 1 | ON | ON |
| Full 2 | OFF | ON |
| Full 3 (or booklet tray not installed) | OFF | OFF |

In the tables below:

- "Sht" denotes "sheets in a stack".
- "Cnt" denotes "Count" (see below for an explanation).

After a booklet is feed out, the fold roller motor stops the exit roller. The machine then monitors the tray full sensors every feed-out of a paper stack. The machine checks a certain condition, based on the size of the paper and the number of sheets in the booklet. Two examples are shown below the table. Tell the operators that the number of sheets that the lower tray can hold will vary greatly.

- Lower Tray Full Condition Tables -

A3 (DLT)

| Sheet | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|-----------|-------|-----------|-----------|-----------|-------|-------|-------|-------|-------|
| Full 1 | 15 Cnt | - | - | - | - | - | - | - | - | - |
| Full 2 | - | 3 Cnt | 11 Cnt | - | - | - | - | - | - | - |
| Full 3 | - | - | - | 16 Cnt | 12 Cnt | 2 Cnt | 3 Cnt | 5 Cnt | 6 Cnt | 7 Cnt |

A4 (LT)

| Sheet | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|--------|-----------|-------|-----------|-----------|-------|-------|-------|-------|-------|-------|
| Full 1 | 15 Cnt | - | - | - | - | - | - | - | - | - |
| Full 2 | - | 8 Cnt | 16 Cnt | 19 Cnt | 5 Cnt | 2 Cnt | 2 Cnt | 2 Cnt | 3 Cnt | 4 Cnt |
| Full 3 | - | - | - | - | - | - | - | - | - | - |

- Examples -

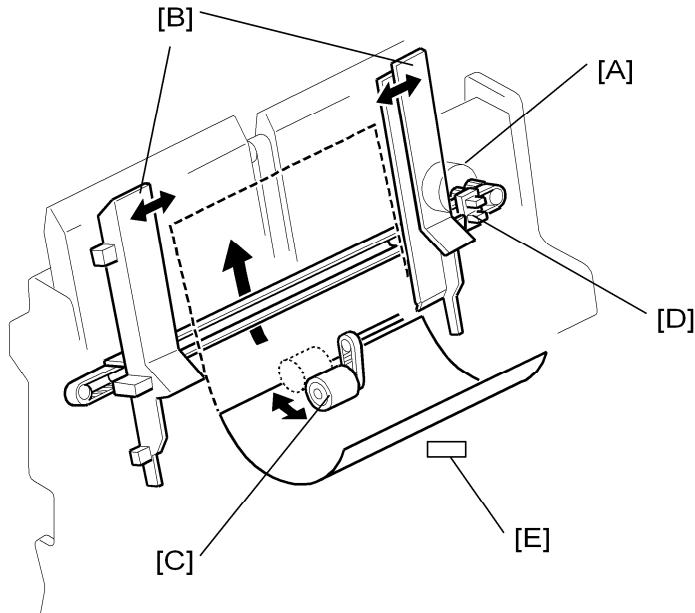
After the copier makes a booklet with 1 sheet of 11 x 17 inch paper, the machine checks every feed-out of a paper stack for the 'Full 1' condition. If the Full 1 condition occurs 15 times ('**15 Cnt**' in the table above), the machine detects that the tray is full.

After the copier makes a booklet with 5 sheets of A4/LT paper, the machine checks every feed-out of a paper stack for the 'Full 2' condition. If the Full 3 condition occurs 5 times ('**5 Cnt**' in the table above), the machine detects that the tray is full.



Jogger Unit

2.6 JOGGER UNIT



The jogger is used in corner-staple mode and in booklet mode.

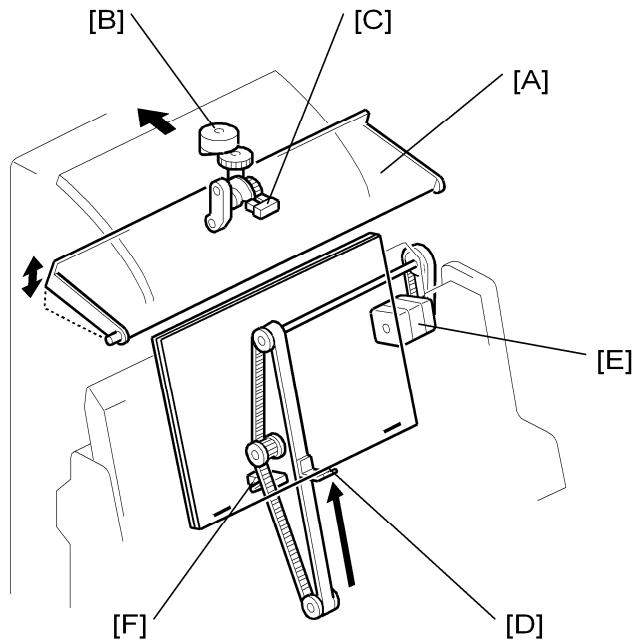
For each sheet of paper when it arrives in the staple tray, the following is done.

- The jogger motor [A] drives the jogger fences [B].
- The positioning roller solenoid moves the positioning roller [C] onto the top of the sheet. Then the lower transport motor turns on and the positioning roller rotates to push the sheet of paper against the stopper (there are two stoppers: stopper L or stopper S the one that is used depends on the paper size, as we shall see later.)

The jogger HP sensor [D] detects when the jogger fences are at home position (away from the stack).

The staple tray exit sensor [E] detects if a jam occurs when the machine feeds the stack out at the bottom of the jogger tray.

2.7 EXIT GUIDE PLATE, PAPER FEED OUT



Booklet
Finisher
B793

The exit guide plate [A] opens when a stapled stack is fed out.

Also it opens every time a sheet is fed to the staple tray, to prevent the paper running into the exit roller during stacking.

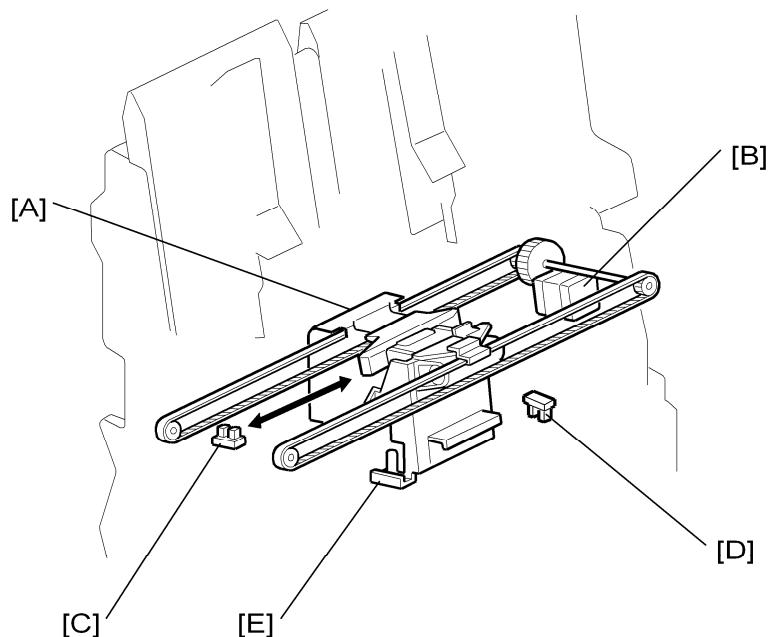
The exit guide plate motor [B] drives the exit guide plate. The exit guide plate HP sensor [C] detects when the guide plate is at home position.

The stack feed-out belt feeds out stapled stacks. The pawl [D] on the belt moves the stack out to the exit.

The stack feed-out motor [E] drives the belt. The stack feed-out HP sensor [F] detects when the belt is at home position.

Stapler Unit Movement

2.8 STAPLER UNIT MOVEMENT



The machine has only one stapler [A]. It does stapling for booklets and for corner stapling. The stapler unit motor [B] moves the stapler from side to side. The stapler unit HP sensor [C] detects when the stapler unit is at home position.

In corner staple mode, at the start of the job, the stapler moves to the position where the stapler will be inserted.

In booklet mode, at the start of a job, the stapler moves to a starting position that depends on the paper size, as follows:

- 8.5 x 14 inches or shorter: Rear side staple position
- Longer than 8.5 x 14 inches: Center position. When the stapler is at the center position, bracket [E] releases 'stopper L', which catches the bottom edge of the paper for booklet stapling with longer paper sizes. This will be described in a later section.

If the stapler safety sensor [D] detects the stapler unit at its initialization, the stapler unit stops moving until the stack feed out belt pawl and stopper S are at home position. If the stapler unit does not stop, it could collide with the pawl and/or the stopper.

2.9 STACKING FOR BOOKLET STAPLING

2.9.1 OVERVIEW

There are two stoppers near the stapler unit. These stoppers hold the stack of paper in the correct position during stacking.

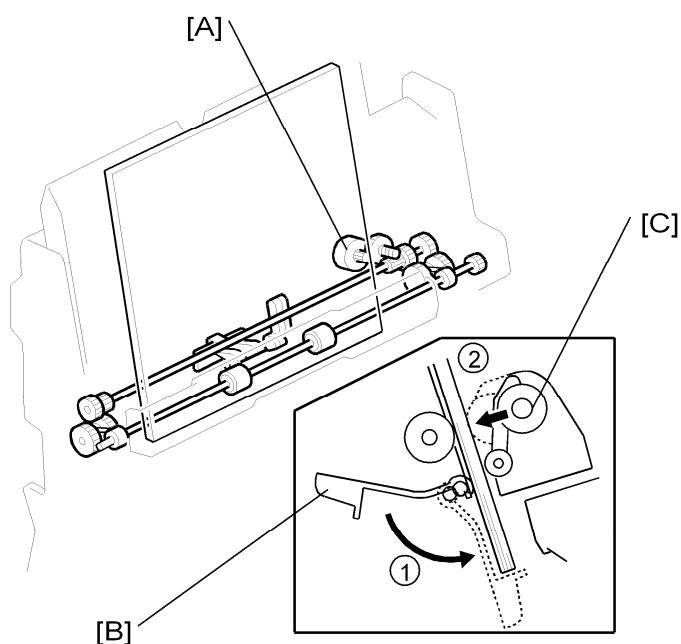
The stoppers are called 'stopper S' and 'stopper L'. Stopper S is used for legal size paper, or shorter than 8.5 x 14 inches. Stopper L is used for paper that is longer than 8.5 x 14 inches.

 Note

- In corner stapling mode, the pawl on the stack feed-out belt holds the stack of paper. For booklet stapling, this pawl stays at home position, which is on the rear side, so it does not interfere with booklet stapling.

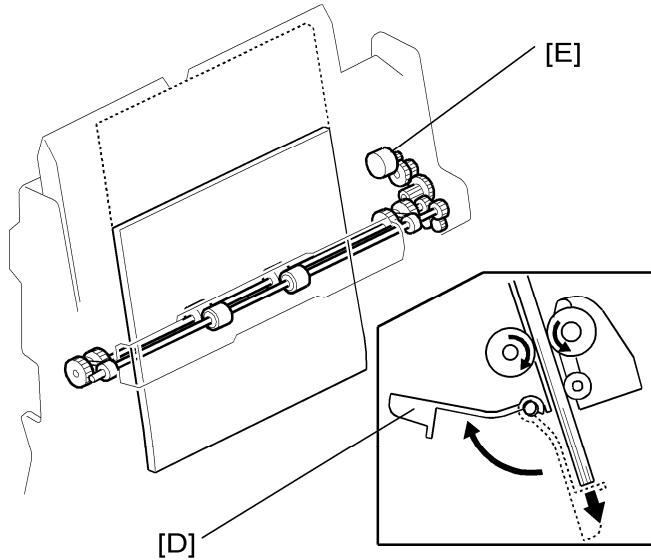
2.9.2 8.5 X 14 (LEGAL) OR SHORTER

Booklet
Finisher
B793



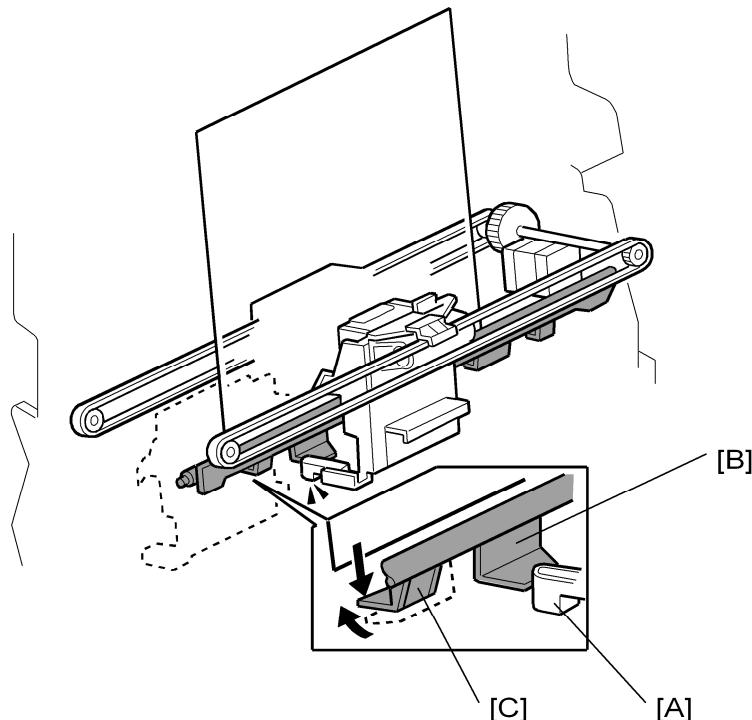
At the start of the set, the upper retraction motor [A] turns on, and stopper S [B] moves down into position to catch the paper ①. The upper retraction motor also moves the upper clamp roller [C] into contact with the stack ②.

Stacking for Booklet Stapling



When the stack is complete, stopper S moves away [D], and the machine feeds the stack to the correct position for stapling. To do this, the upper clamp roller motor [E] rotates the upper clamp roller.

2.9.3 LONGER THAN 8.5 X 14 INCHES



At the start of the set, the stapler moves to the center position. At this position, a bracket [A] on the stapler unit pushes stopper L [B]. The pawl [C] on the stopper L assembly then moves into position to catch the paper. The upper clamp roller holds the stack (see the

Stacking for Booklet Stapling

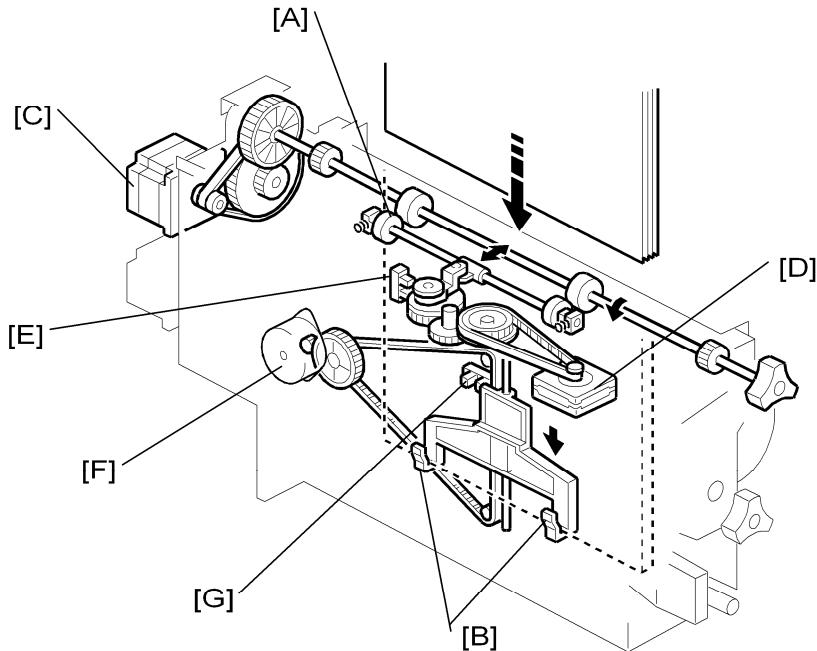
previous section).

When the stack is complete, the stapler moves to the rear-side position, and stopper L moves away. The machine feeds the stack to the correct position for stapling.



Moving the Stack to the Folding Position

2.10 MOVING THE STACK TO THE FOLDING POSITION



First, the upper clamp roller feeds the stack down after the stack has been stapled. When the lower clamp roller [A] catches the stack, the upper clamp roller stops, and the lower clamp roller feeds the stack down.

The lower clamp roller is released just before the leading edge of the stack reaches the bottom fence [B] (this fence consists of two pawls that catch the paper). The bottom fence moves the stack to the folding position

The fold roller motor [C] turns the lower clamp roller.

The lower retracting motor [D] moves the lower clamp roller against and away from the stack. The lower clamp roller HP sensor [E] detects when the lower clamp roller is moved to the home position.

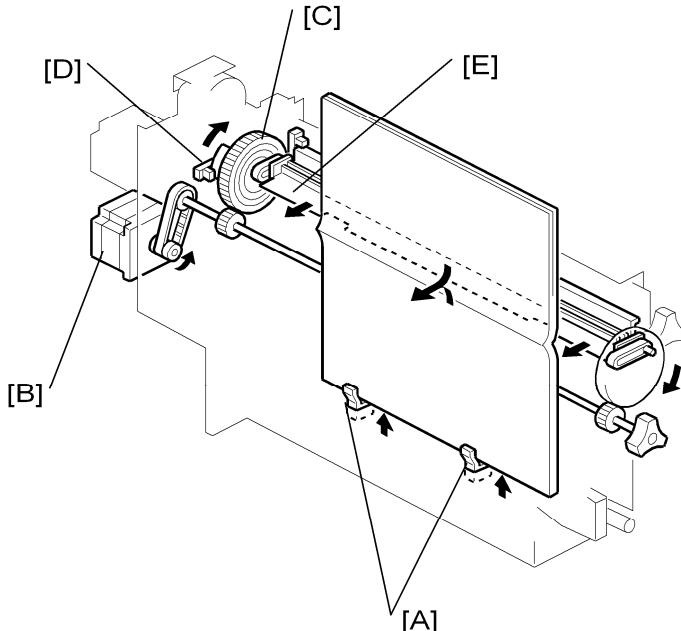
The bottom fence lift motor [F] moves the bottom fence up and down. The bottom fence HP sensor [G] detects when the bottom fence is at home position.

2.11 FOLDER

2.11.1 OVERVIEW

The fold plate pushes the stack into the nip between the fold rollers. The fold rollers feed out the stack, then reverse to feed it back in again. Then, the fold rollers feed the stack out of the folder, to the booklet tray.

2.11.2 FOLD PLATE



Booklet
Finisher
B793

[A]: Bottom Fence Stack Stoppers. Catches the stack after it is released by the clamp rollers.

[B]: Fold Plate Motor. Drives the timing belt and gears that move the fold plate.

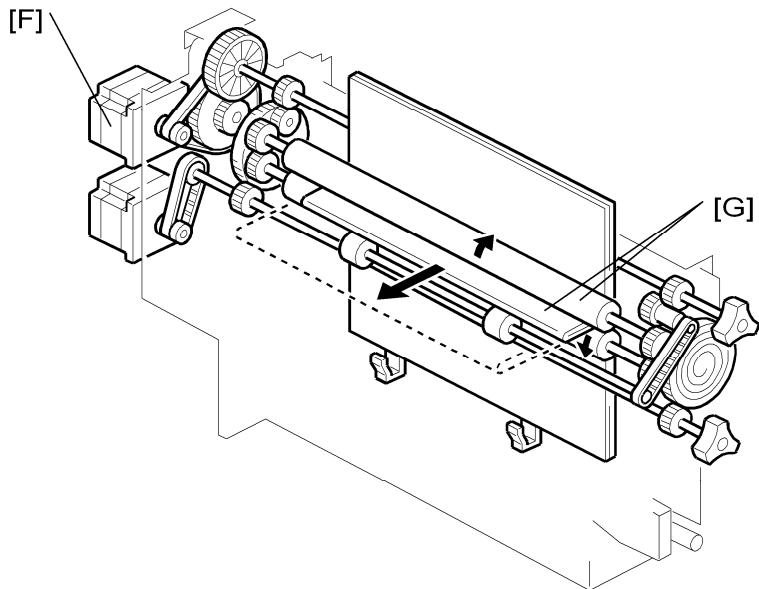
[C]: Fold Plate Cam. Controls the movement of the fold plate to the left (into the nip of the fold rollers) and right (toward the fold plate home position).

[D]: Fold Plate HP Sensor. Controls operation of the fold plate motor.

[E]: Fold Plate. Moves left and pushes the stack into the nip of the fold rollers and then moves right to retract.

Folder

2.11.3 FOLD ROLLERS



[F]: Fold Roller Motor. Drives forward to feed out the stack at the fold, and then drives forward again to feed out the folded stack.

Note

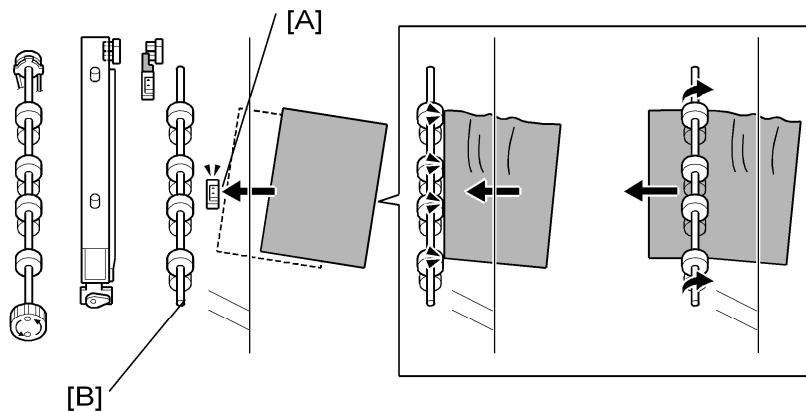
- This cycle can be repeated by changing the setting of SP6136.

[G]: Fold Rollers. Driven by the fold roller motor, this roller pair feeds out the stack at its fold, reverses to feed in the stack to, and then feeds forward again (assisted by the fold unit exit rollers – not shown) to feed out the stack to the lower tray.

2.12 PUNCH UNIT

2.12.1 OVERVIEW OF OPERATION

Skew Correction Before Punching



The finisher entrance roller corrects for paper skew and then the punch unit moves across to punch the holes at the correct position. Each sheet is punched one at a time.

Paper feeds out of the copier. The finisher entrance sensor [A] detects the leading edge of the sheet.

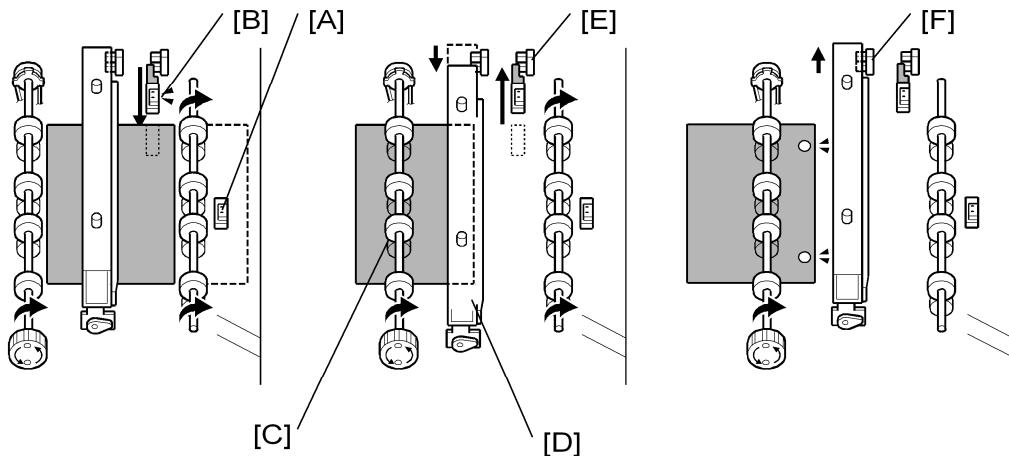
The finisher entrance roller [B] stops rotating briefly while the copier exit rollers continue to rotate. This buckles the paper against the finisher entrance roller to correct skew. The finisher entrance roller starts to rotate again and feeds the sheet into the finisher.

These SP codes adjust the skew operation in the punch unit:

- SP6130. This SP corrects the punch hole alignment. To do this, it corrects the skew of each sheet by adjusting the amount of time the finisher entrance roller remains off while the exit roller of the machine remains on. For more, see Section "5. Service Tables".
- SP6131. This SP determines whether the finisher entrance roller stops to correct skew when paper enters the finisher. You can use this SP to disable the skew correction. For more, see Section "5. Service Tables".

Punch Unit

Punch Unit Position Correction



These operations (skew correction before punching, and punch unit position correction) increase the accuracy of the punch alignment.

①

The trailing edge of the sheet passes the finisher entrance sensor [A].

The paper position slide unit moves the paper position sensor [B] forward to the edge of the paper.

The paper position sensor detects the position of the paper edge and sends this information to the punch unit board. The machine uses the detected position of the paper edge to calculate the correct position for punching.

The upper transport motor switches on and rotates the feed rollers [C] the prescribed distance to put the paper under the punch unit [D].

②

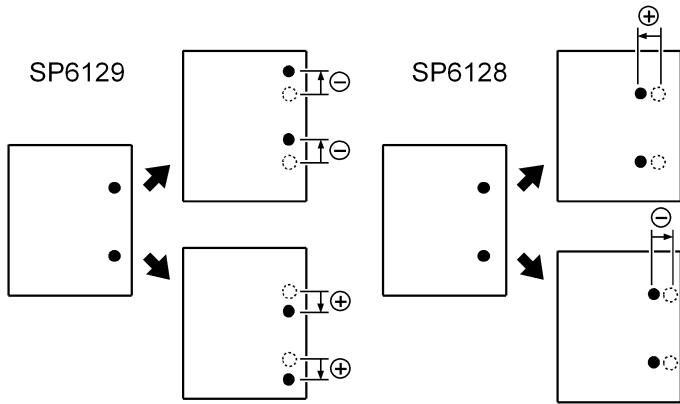
Using the result of the position calculation, the punch unit control board moves the punch unit [D] to the adjusted punch position.

The paper position slide unit and its paper sensor, move back to the paper position slide home position sensor [E], and the punch unit fires the punches to make the holes.

③

The feed rollers feed the punched paper out of the punch unit and into the paper path. The punch unit moves back to home position (detected by the home position sensor [F]).

Punch Unit



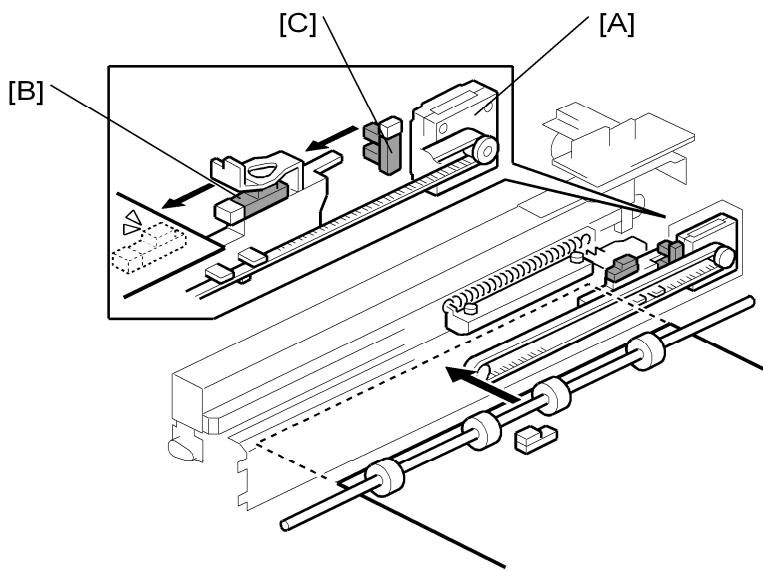
These SP codes adjust the punch hole alignment:

- SP6128 Adjusts the punch positions in the direction of paper feed.
- SP6129 Adjusts the punch position perpendicular to the direction of feed.

For more, see Section "5. Service Tables".

2.12.2 PAPER POSITION DETECTION

Booklet
Finisher
B793



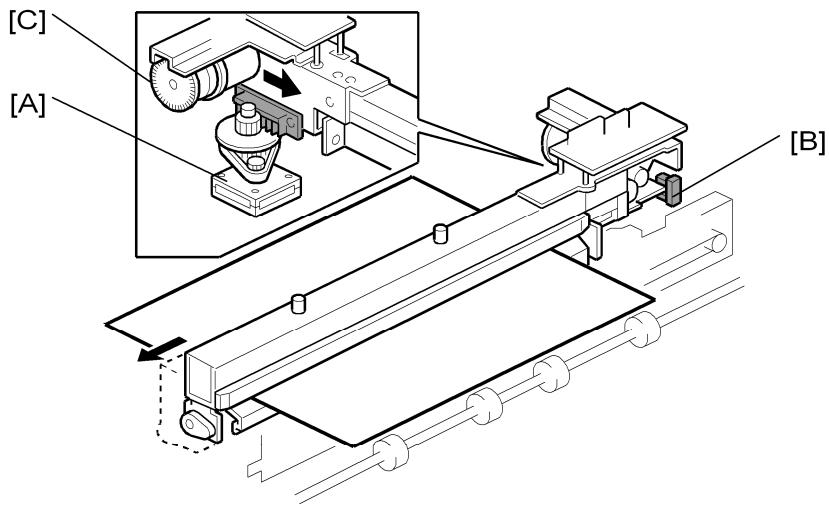
The paper position sensor slide motor [A] extends and retracts the paper position slide that holds the paper position sensor [B].

The paper position sensor detects the position of the paper edge. The detected position of the paper is used to move the punch unit across to the correct position for punching.

When the paper position slide is retracted, the paper position slide HP sensor [C] detects when the slider is at home position and stops paper position slide motor.

Punch Unit

2.12.3 PUNCH UNIT MOVEMENT

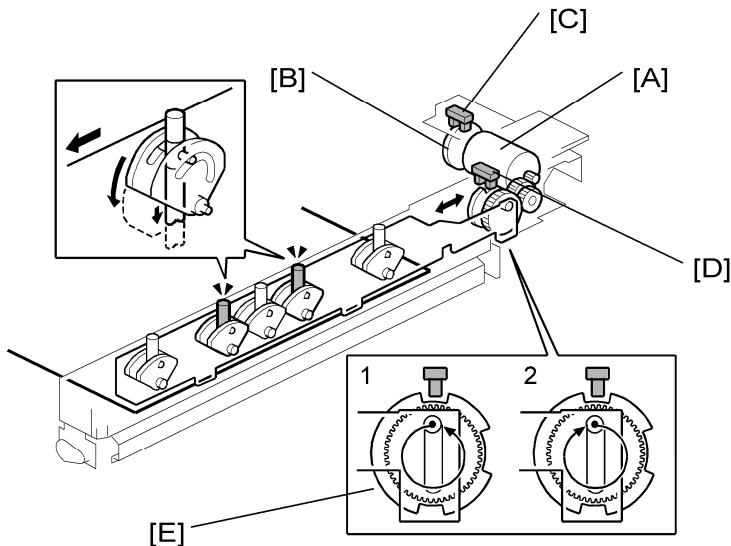


The punch movement motor [A] extends and retracts the punch unit to put it at the correct position for punching.

The punch movement HP sensor [B] detects the position when it retracts, switches off the punch movement motor, and stops the punch unit at its home position.

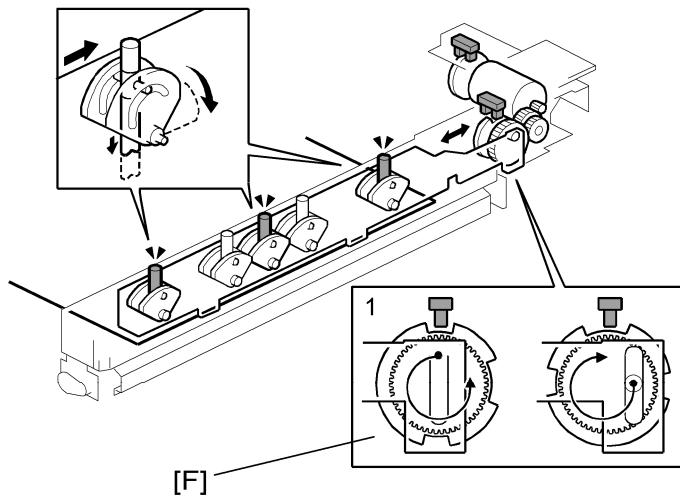
The punch drive motor [C] fires the punches that punch holes in the paper below.

2.12.4 PUNCH SELECTION AND FIRING



The punch drive motor [A] turns the small, notched encoder wheel [B] through the gap in the punch encoder sensor [C]. The sensor output is used to control the punch timing.

Punch Unit



The timing for 2-hole punching [E] is different from 3-hole punching [F].

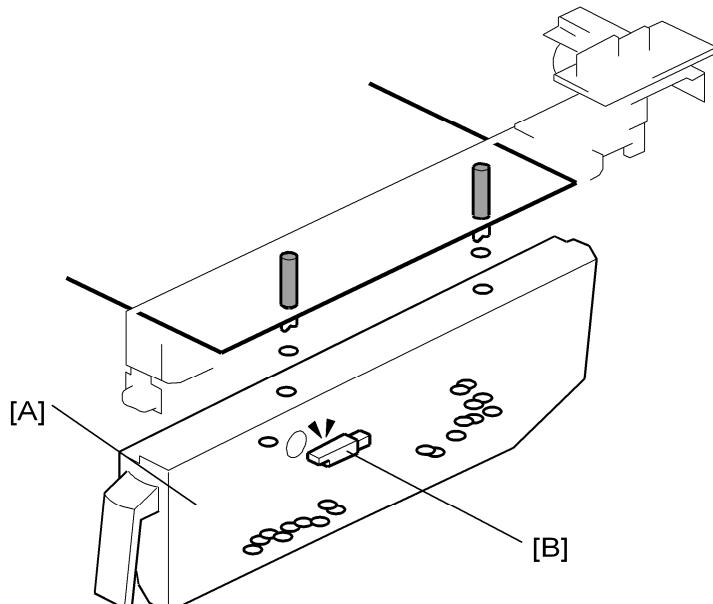
When the punch unit is at the punching position, the punch motor turns until the encoder detects the starting position for 2-hole or 3-hole punching.

- This is the '1' position in the diagrams (the first diagram is for 2-hole punching, and the second diagram is for 3-hole punching).

Then, the punch drive motor turns counter-clockwise to the '2' position. This movement punches the holes in the paper.

Then, the punch drive motor turns clockwise to the '1' position, to be ready for the next sheet of paper.

2.12.5 PUNCH HOPPER MECHANISM



The punchouts fall from the punch unit into the punch hopper [A].

Punch Unit

The punch hopper full sensor [B] does the following:

- Signals that the hopper is full when it detects the top of the stack of punchouts that have collected in the hopper.
- Detects when the punch hopper is set properly.

PAPER TRAY UNIT PB3030
D331

PAPER TRAY UNIT PB3030 D331

TABLE OF CONTENTS

| | |
|---|----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 COVERS AND ROLLER..... | 1 |
| 1.1.1 COVERS..... | 1 |
| 1.1.2 FEED ROLLER | 2 |
| 1.2 DRIVE COMPONENTS | 3 |
| 1.2.1 UPPER FEED CLUTCH..... | 3 |
| 1.2.2 LOWER FEED CLUTCH..... | 3 |
| 1.2.3 RELAY CLUTCH..... | 4 |
| 1.2.4 PAPER FEED MOTOR..... | 4 |
| 1.2.5 LIFT MOTORS..... | 5 |
| 1.3 ELECTRICAL COMPONENTS | 6 |
| 1.3.1 VERTICAL TRANSPORT SENSOR | 6 |
| 1.3.2 PAPER END SENSOR | 7 |
| 1.3.3 PAPER SIZE SENSORS | 7 |
| 1.3.4 TRAY MAIN BOARD..... | 8 |
| 2. DETAILED SECTION DESCRIPTIONS | 9 |
| 2.1 COMPONENT LAYOUT | 9 |
| 2.1.1 MECHANICAL COMPONENT LAYOUT | 9 |
| 2.1.2 ELECTRICAL COMPONENT LAYOUT | 10 |
| 2.1.3 ELECTRICAL COMPONENT DESCRIPTION | 10 |
| 2.1.4 DRIVE LAYOUT | 13 |
| 2.2 PAPER FEED AND SEPARATION MECHANISM | 14 |
| 2.3 PAPER LIFT MECHANISM..... | 15 |
| 2.4 PAPER END DETECTION..... | 17 |
| 2.5 PAPER HEIGHT DETECTION..... | 18 |
| 2.6 PAPER SIZE DETECTION | 19 |
| 2.7 SIDE AND END FENCES | 21 |
| 2.7.1 SIDE FENCES | 21 |
| 2.7.2 END FENCE | 21 |

Read This First

Safety and Symbols

Replacement Procedure Safety



- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

☞: See or Refer to

镙: Screws

接: Connector

环: Clip ring

O: E-ring

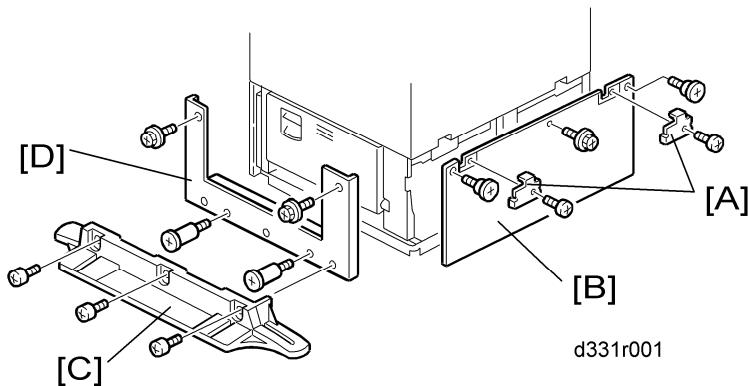
1. REPLACEMENT AND ADJUSTMENT

1.1 COVERS AND ROLLER

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

1.1.1 COVERS



Rear Cover

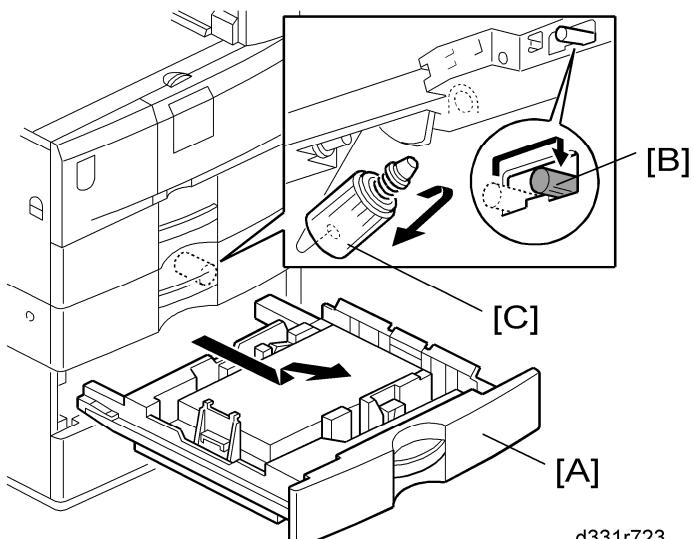
1. Hold brackets [A] ($\frac{1}{4}$ x 1 each)
2. Rear cover [B] ($\frac{1}{4}$ x 3)

Right Cover

1. Right side stopper [C] ($\frac{1}{4}$ x 3)
2. Right cover [D] ($\frac{1}{4}$, knob screw x 2)

Covers and Roller

1.1.2 FEED ROLLER



d331r723

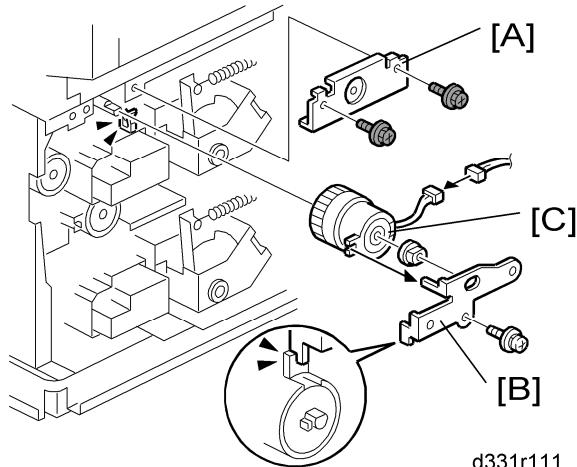
1. Pull out the tray [A].
2. Release the lock lever [B].
3. Feed roller [C]

1.2 DRIVE COMPONENTS

⚠ CAUTION

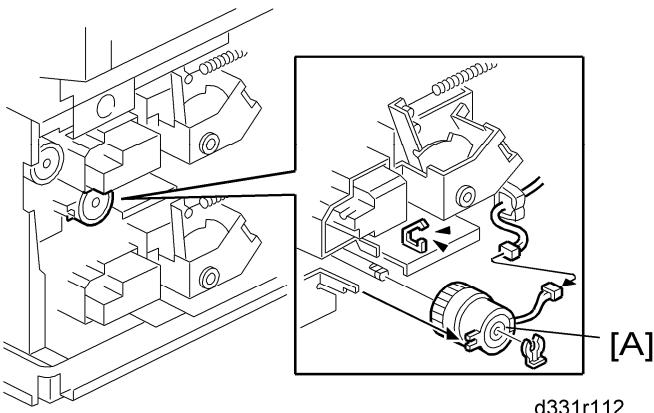
- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

1.2.1 UPPER FEED CLUTCH



1. Rear cover (➡ "Covers")
2. Bracket [A] (⚡ x 2)
3. Hold bracket [B] (⚡ x 1, bushing x 1)
4. Upper feed clutch [C] (➡ x 1)

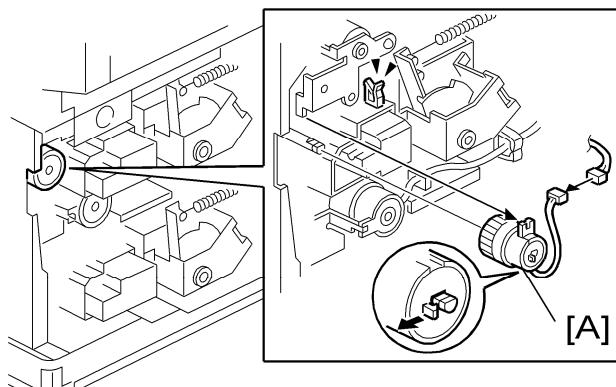
1.2.2 LOWER FEED CLUTCH



1. Rear cover (➡ "Covers")
2. Lower feed clutch [A] (⌚ x 1, ⚡ x 1, ➡ x 1)

Drive Components

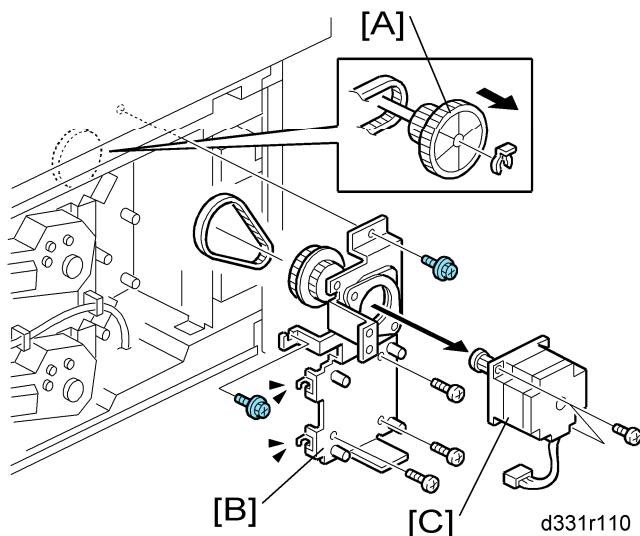
1.2.3 RELAY CLUTCH



d331r102

1. Rear cover (☞ "Covers")
2. Relay clutch [A] (☞ x 1, ☜ x 1)

1.2.4 PAPER FEED MOTOR

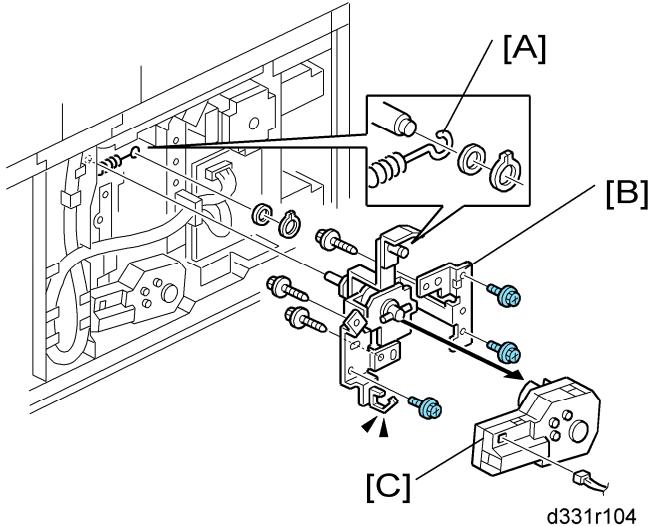


d331r110

1. Rear cover (☞ "Covers")
2. Tray main board (☞ "Tray Main Board")
3. Gear [A] (☞ x 1)
4. Paper feed motor bracket [B] (☞ x 5)
5. Paper feed motor [C] (☞ x 2)

1.2.5 LIFT MOTORS

Upper Lift Motor



Paper Tray
Unit PB3030
D331

1. Rear cover (☞ "Covers")
2. Spring [A] (snap ring x 1, spacer x 1)
3. Lift motor bracket [B] (☞ x 3, ☐ x 1)
4. Upper lift motor [C] (☞ x 3)

Lower Lift Motor

1. Rear cover (☞ "Covers")
2. Spring (snap ring x 1, spacer x 1)
3. Lift motor bracket (☞ x 4, ☐ x 1)
4. Lower lift motor (☞ x 3)

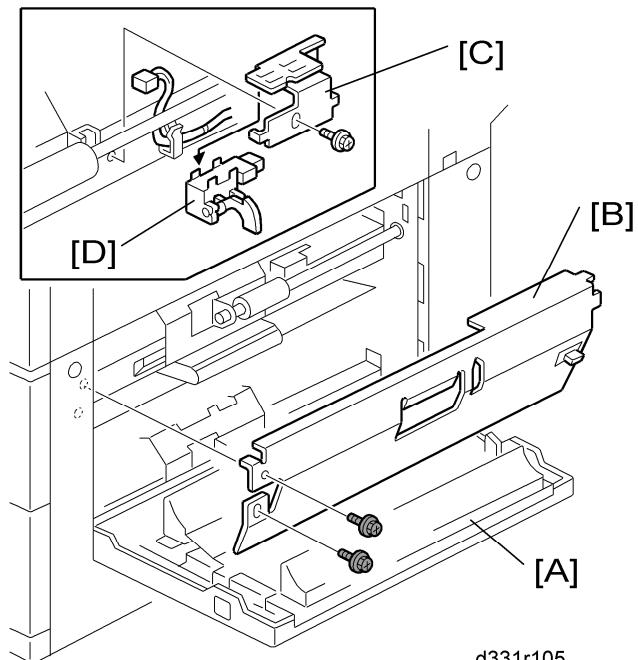
Electrical Components

1.3 ELECTRICAL COMPONENTS

CAUTION

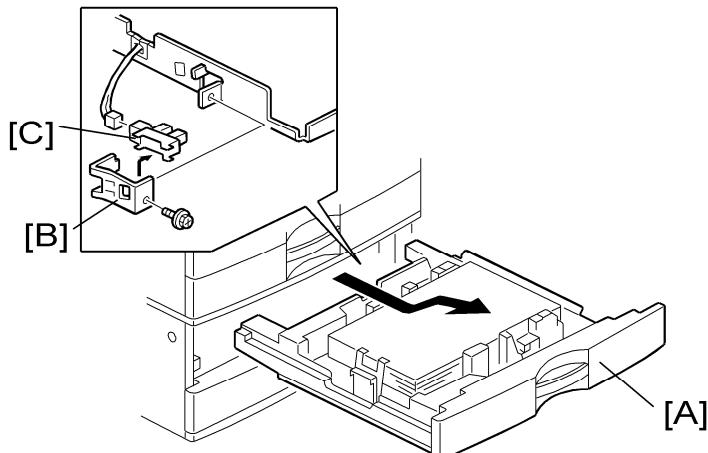
- Turn off the main power switch and unplug the machine before beginning any of the procedures in this section.

1.3.1 VERTICAL TRANSPORT SENSOR



1. Open the tray cover [A]
2. Guide plate [B] ($\frac{1}{4}$ x 2)
3. Sensor bracket [C] ($\frac{1}{4}$ x 1, $\frac{1}{4}$ x 1)
4. Vertical transport sensor [D] (hooks)

1.3.2 PAPER END SENSOR

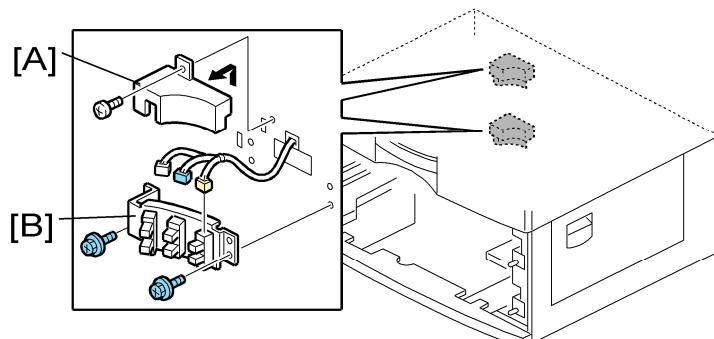


Paper Tray
Unit PB3030
D331

d331r106

1. Pull out the tray [A]
2. Sensor bracket [B] (\wedge x 1, \square x 1)
3. Paper end sensor [C] (hooks)

1.3.3 PAPER SIZE SENSORS

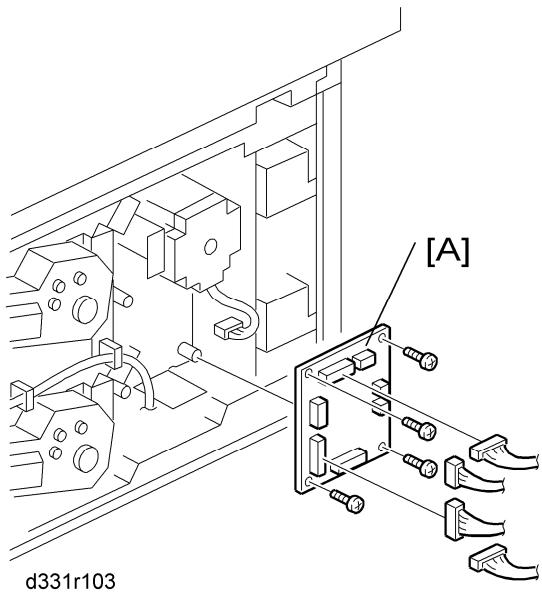


d331r108

1. Pull out the two trays.
2. Sensor bracket cover [A] (\wedge x 1)
3. Sensor bracket [B] (\square x 3, \wedge x 2)
4. Paper size sensors (hooks)

Electrical Components

1.3.4 TRAY MAIN BOARD

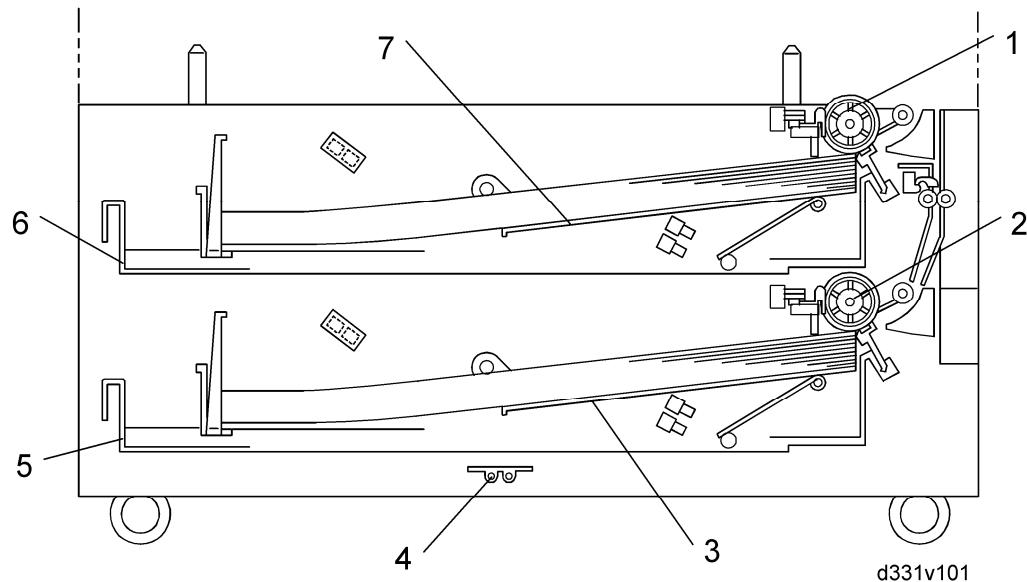


1. Rear cover (☞ "Covers")
2. Tray main board [A] ($\frac{1}{8}$ x 4, all \square 's)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT

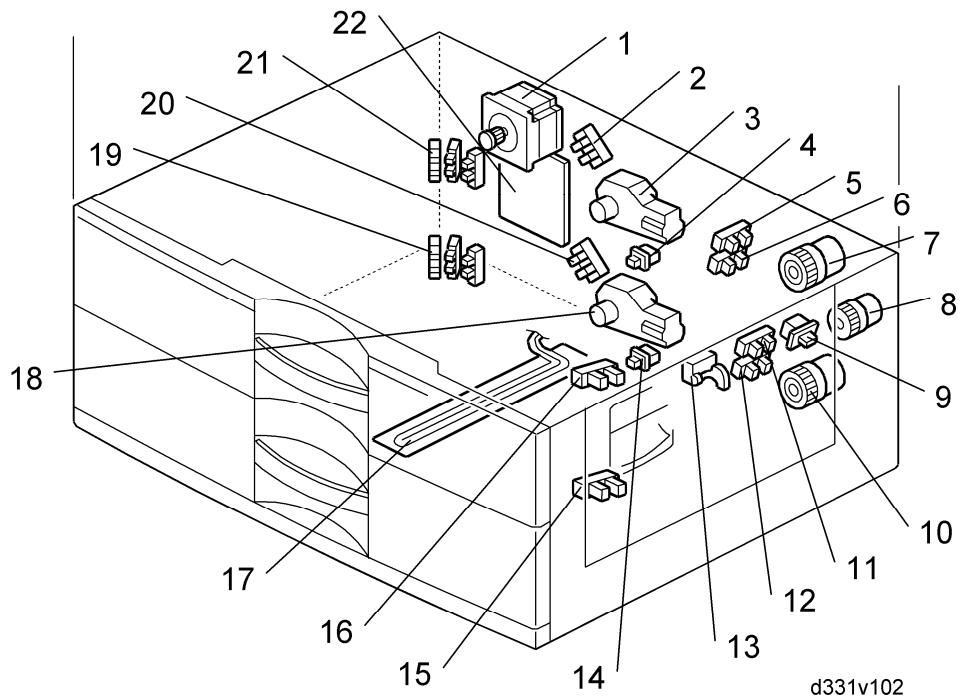


Paper Tray
Unit PB3030
D331

- | | |
|----------------------------|-----------------------|
| 1. Upper paper feed roller | 5. Lower tray |
| 2. Lower paper feed roller | 6. Upper tray |
| 3. Lower bottom plate | 7. Upper bottom plate |
| 4. Optional tray heater | |

Component Layout

2.1.2 ELECTRICAL COMPONENT LAYOUT



| | |
|---------------------------------|---------------------------------|
| 1. Paper feed motor | 12. Lower paper height 1 sensor |
| 2. Upper lift sensor | 13. Vertical transport sensor |
| 3. Upper lift motor | 14. Lower tray set switch |
| 4. Upper tray set switch | 15. Lower paper end sensor |
| 5. Upper paper height 2 sensor | 16. Upper paper end sensor |
| 6. Upper paper height 1 sensor | 17. Optional tray heater |
| 7. Upper paper feed clutch | 18. Lower lift motor |
| 8. Relay clutch | 19. Lower paper size sensors |
| 9. Tray cover switch | 20. Lower lift sensor |
| 10. Lower paper feed clutch | 21. Upper paper size sensors |
| 11. Lower paper height 2 sensor | 22. Tray main board |

2.1.3 ELECTRICAL COMPONENT DESCRIPTION

| Symbol | Name | Function | Index No. |
|--------|------|----------|-----------|
| | | | |

Component Layout

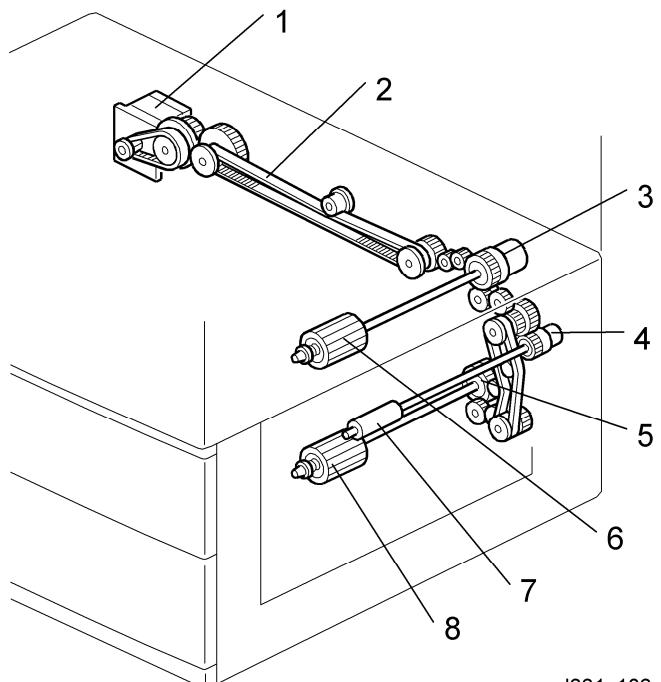
| Motors | | | |
|----------------|----------------------|---|----|
| M1 | Paper Feed | Drives all rollers. | 1 |
| M2 | Upper Lift | Lifts the upper tray bottom plate. | 3 |
| M3 | Lower Lift | Lifts the lower tray bottom plate. | 18 |
| | | | |
| Sensors | | | |
| S1 | Upper Lift | Detects when the paper in the upper tray is at the correct feed height. | 2 |
| S2 | Lower Lift | Detects when the paper in the lower tray is at the correct feed height. | 20 |
| S3 | Upper Paper End | Informs the copier/printer when the upper tray runs out of paper. | 16 |
| S4 | Lower Paper End | Informs the copier/printer when the lower tray runs out of paper. | 15 |
| S5 | Vertical Transport | Detects misfeeds. | 13 |
| S6 | Upper Paper Height 1 | Detects the amount of paper in the upper tray. | 6 |
| S7 | Upper Paper Height 2 | Detects the amount of paper in the upper tray. | 5 |
| S8 | Lower Paper Height 1 | Detects the amount of paper in the lower tray. | 12 |
| S9 | Lower Paper Height 2 | Detects the amount of paper in the lower tray. | 11 |
| S10 | Upper Paper Size | Determines what paper size is in the upper tray. | 21 |
| S11 | Lower Paper | Determines what paper size is in the lower tray. | 19 |

Paper Tray
 Unit PB3030
 D331

Component Layout

| | Size | | |
|--------------------------|----------------------|--|----|
| | | | |
| Switches | | | |
| SW1 | Tray Cover | Detects whether the tray cover is opened or not. | 9 |
| SW2 | Upper Tray Set | Detects whether the upper tray is opened or not. | 4 |
| SW3 | Lower Tray Set | Detects whether the lower tray is opened or not. | 14 |
| | | | |
| Magnetic Clutches | | | |
| MC1 | Upper Paper Feed | Starts paper feed from the upper tray. | 7 |
| MC2 | Lower Paper Feed | Starts paper feed from the lower tray. | 10 |
| MC3 | Relay | Drives the relay rollers. | 8 |
| | | | |
| PCBs | | | |
| PCB1 | Tray Main | Controls the paper tray unit and communicates with the copier/printer. | 22 |
| | | | |
| Others | | | |
| H1 | Optional Tray Heater | Removes humidity from the paper in the trays. | 17 |
| | | | |

2.1.4 DRIVE LAYOUT



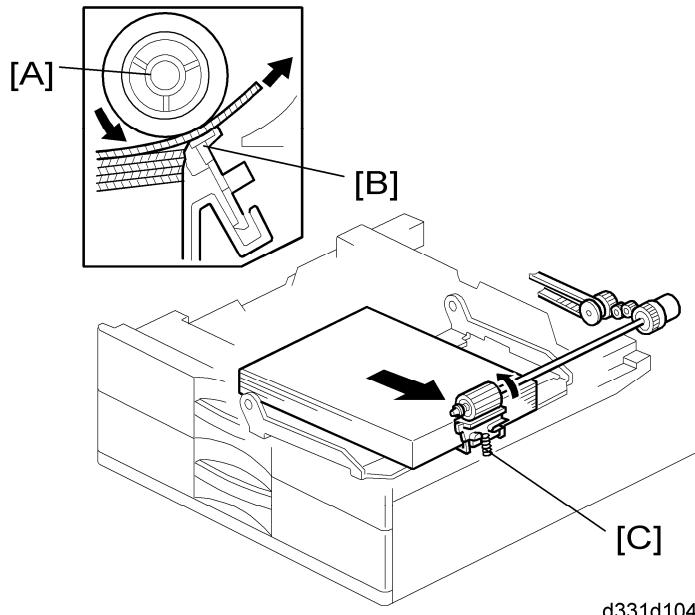
Paper Tray
Unit PB3030
D331

d331v103

- | | |
|----------------------------|----------------------------|
| 1. Paper feed motor | 5. Lower paper feed clutch |
| 2. Drive belt | 6. Upper paper feed roller |
| 3. Upper paper feed clutch | 7. Relay roller |
| 4. Relay clutch | 8. Lower paper feed roller |

Paper Feed and Separation Mechanism

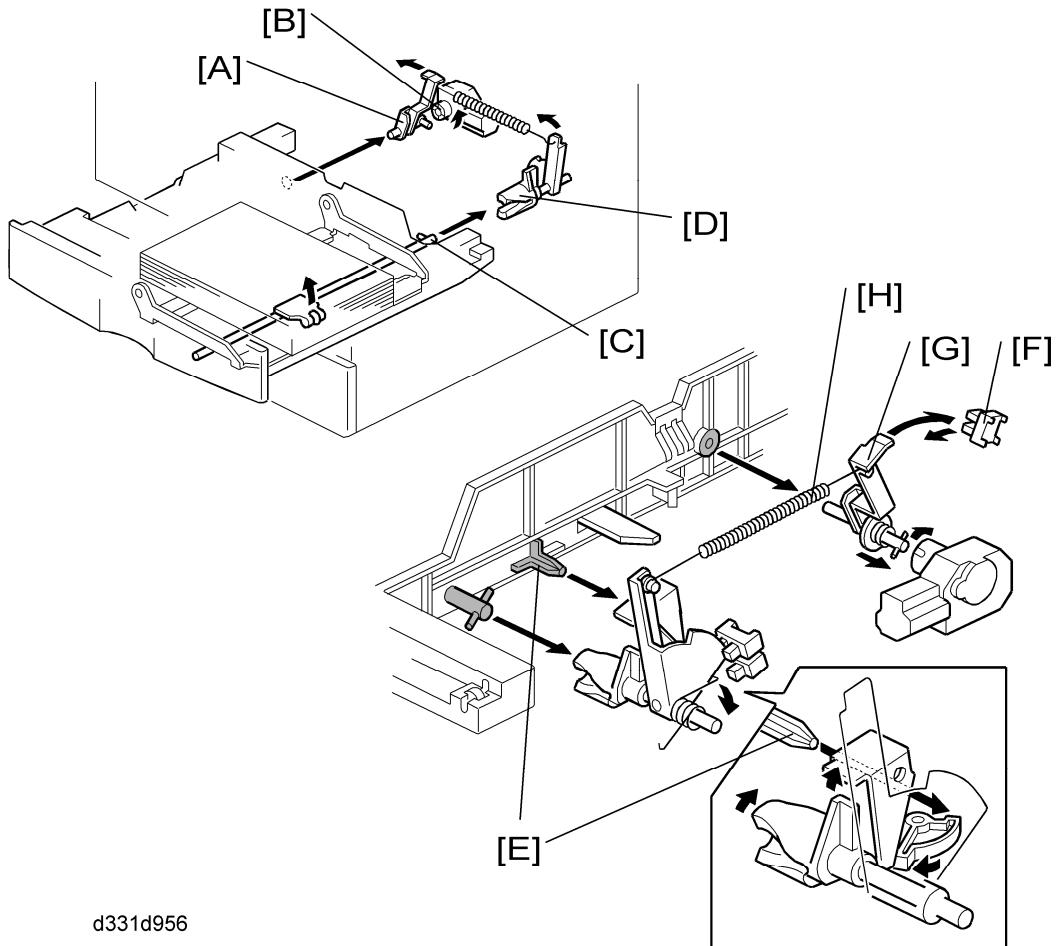
2.2 PAPER FEED AND SEPARATION MECHANISM



d331d104

The paper tray holds 500 sheets. The paper feed roller [A] drives the top sheet of paper from the paper tray to the copier/printer. The friction pad [B] allows only one sheet to feed at a time. The friction pad applies pressure to the feed roller with a spring [C].

2.3 PAPER LIFT MECHANISM



Paper Tray
Unit PB3030
D331

The paper size switch detects when the tray is pushed in.

When the paper tray is pushed into the machine, the pin [A] for the lift motor pressure shaft engages the lift motor coupling [B] and the pin [C] for the bottom plate lift shaft in the tray engages the bottom plate pressure lever coupling [D]. The pin [E] on the rear of the tray pushes the lock lever so that the lift motor can lift the bottom plate pressure lever.

The lift motor turns on, and turns clockwise as viewed on the diagram. The main pressure spring [H] pulls the bottom plate pressure lever, and this lifts the tray bottom plate.

When the top of the stack touches the feed roller, the motor cannot pull up the plate any more, so it pulls the actuator [G] into the lift sensor [F].

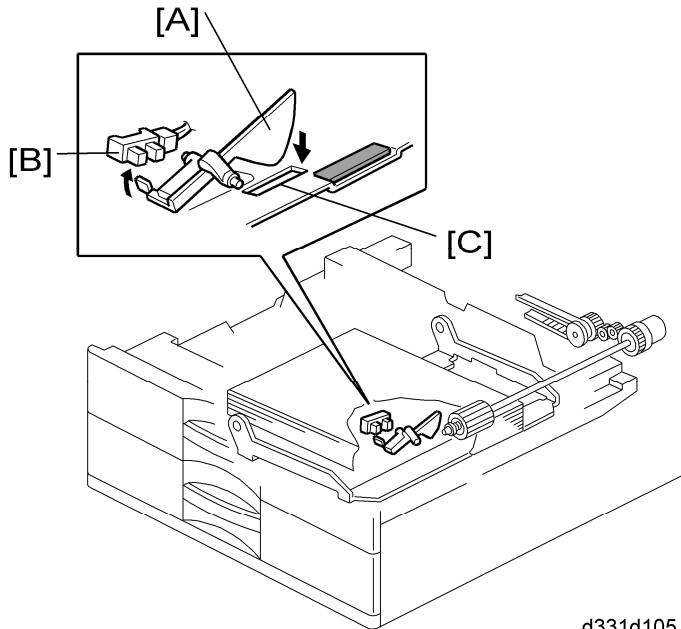
The pressure of the feed roller on the paper is now too high, so the lift motor reverses to reduce this pressure. It reverses for 300 ms or 600 ms, depending on the paper size. For smaller paper, it reverses the larger amount (600 ms) to reduce the pressure more.

When the paper tray is pulled out, the pins [A, C] disengage from the couplings [B, D], and

Paper Lift Mechanism

the bottom plate drops. To make it easier to push the tray in, the lift motor rotates backwards 1.7 seconds to return the bottom plate pressure lever coupling [D] to the original position.

2.4 PAPER END DETECTION



Paper Tray
Unit PB3030
D331

d331d105

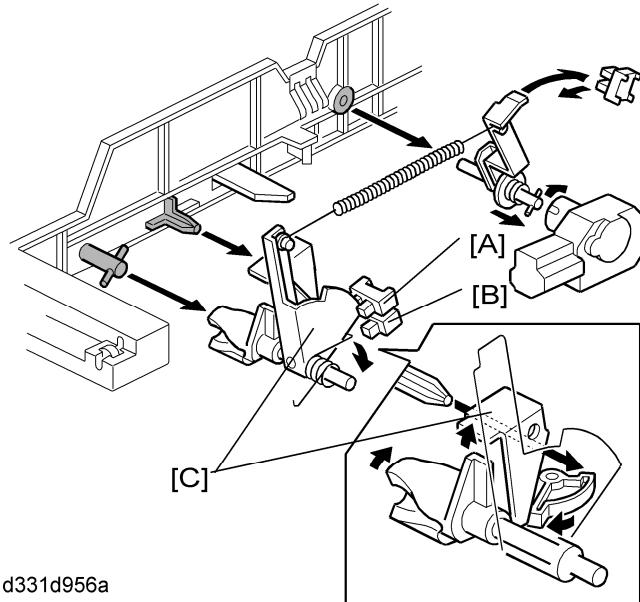
If there is some paper in the paper tray, the paper stack raises the paper end feeler [A] and the paper end sensor [B] is deactivated.

When the paper tray runs out of paper, the paper end feeler drops into the cutout [C] in the tray bottom plate and the paper end sensor is activated.

When the paper tray is drawn out with no paper in the tray, the shape of the paper end feeler causes it to lift up.

Paper Height Detection

2.5 PAPER HEIGHT DETECTION



The amount of paper in the tray is detected by the combination of on/off signals from two paper height sensors [A] and [B].

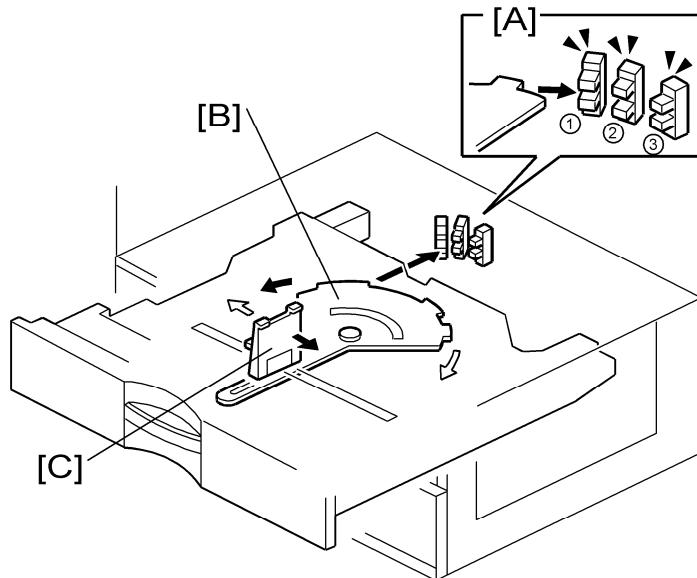
When the amount of paper decreases, the bottom plate pressure lever [C] moves the actuator up.

The following combination of sensor signals is sent to the copier/printer.

| Amount of Paper | Paper Height Sensor 1 | Paper Height Sensor 2 |
|-----------------|-----------------------|-----------------------|
| Near End | OFF | ON |
| 30% | ON | ON |
| 70% | ON | OFF |
| 100% | OFF | OFF |

When the tray contains paper of a small width, the paper feed pressure may become too low when the thickness of the remaining stack of paper has decreased. The lift motor rotates forward 300 ms after the sensor detects a certain amount of paper remaining in the tray to increase paper feed pressure, simulating the pressure generated by a full tray.

2.6 PAPER SIZE DETECTION



d331d108

Paper Tray
Unit PB3030
D331

There are three paper size sensors [A] (SN1, SN2 and SN3) on the paper tray unit. Each paper tray has its own actuator [B], with a unique combination of notches. This actuator is moved when the paper end fence [C] is adjusted for the installed paper. To determine which size has been installed, the CPU reads which paper size sensors the actuator has switched off. Refer to the size detection lists as shown below.

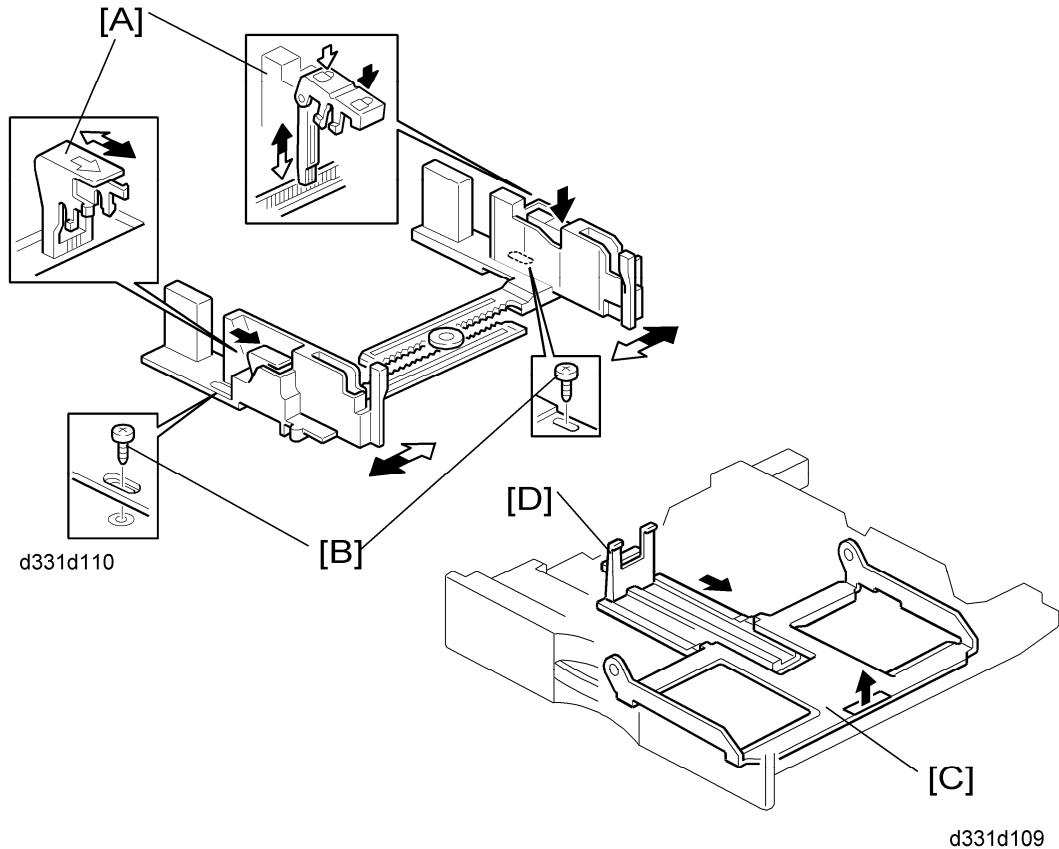
| EU/ AISA Size | | SN1 | SN2 | SN3 | SP Setting |
|---------------|-----------|-----|-----|-----|-------------------------|
| A6 SEF | 148 x 105 | OFF | ON | OFF | A5 LEF |
| B5 LEF | 182 x 257 | ON | OFF | ON | B6 SEF/ Exe LEF |
| A4 LEF | 210 x 297 | ON | ON | OFF | LT LEF/ A5 SEF/ HLT SEF |
| B5 SEF | 257 x 182 | OFF | OFF | ON | |
| LT SEF | 279 x 216 | OFF | OFF | OFF | |
| A4 SEF | 297 x 210 | ON | OFF | OFF | LG SEF |
| B4 SEF | 364 x 257 | ON | ON | ON | |

Paper Size Detection

| | | | | | |
|---------|----------------|------------|------------|------------|----------------------------|
| A3 SEF | 420 x 297 | OFF | ON | ON | DLT SEF |
| | NA Size | SN1 | SN2 | SN3 | SP Setting |
| A6 SEF | 148 x 105 | OFF | ON | OFF | A5 LEF |
| B5 LEF | 182 x 257 | ON | OFF | ON | Exe LEF/ B6 SEF |
| LT LEF | 210 x 297 | ON | ON | OFF | A4 LEF/ A5 SEF/ HLT SEF |
| B5 SEF | 257 x 182 | OFF | OFF | ON | |
| LT SEF | 279 x 216 | OFF | OFF | OFF | |
| A4 SEF | 297 x 210 | ON | OFF | OFF | |
| LG SEF | 364 x 257 | ON | ON | ON | |
| DLT SEF | 420 x 297 | OFF | ON | ON | A3 SEF |

The CPU disables paper feed from a tray if the paper size cannot be detected. If the paper size actuator is broken, or if there is no tray installed, the Add Paper indicator will light.

2.7 SIDE AND END FENCES



Paper Tray
Unit PB3030
D331

2.7.1 SIDE FENCES

If the tray is full of paper and it is pushed in strongly, the fences may deform or bend. This may cause the paper to skew or the side-to-side registration to be incorrect. To correct this, each side fence has a stopper [A] attached to it. Each side fence can be secured with a screw [B], for customers who do not want to change the paper size.

2.7.2 END FENCE

As the amount of paper in the tray decreases, the bottom plate [C] lifts up gradually. The end fence [D] is connected to the bottom plate. When the tray bottom plate rises, the end fence moves forward and pushes the back of the paper stack to keep it squared up.

FAX OPTION TYPE 3350
D361

FAX OPTION TYPE 3350 D361

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. INSTALLATION | 1 |
| 1.1 INSTALLATION..... | 1 |
| 1.1.1 FAX UNIT (D361)..... | 1 |
| 1.1.2 G3 INTERFACE UNIT (D361)..... | 4 |
| 1.1.3 32 MB MEMORY (OPTION) | 7 |
| 1.1.4 HANDSET (B433)..... | 8 |
| 2. REPLACEMENT AND ADJUSTMENT | 10 |
| 2.1 FCU..... | 10 |
| 3. TROUBLESHOOTING | 11 |
| 3.1 ERROR CODES | 11 |
| 3.2 IFAX TROUBLESHOOTING | 32 |
| 3.3 IP-FAX TROUBLESHOOTING | 37 |
| 3.3.1 IP-FAX TRANSMISSION | 37 |
| 3.3.2 IP-FAX RECEPTION | 40 |
| 4. SERVICE TABLE | 44 |
| 4.1 CAUTIONS | 44 |
| 4.2 SERVICE PROGRAM TABLES | 45 |
| 4.2.1 SP1-XXX (BIT SWITCHES)..... | 45 |
| 4.2.2 SP2-XXX (RAM DATA)..... | 46 |
| 4.2.3 SP3-XXX (TEL LINE SETTINGS)..... | 47 |
| 4.2.4 SP4-XXX (ROM VERSIONS)..... | 50 |
| 4.2.5 SP5-XXX (INITIALIZING)..... | 50 |
| 4.2.6 SP6-XXX (REPORTS) | 51 |
| 4.2.7 SP7-XXX (TEST MODES) | 54 |
| 4.2.8 SP9-XXX (DESIGN SWITCH MODE)..... | 55 |
| 4.3 BIT SWITCHES..... | 56 |
| 4.3.1 SYSTEM SWITCHES | 56 |
| 4.3.2 I-FAX SWITCHES..... | 72 |

| | |
|--|------------|
| 4.3.3 PRINTER SWITCHES | 81 |
| 4.3.4 COMMUNICATION SWITCHES | 90 |
| 4.3.5 G3 SWITCHES | 101 |
| 4.3.6 G3-2 AND G3-3 SWITCHES..... | 111 |
| 4.3.7 G4 INTERNAL SWITCHES..... | 120 |
| 4.3.8 G4 PARAMETER SWITCHES | 120 |
| 4.3.9 IP FAX SWITCHES..... | 121 |
| 4.4 NCU PARAMETERS..... | 129 |
| 4.5 DEDICATED TRANSMISSION PARAMETERS..... | 145 |
| 4.5.1 PROGRAMMING PROCEDURE | 145 |
| 4.5.2 PARAMETERS | 145 |
| 4.6 SERVICE RAM ADDRESSES | 155 |
| 5. DETAILED SECTION DESCRIPTIONS..... | 166 |
| 5.1 OVERVIEW..... | 166 |
| 5.2 BOARDS | 167 |
| 5.2.1 FCU | 167 |
| 5.2.2 MBU | 168 |
| 5.2.3 SG3 BOARD | 168 |
| 5.3 VIDEO DATA PATH..... | 170 |
| 5.3.1 TRANSMISSION..... | 170 |
| 5.3.2 RECEPTION | 172 |
| 5.4 FAX COMMUNICATION FEATURES | 173 |
| 5.4.1 MULTI-PORT | 173 |
| 5.4.2 DOCUMENT SERVER..... | 173 |
| 5.4.3 INTERNET MAIL COMMUNICATION..... | 174 |
| 5.5 IP-FAX | 184 |
| 5.5.1 WHAT IS IP-FAX? | 184 |
| 5.5.2 T.38 PACKET FORMAT | 184 |
| 5.5.3 SETTINGS | 184 |
| 6. SPECIFICATIONS..... | 185 |
| 6.1 GENERAL SPECIFICATIONS | 185 |
| 6.2 CAPABILITIES OF PROGRAMMABLE ITEMS | 187 |
| 6.3 IFAX SPECIFICATIONS | 188 |
| 6.4 IP-FAX SPECIFICATIONS..... | 189 |
| 6.5 FAX UNIT CONFIGURATION..... | 190 |

Read This First

Important Safety Notices

WARNING

- Never install telephone wiring during a lightning storm.
- Never install telephone jacks in wet locations unless the jack is specifically designed for wet locations.
- Never touch uninsulated telephone wires or terminals unless the telephone line has been disconnected at the network interface.
- Use caution when installing or modifying telephone lines.
- Avoid using a telephone (other than a cordless type) during an electrical storm. There may be a remote risk of electric shock from lightning.
- Do not use a telephone or cellular phone to report a gas leak in the vicinity of the leak.

CAUTION

- Before installing the fax unit, switch off the main switch, and disconnect the power cord.
- The fax unit contains a lithium battery. The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard batteries in accordance with the manufacturer's instructions and local regulations.

Note

- **Note for Australia:**
- Unit must be connected to Telecommunication Network through a line cord which meets the requirements of ACA Technical Standard TS008.

Symbols and Abbreviations

CONVENTIONS USED IN THIS MANUAL

This manual uses several symbols.

| Symbol | What it means |
|---|-------------------------|
|  | Refer to section number |
|  | Screw |

| | |
|--|-----------|
| | Connector |
| | E-ring |
| | Clip ring |
| | Clamp |



CAUTIONS, NOTES, ETC.

The following headings provide special information:

WARNING

- Failure to obey warning information could result in serious injury or death.

CAUTION

- Obey these guidelines to ensure safe operation and prevent minor injuries.

Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.
 - Always obey these guidelines to avoid serious problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine.
- bold** is added for emphasis.

Note

- This document provides tips and advice about how to best service the machine.

1. INSTALLATION

1.1 INSTALLATION

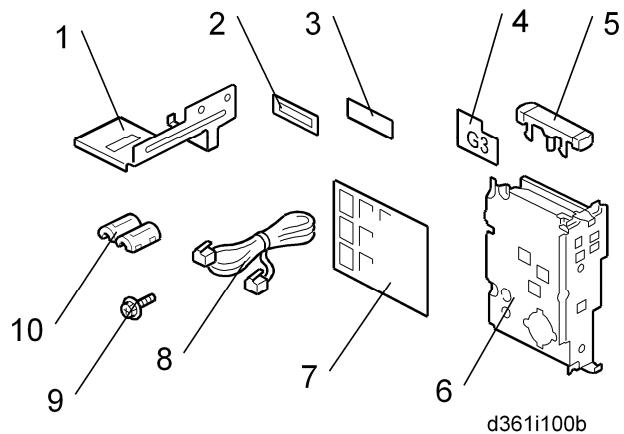
1.1.1 FAX UNIT (D361)

Accessory Check

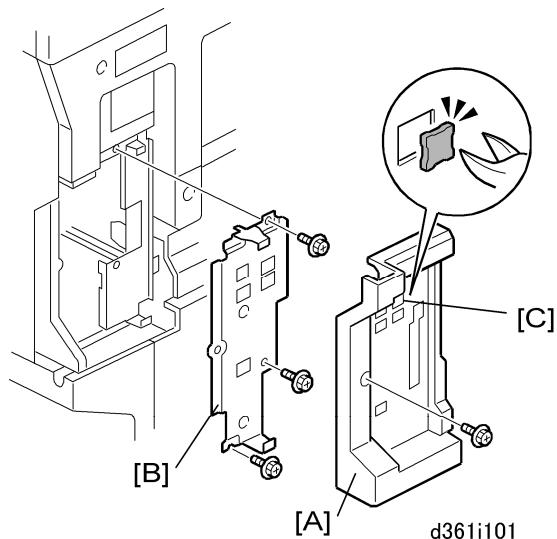
Check the quantity and condition of the accessories against the following list.

| No. | Description | Qty |
|-----|--|-----|
| 1. | Handset Bracket (NA only) | 1 |
| 2. | Serial Number Label | 1 |
| 3. | FCC Label (NA only) | 1 |
| 4. | G3 Decal | 1 |
| 5. | Fax Keytops | 2 |
| | Copy Keytops | 2 |
| 6. | Fax Unit | 1 |
| 7. | Data Display Overlay (for operation panel) | 2 |
| 8. | Telephone Cable (NA only) | 1 |
| 9. | Screw-M3x6 | 3 |
| 10. | Ferrite Core (NA Only) | 1 |

Installation



Fax Installation



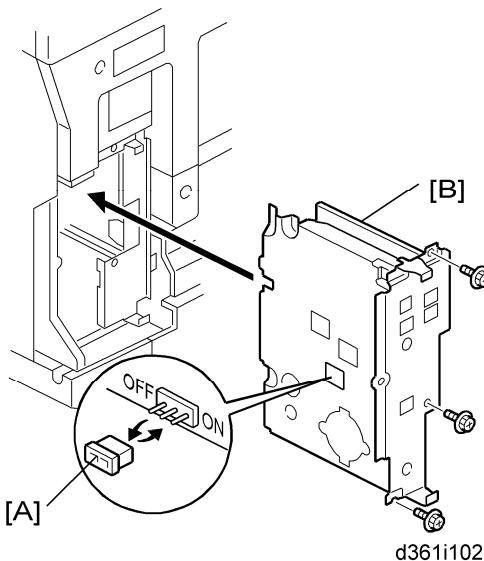
1. Remove:

[A] Application (plastic) cover (2 x1)

[B] Left cover plate (2 x1)

[C] Knockouts

- LINE 1 for Fax Unit
- If one G3 Unit will be installed, remove the knockout for LINE 1 and LINE 2.
- If two G3 Units will be installed, remove the knockouts for both LINE 1, LINE 2, and LINE 3



2. Through the window, remove the jumper [A] and set it to the ON position.
3. Press down the MBU.

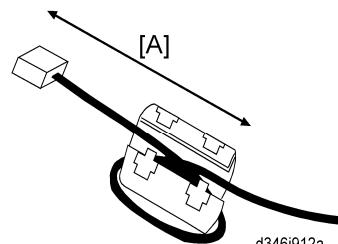
Note

- Make sure that the MBU is seated correctly. If not, SC672 occurs.

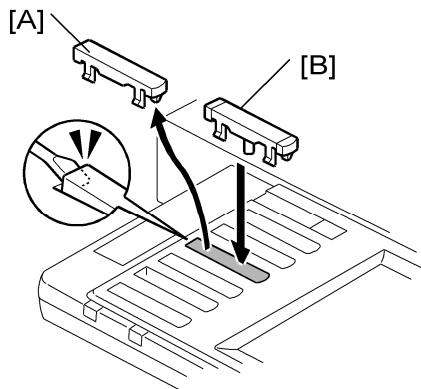
4. Remove the jumper [A] (set to OFF) and set it to ON.

Note

- The machine may issue SC819, SC820 if the jumper is not set to "ON" correctly.
 - (sometimes these SC codes are not issued.)
5. If the 32 MB Memory (option) will be installed, do this now. (→ "32 MB Memory (Option)")
 6. If one or two G3 interface units (options) will be installed, do this now. (→ "G3 Interface Unit (D361)")
 7. Slide the fax unit [B] into the machine and fasten it (↗ x3).
 8. Reattach the plastic application cover (↗ x1)
 9. Attach the Serial number label and FCC decal (NA only) to under the serial number decal in rear cover of the main body.
 10. **For NA models**, attach the ferrite core to the telephone cord. The end of the ferrite core must be about 5 cm (2.1") [A] from the end of the cable.
 11. Connect the telephone cord to the "LINE 1" jack.

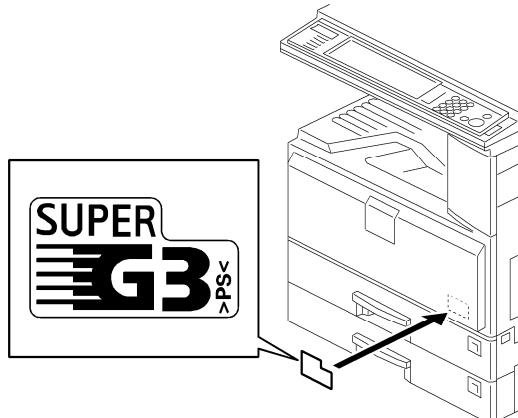


Installation



d361i105

12. Remove the dummy keytop [A] (3rd from the top) and replace it with a facsimile keytop [B].



b766i903

13. Attach the G3 decal to the front of the machine.
14. Connect the power cord to the machine.
15. Make sure that the plug is grounded properly at the power source.
16. Switch the machine on.

 **Note**

- If you see a message that tells you the SRAM has been formatted (due to a problem with SRAM), cycle the machine off/on to clear the message.

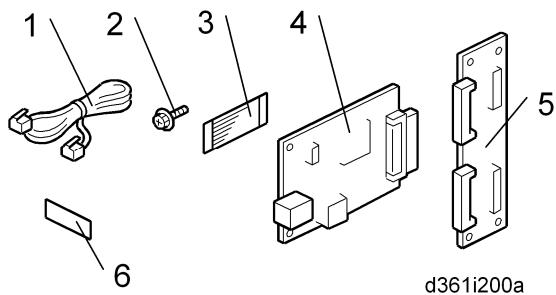
17. Check the clock settings (date and time) with the User Tools.

1.1.2 G3 INTERFACE UNIT (D361)

Accessory Check

Check the quantity and condition of the accessories against the following list.

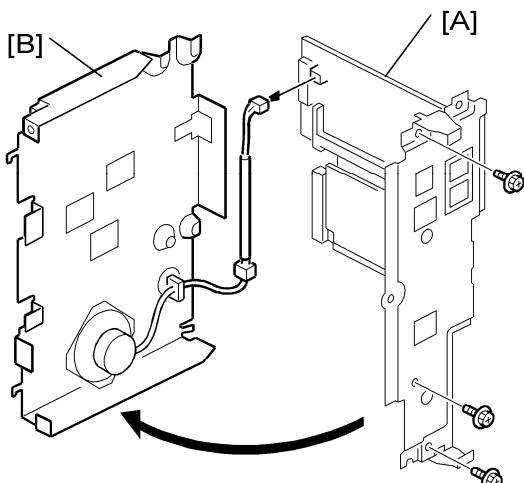
| No. | Description | Qty |
|-----|---------------------------|-----|
| 1. | Telephone Cable (NA) | 1 |
| 2. | Screws M3 x 6 | 6 |
| 3. | FFC (Flat Flexible Cable) | 1 |
| 4. | G3 Board | 1 |
| 5. | CCUIF | 1 |
| 6. | FCC Label (NA only) | 1 |



d361i200a

G3 Interface Installation

- If the fax unit is already installed in the machine, remove:
 - Application (plastic) cover (☞ x1) xref
 - FCU (☞ x3)

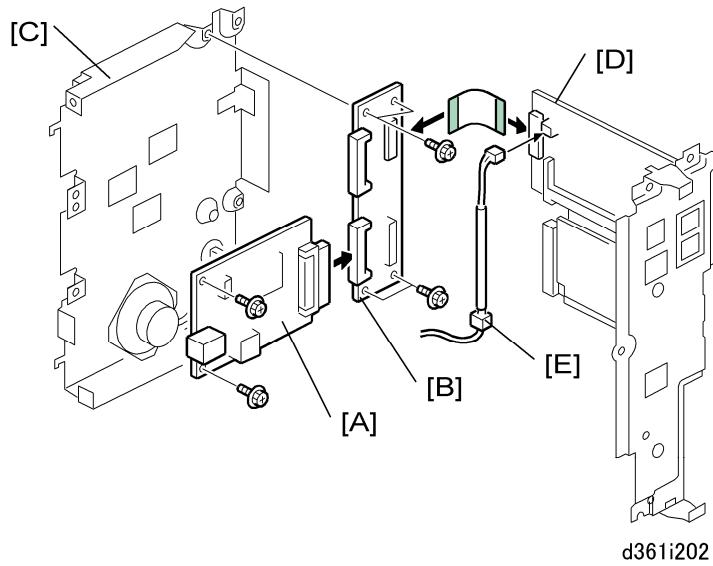


d361i201

- Separate the FCU [A] from its cover [B] (☞ x3, ☎ x1).

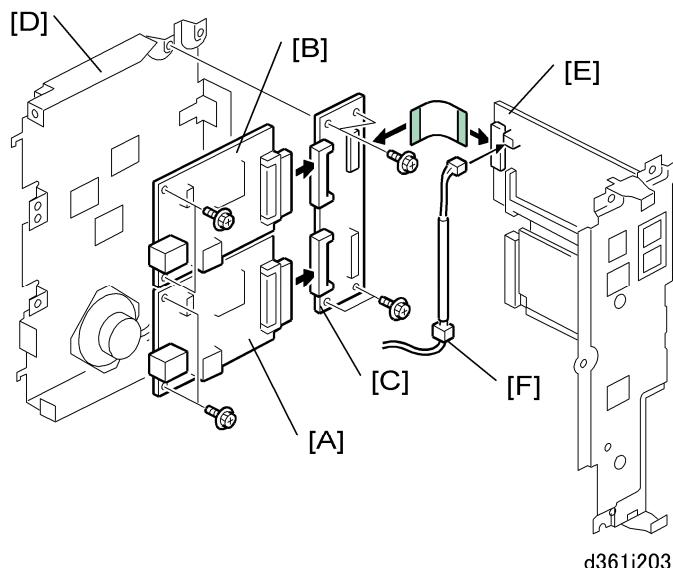
Installation

One G3 Unit



1. Connect the G3 interface unit [A] and CCUIF [B] (edge connector).
 - Fasten the connected G3/CCUIF to the cover [C].
 - G3: (x2)
 - CCUIF (x4)
2. Connect the FCU [D] and CCUIF [B] (FFC x1).
3. Reconnect the speaker harness [E] (x1)

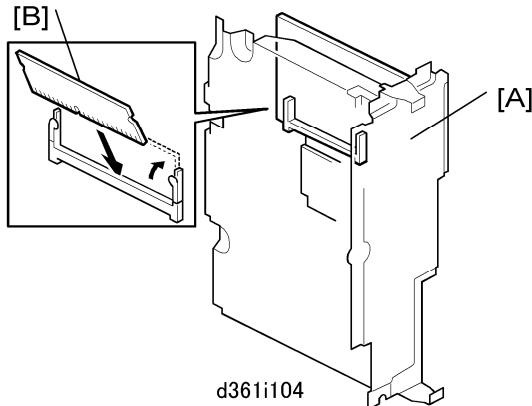
Two G3 Units



1. Connect the G3 interface units [A] and [B] to the CCUIF [C] (edge connector).
 - Fasten the connected G3/CCUIF to the cover [D].
 - G3: (x2 ea.)

- CCUIF (✉ x4)
2. Connect the FCU [E] and CCUIF [B] (FFC x1).
 3. Reconnect the speaker harness [F] (✉ x1)
 4. **One and Two G3 Units** connect the telephone lines to the back of the machine at LINE 2 (single port) or LINE 2 and LINE 3 (dual port).
 5. Plug in the machine. Then turn the main switch on.
 6. Enter the Fax SP mode and set **Bit 1** of Communication Switch **16** to "1" if you install the single port.
-or-
Enter the Fax SP mode and set **Bit 3** of Communication Switch **16** to "1" if you install the dual ports.
 7. Print the system parameter list. Make sure that "G3-2" (single port) and "G3-3" (dual port) are listed as an option.
 8. Set up and program the item required for PSTN-2 communication.

1.1.3 32 MB MEMORY (OPTION)



1. Remove:
 - Application cover (✉ x1)
 - FCU [A] (✉ x3).
2. Attach the DIMM [B] to the FCU.

Installation

1.1.4 HANDSET (B433)

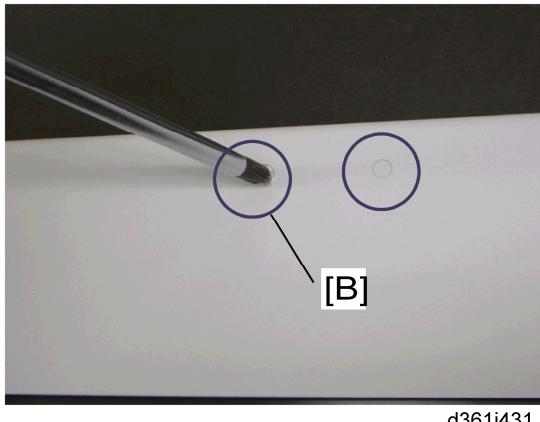
 Note

- The optional handset is available for the U.S. version only.



d361i429

1. Remove the scanner left cover [A] ( x 2).

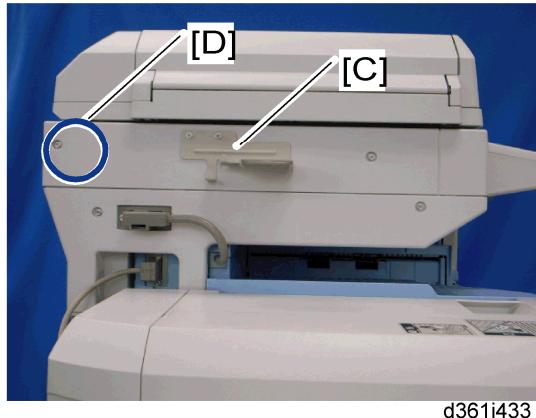


d361i431

2. Make two holes [B] in the scanner left cover.

 Note

- Drill a hole from the outside of the cover with a screwdriver.



3. Reinstall the scanner left cover on the machine (\wedge x 2).
4. Install the handset bracket [C] (\wedge x 2) on the scanner left cover.
5. Attach the clamp to the location [D].
6. Set the handset on the handset bracket.
7. Clamp the handset cord.
8. Connect the handset cable to the “TEL” jack at the rear of the machine.

2. REPLACEMENT AND ADJUSTMENT

2.1 FCU

1. When you replace the FCU board, remove the MBU board from the old FCU board and install it on the new FCU board.
2. Set the correct date and time with the User Tools:
 - User Tools> System Settings> Timer Setting> Set Date/Time



- Do not turn off the battery switch (SW1).
- Do SP6101 to print the system parameters. Then check the settings.

3. TROUBLESHOOTING

3.1 ERROR CODES

If an error code occurs, retry the communication. If the same problem occurs, try to fix the problem as suggested below. Note that some error codes appear only in the error code display and on the service report.

| Code | Meaning | Suggested Cause/Action |
|------|---|--|
| 0-00 | DIS/NSF not detected within 40 s of Start being pressed | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ The machine at the other end may be incompatible. ▪ Replace the NCU or FCU. ▪ Check for DIS/NSF with an oscilloscope. ▪ If the rx signal is weak, there may be a bad line. |
| 0-01 | DCN received unexpectedly | <ul style="list-style-type: none"> ▪ The other party is out of paper or has a jammed printer. ▪ The other party pressed Stop during communication. |
| 0-03 | Incompatible modem at the other end | <ul style="list-style-type: none"> ▪ The other terminal is incompatible. |
| 0-04 | CFR or FTT not received after modem training | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ Try changing the tx level and/or cable equalizer settings. ▪ Replace the FCU or NCU. ▪ The other terminal may be faulty; try sending to another machine. ▪ If the rx signal is weak or defective, there may be a bad line. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|---|---|
| | | <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Tx level - NCU Parameter 01 (PSTN) ▪ Cable equalizer - G3 Switch 07 (PSTN) ▪ Dedicated Tx parameters - Section 4 |
| 0-05 | Unsuccessful after modem training at 2400 bps | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the NCU - FCU connectors. ▪ Try adjusting the tx level and/or cable equalizer. ▪ Replace the FCU or NCU. ▪ Check for line problems. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ See error code 0-04. |
| 0-06 | The other terminal did not reply to DCS | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ Replace the NCU or FCU. ▪ The other end may be defective or incompatible; try sending to another machine. ▪ Check for line problems. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ See error code 0-04. |
| 0-07 | No post-message response from the other end after a page was sent | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ The other end may have jammed or run out of paper. ▪ The other end user may have disconnected the call. ▪ Check for a bad line. ▪ The other end may be defective; try sending to |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|--|--|
| | | another machine. |
| 0-08 | The other end sent RTN or PIN after receiving a page, because there were too many errors | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ The other end may have jammed, or run out of paper or memory space. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other end may have a defective modem/NCU/FCU; try sending to another machine. ▪ Check for line problems and noise. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Tx level - NCU Parameter 01 (PSTN) ▪ Cable equalizer - G3 Switch 07 (PSTN) ▪ Dedicated Tx parameters - Section 4 |
| 0-14 | Non-standard post message response code received | <ul style="list-style-type: none"> ▪ Check the FCU - NCU connectors. ▪ Incompatible or defective remote terminal; try sending to another machine. ▪ Noisy line: resend. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ Replace the NCU or FCU. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ See error code 0-08. |
| 0-15 | The other terminal is not capable of specific functions. | <ul style="list-style-type: none"> ▪ The other terminal is not capable of accepting the following functions, or the other terminal's memory is full. ▪ Confidential rx ▪ Transfer function ▪ SEP/SUB/PWD/SID |
| 0-16 | CFR or FTT not detected | <ul style="list-style-type: none"> ▪ Check the line connection. |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|--|---|
| | after modem training in confidential or transfer mode | <ul style="list-style-type: none"> ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other end may have disconnected, or it may be defective; try calling another machine. ▪ If the rx signal level is too low, there may be a line problem. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ See error code 0-08. |
| 0-20 | Facsimile data not received within 6 s of retraining | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Check for line problems. ▪ Try calling another fax machine. ▪ Try adjusting the reconstruction time for the first line and/or rx cable equalizer setting. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Reconstruction time - G3 Switch 0A, bit 6 ▪ Rx cable equalizer - G3 Switch 07 (PSTN) |
| 0-21 | EOL signal (end-of-line) from the other end not received within 5 s of the previous EOL signal | <ul style="list-style-type: none"> ▪ Check the connections between the FCU, NCU, & line. ▪ Check for line noise or other line problems. ▪ Replace the NCU or FCU. ▪ The remote machine may be defective or may have disconnected. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Maximum interval between EOLs and between ECM frames - G3 Bit Switch 0A, bit 4 |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|---|--|
| 0-22 | <p>The signal from the other end was interrupted for more than the acceptable modem carrier drop time (default: 200 ms)</p> | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Defective remote terminal. ▪ Check for line noise or other line problems. ▪ Try adjusting the acceptable modem carrier drop time. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Acceptable modem carrier drop time - G3 Switch 0A, bits 0 and 1 |
| 0-23 | <p>Too many errors during reception</p> | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Replace the NCU or FCU. ▪ Defective remote terminal. ▪ Check for line noise or other line problems. ▪ Try asking the other end to adjust their tx level. ▪ Try adjusting the rx cable equalizer setting and/or rx error criteria. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Rx cable equalizer - G3 Switch 07 (PSTN) ▪ Rx error criteria - Communication Switch 02, bits 0 and 1 |
| 0-30 | <p>The other terminal did not reply to NSS(A) in AI short protocol mode</p> | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check the FCU - NCU connectors. ▪ Try adjusting the tx level and/or cable equalizer settings. ▪ The other terminal may not be compatible. <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Dedicated tx parameters - Section 4 |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|--|---|
| 0-32 | The other terminal sent a DCS, which contained functions that the receiving machine cannot handle. | <ul style="list-style-type: none"> ▪ Check the protocol dump list. ▪ Ask the other party to contact the manufacturer. |
| 0-52 | Polarity changed during communication | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Retry the communication. |
| 0-55 | FCE does not detect the SG3-V34. | <ul style="list-style-type: none"> ▪ FCU firmware or board defective. ▪ SG3-V34 firmware or board defective. |
| 0-56 | The stored message data exceeds the capacity of the mailbox in the SG3-V34. | <ul style="list-style-type: none"> ▪ SG3-V34 firmware or board defective. |
| 0-70 | The communication mode specified in CM/JM was not available (V.8 calling and called terminal) | <ul style="list-style-type: none"> ▪ The other terminal did not have a compatible communication mode (e.g., the other terminal was a V.34 data modem and not a fax modem.) ▪ A polling tx file was not ready at the other terminal when polling rx was initiated from the calling terminal. |
| 0-74 | The calling terminal fell back to T.30 mode, because it could not detect ANSam after sending CI. | <ul style="list-style-type: none"> ▪ The calling terminal could not detect ANSam due to noise, etc. ▪ ANSam was too short to detect. ▪ Check the line connection and condition. ▪ Try making a call to another V.8/V.34 fax. |
| 0-75 | The called terminal fell back to T.30 mode, because it could not detect a CM in response to ANSam (ANSam timeout). | <ul style="list-style-type: none"> ▪ The terminal could not detect ANSam. ▪ Check the line connection and condition. ▪ Try receiving a call from another V.8/V.34 fax. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|--|---|
| 0-76 | The calling terminal fell back to T.30 mode, because it could not detect a JM in response to a CM (CM timeout). | <ul style="list-style-type: none"> ▪ The called terminal could not detect a CM due to noise, etc. ▪ Check the line connection and condition. ▪ Try making a call to another V.8/V.34 fax. |
| 0-77 | The called terminal fell back to T.30 mode, because it could not detect a CJ in response to JM (JM timeout). | <ul style="list-style-type: none"> ▪ The calling terminal could not detect a JM due to noise, etc. ▪ A network that has narrow bandwidth cannot pass JM to the other end. ▪ Check the line connection and condition. ▪ Try receiving a call from another V.8/V.34 fax. |
| 0-79 | The called terminal detected CI while waiting for a V.21 signal. | <ul style="list-style-type: none"> ▪ Check for line noise or other line problems. ▪ If this error occurs, the called terminal falls back to T.30 mode. |
| 0-80 | The line was disconnected due to a timeout in V.34 phase 2 – line probing. | <p>The guard timer expired while starting these phases. Serious noise, narrow bandwidth, or low signal level can cause these errors.</p> <p>If these errors happen at the transmitting terminal:</p> <ul style="list-style-type: none"> ▪ Try making a call at a later time. ▪ Try using V.17 or a slower modem using dedicated tx parameters. ▪ Try increasing the tx level. ▪ Try adjusting the tx cable equalizer setting. <p>If these errors happen at the receiving terminal:</p> <ul style="list-style-type: none"> ▪ Try adjusting the rx cable equalizer |
| 0-81 | The line was disconnected due to a timeout in V.34 phase 3 – equalizer training. | |
| 0-82 | The line was disconnected due to a timeout in the V.34 phase 4 – control channel start-up. | |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|--|---|
| 0-83 | The line was disconnected due to a timeout in the V.34 control channel restart sequence. | <p>setting.</p> <ul style="list-style-type: none"> ▪ Try increasing the tx level. ▪ Try using V.17 or a slower modem if the same error is frequent when receiving from multiple senders. |
| 0-84 | The line was disconnected due to abnormal signaling in V.34 phase 4 – control channel start-up. | <ul style="list-style-type: none"> ▪ The signal did not stop within 10 s. ▪ Turn off the machine, then turn it back on. ▪ If the same error is frequent, replace the FCU. |
| 0-85 | The line was disconnected due to abnormal signaling in V.34 control channel restart. | <ul style="list-style-type: none"> ▪ The signal did not stop within 10 s. ▪ Turn off the machine, then turn it back on. ▪ If the same error is frequent, replace the FCU. |
| 0-86 | The line was disconnected because the other terminal requested a data rate using MPh that was not available in the currently selected symbol rate. | <ul style="list-style-type: none"> ▪ The other terminal was incompatible. ▪ Ask the other party to contact the manufacturer. |
| 0-87 | The control channel started after an unsuccessful primary channel. | <ul style="list-style-type: none"> ▪ The receiving terminal restarted the control channel because data reception in the primary channel was not successful. ▪ This does not result in an error communication. |
| 0-88 | The line was disconnected because PPR was transmitted/received 9 | <ul style="list-style-type: none"> ▪ Try using a lower data rate at the start. ▪ Try adjusting the cable equalizer setting. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|--|---|
| | (default) times within the same ECM frame. | |
| 2-11 | Only one V.21 connection flag was received | <ul style="list-style-type: none"> ▪ Replace the FCU. |
| 2-12 | Modem clock irregularity | <ul style="list-style-type: none"> ▪ Replace the FCU. |
| 2-13 | Modem initialization error | <ul style="list-style-type: none"> ▪ Turn off the machine, then turn it back on. ▪ Update the modem ROM. ▪ Replace the FCU. |
| 2-23 | JBIG compression or reconstruction error | <ul style="list-style-type: none"> ▪ Turn off the machine, then turn it back on. ▪ Replace the EXFUNC board if the error is frequent. |
| 2-24 | JBIG ASIC error | <ul style="list-style-type: none"> ▪ Turn off the machine, then turn it back on. ▪ Replace the EXFUNC board if the error is frequent. |
| 2-25 | JBIG data reconstruction error (BIH error) | <ul style="list-style-type: none"> ▪ JBIG data error ▪ Check the sender's JBIG function. ▪ Update the MBU ROM. |
| 2-26 | JBIG data reconstruction error (Float marker error) | |
| 2-27 | JBIG data reconstruction error (End marker error) | |
| 2-28 | JBIG data reconstruction error (Timeout) | |
| 2-29 | JBIG trailing edge maker error | <ul style="list-style-type: none"> ▪ FCU defective ▪ Check the destination device. |
| 2-50 | The machine resets itself for a fatal FCU system error | <ul style="list-style-type: none"> ▪ If this is frequent, update the ROM, or replace the FCU. |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|--|---|
| 2-51 | The machine resets itself because of a fatal communication error | <ul style="list-style-type: none"> ▪ If this is frequent, update the ROM, or replace the FCU. |
| 2-53 | Snd msg() in the manual task is an error because the mailbox for the operation task is full. | <ul style="list-style-type: none"> ▪ The user did the same operation many times, and this gave too much load to the machine. |
| 4-01 | Line current was cut | <ul style="list-style-type: none"> ▪ Check the line connector. ▪ Check the connection between FCU and NCU. ▪ Check for line problems. ▪ Replace the FCU or the NCU. |
| 4-10 | Communication failed because of an ID Code mismatch (Closed Network) or Tel. No./CSI mismatch (Protection against Wrong Connections) | <ul style="list-style-type: none"> ▪ Get the ID Codes the same and/or the CSIs programmed correctly, then resend. ▪ The machine at the other end may be defective. |
| 5-10 | DCR timer expired | <ul style="list-style-type: none"> ▪ Replace the FCU. |
| 5-20 | Storage impossible because of a lack of memory | <ul style="list-style-type: none"> ▪ Temporary memory shortage. ▪ Test the SAF memory. ▪ Replace the FCU or optional EXMEM board |
| 5-21 | Memory overflow | |
| 5-23 | Print data error when printing a substitute rx or confidential rx message | <ul style="list-style-type: none"> ▪ Test the SAF memory. ▪ Ask the other end to resend the message. ▪ Replace the FCU or optional EXMEM board. |
| 5-25 | SAF file access error | <ul style="list-style-type: none"> ▪ Replace the FCU or EXMEM board. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|------|---|--|
| 6-00 | G3 ECM - T1 time out during reception of facsimile data | |
| 6-01 | G3 ECM - no V.21 signal was received | <ul style="list-style-type: none"> ▪ Try adjusting the rx cable equalizer. ▪ Replace the FCU or NCU. |
| 6-02 | G3 ECM - EOR was received | |
| 6-04 | G3 ECM - RTC not detected | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check connections from the NCU to the FCU. ▪ Check for a bad line or defective remote terminal. ▪ Replace the FCU or NCU. |
| 6-05 | G3 ECM - facsimile data frame not received within 18 s of CFR, but there was no line fail | <ul style="list-style-type: none"> ▪ Check the line connection. ▪ Check connections from the NCU to the FCU. ▪ Check for a bad line or defective remote terminal. ▪ Replace the FCU or NCU. ▪ Try adjusting the rx cable equalizer <p>Cross reference</p> <ul style="list-style-type: none"> ▪ Rx cable equalizer - G3 Switch 07 (PSTN) |
| 6-06 | G3 ECM - coding/decoding error | <ul style="list-style-type: none"> ▪ Defective FCU. ▪ The other terminal may be defective. |
| 6-08 | G3 ECM - PIP/PIN received in reply to PPS.NULL | <ul style="list-style-type: none"> ▪ The other end pressed Stop during communication. ▪ The other terminal may be defective. |
| 6-09 | G3 ECM - ERR received | <ul style="list-style-type: none"> ▪ Check for a noisy line. ▪ Adjust the tx levels of the communicating machines. ▪ See code 6-05. |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|--|---|
| 6-10 | G3 ECM - error frames still received at the other end after all communication attempts at 2400 bps | <ul style="list-style-type: none"> ▪ Check for line noise. ▪ Adjust the tx level (use NCU parameter 01 or the dedicated tx parameter for that address). ▪ Check the line connection. ▪ Defective remote terminal. |
| 6-21 | V.21 flag detected during high speed modem communication | <ul style="list-style-type: none"> ▪ The other terminal may be defective or incompatible. |
| 6-22 | The machine resets the sequence because of an abnormal handshake in the V.34 control channel | <ul style="list-style-type: none"> ▪ Check for line noise. ▪ If the same error occurs frequently, replace the FCU. ▪ Defective remote terminal. |
| 6-99 | V.21 signal not stopped within 6 s | <ul style="list-style-type: none"> ▪ Replace the FCU. |
| 13-17 | SIP user name registration error | <ul style="list-style-type: none"> ▪ Double registration of the SIP user name. ▪ Capacity for user-name registration in the SIP server is not sufficient. |
| 13-18 | SIP server access error | <ul style="list-style-type: none"> ▪ Incorrect initial setting for the SIP server. ▪ Defective SIP server. |
| 14-00 | SMTP Send Error | <p>Error occurred during sending to the SMTP server. Occurs for any error other than 14-01 to 16. For example, the mail address of the system administrator is not registered.</p> |
| 14-01 | SMTP Connection Failed | <p>Failed to connect to the SMTP server (timeout) because the server could not be found.</p> <ul style="list-style-type: none"> ▪ The PC is not ready to transfer files. ▪ SMTP server not functioning correctly. ▪ The DNS IP address is not registered. ▪ Network not operating correctly. ▪ Destination folder selection not correct. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|------------------------------------|--|
| 14-02 | No Service by SMTP Service (421) | <p>SMTP server operating incorrectly, or the destination for direct SMTP sending is not correct.</p> <ul style="list-style-type: none"> ▪ Contact the system administrator and check that the SMTP server has the correct settings and operates correctly. ▪ Contact the system administrator for direct SMTP sending and check the sending destination. |
| 14-03 | Access to SMTP Server Denied (450) | <p>Failed to access the SMTP server because the access is denied.</p> <ul style="list-style-type: none"> ▪ SMTP server operating incorrectly. Contact the system administrator to determine if there is a problem with the SMTP server and to check that the SMTP server settings are correct. ▪ Folder send destination is incorrect. Contact the system administrator to determine that the SMTP server settings and path to the server are correct. ▪ Device settings incorrect. Confirm that the user name and password settings are correct. ▪ Direct SMTP destination incorrect. Contact the system administrator to determine if there is a problem at the destination at that the settings at the destination are correct. |
| 14-04 | Access to SMTP Server Denied (550) | <ul style="list-style-type: none"> ▪ SMTP server operating incorrectly ▪ Direct SMTP sending not operating correctly |
| 14-05 | SMTP Server HDD Full (452) | <p>Failed to access the SMTP server because the HDD on the server is full.</p> <ul style="list-style-type: none"> ▪ Insufficient free space on the HDD of the SMTP server. Contact the system administrator and check the amount of space |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|---|---|
| | | <p>remaining on the SMTP server HDD.</p> <ul style="list-style-type: none"> ▪ Insufficient free space on the HDD where the destination folder is located. Contact the system administrator and check the amount of space remaining on the HDD where the target folder is located. ▪ Insufficient free space on the HDD at the target destination for SMTP direct sending. Contact the system administrator and check the amount of space remaining on the target HDD. |
| 14-06 | User Not Found on SMTP Server (551) | <p>The designated user does not exist.</p> <ul style="list-style-type: none"> ▪ The designated user does not exist on the SMTP server. ▪ The designated address is not for use with direct SMTP sending. |
| 14-07 | Data Send to SMTP Server Failed (4XX) | <p>Failed to access the SMTP server because the transmission failed.</p> <ul style="list-style-type: none"> ▪ PC not operating correctly. ▪ SMTP server operating incorrectly ▪ Network not operating correctly. ▪ Destination folder setting incorrect. ▪ Direct SMTP sending not operating correctly. |
| 14-08 | Data Send to SMTP Server Failed (5XX) | <p>Failed to access the SMTP server because the transmission failed.</p> <ul style="list-style-type: none"> ▪ SMTP server operating incorrectly ▪ Destination folder setting incorrect. ▪ Direct SMTP sending not operating correctly. ▪ Software application error. |
| 14-09 | Authorization Failed for Sending to SMTP Server | <ul style="list-style-type: none"> ▪ POP-Before-SMTP or SMTP authorization failed. ▪ Incorrect setting for file transfer |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|--|---|
| 14-10 | Addresses Exceeded | Number of broadcast addresses exceeded the limit for the SMTP server. |
| 14-11 | Buffer Full | The send buffer is full so the transmission could not be completed. Buffer is full due to using Scan-to-Email while the buffer is being used send mail at the same time. |
| 14-12 | Data Size Too Large | Transmission was cancelled because the detected size of the file was too large. |
| 14-13 | Send Cancelled | Processing is interrupted because the user pressed Stop. |
| 14-30 | MCS File Creation Failed | Failed to create the MCS file because: <ul style="list-style-type: none"> ▪ The number of files created with other applications on the Document Server has exceeded the limit. ▪ HDD is full or not operating correctly. ▪ Software error. |
| 14-31 | UFS File Creation Failed | UFS file could not be created: <ul style="list-style-type: none"> ▪ Not enough space in UFS area to handle both Scan-to-Email and IFAX transmission. ▪ HDD full or not operating correctly. ▪ Software error. |
| 14-32 | Cancelled the Mail Due to Error Detected by NFAX | Error detected with NFAX and send was cancelled due to a software error. |
| 14-33 | No Mail Address For the Machine | Neither the mail address of the machine nor the mail address of the network administrator is registered. |
| 14-34 | Address designated in the domain for SMTP sending does not exist | Operational error in normal mail sending or direct SMTP sending. <ul style="list-style-type: none"> ▪ Check the address selected in the address |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|--|--|
| | | <p>book for SMTP sending.</p> <ul style="list-style-type: none"> ▪ Check the domain selection. |
| 14-50 | Mail Job Task Error | <p>Due to an FCU mail job task error, the send was cancelled:</p> <ul style="list-style-type: none"> ▪ Address book was being edited during creation of the notification mail. ▪ Software error. |
| 14-51 | UCS Destination Download Error | <p>Not even one return notification can be downloaded:</p> <ul style="list-style-type: none"> ▪ The address book was being edited. ▪ The number for the specified destination does not exist (it was deleted or edited after the job was created). |
| 14-60 | Send Cancel Failed | The cancel operation by the user failed to cancel the send operation. |
| 14-61 | Notification Mail Send Failed for All Destinations | All addresses for return notification mail failed. |
| 15-01 | POP3/IMAP4 Server Not Registered | At startup, the system detected that the IP address of the POP3/IMAP4 server has not been registered in the machine. |
| 15-02 | POP3/IMAP4 Mail Account Information Not Registered | The POP3/IMAP4 mail account has not been registered. |
| 15-03 | Mail Address Not Registered | The mail address has not been registered. |
| 15-10 | DCS Mail Receive Error | Error other than 15-11 to 15-18. |
| 15-11 | Connection Error | The DNS or POP3/IMAP4 server could not be found: |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|---|---|
| | | <ul style="list-style-type: none"> ▪ The IP address for DNS or POP3/IMAP4 server is not stored in the machine. ▪ The DNS IP address is not registered. ▪ Network not operating correctly. |
| 15-12 | Authorization Error | <p>POP3/IMAP4 send authorization failed:</p> <ul style="list-style-type: none"> ▪ Incorrect IFAX user name or password. ▪ Access was attempted by another device, such as the PC. ▪ POP3/IMAP4 settings incorrect. |
| 15-13 | Receive Buffer Full | <p>Occurs only during manual reception.</p> <p>Transmission cannot be received due to insufficient buffer space. The buffer is being used for mail send or Scan-to-Email.</p> |
| 15-14 | Mail Header Format Error | The mail header is not standard format. For example, the Date line description is incorrect. |
| 15-15 | Mail Divide Error | The e-mail is not in standard format. There is no boundary between parts of the e-mail, including the header. |
| 15-16 | Mail Size Receive Error | The mail cannot be received because it is too large. |
| 15-17 | Receive Timeout | May occur during manual receiving only because the network is not operating correctly. |
| 15-18 | Incomplete Mail Received | Only one portion of the mail was received. |
| 15-31 | Final Destination for Transfer Request Reception Format Error | The format of the final destination for the transfer request was incorrect. |
| 15-39 | Send/Delivery Destination Error | The transmission cannot be delivered to the final destination: |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|-------------------------------|---|
| | | <ul style="list-style-type: none"> ▪ Destination file format is incorrect. ▪ Could not create the destination for the file transmission. |
| 15-41 | SMTP Receive Error | Reception rejected because the transaction exceeded the limit for the “Auth. E-mail RX” setting. |
| 15-42 | Off Ramp Gateway Error | The delivery destination address was specified with Off Ramp Gateway OFF. |
| 15-43 | Address Format Error | Format error in the address of the Off Ramp Gateway. |
| 15-44 | Addresses Over | The number of addresses for the Off Ramp Gateway exceeded the limit of 30. |
| 15-61 | Attachment File Format Error | The attached file is not TIFF format. |
| 15-62 | TIFF File Compatibility Error | <p>Could not receive transmission due to:</p> <ul style="list-style-type: none"> ▪ Resolution error ▪ Image of resolution greater than 200 dpi without extended memory. ▪ Resolution is not supported. ▪ Page size error ▪ The page size was larger than A3. ▪ Compression error ▪ File was compressed with other than MH, MR, or MMR. |
| 15-63 | TIFF Parameter Error | <p>The TIFF file sent as the attachment could not be received because the TIFF header is incorrect:</p> <ul style="list-style-type: none"> ▪ The TIFF file attachment is a type not supported. ▪ The TIFF file attachment is corrupted. ▪ Software error. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|---|--|
| 15-64 | TIFF Decompression Error | The file received as an attachment caused the TIFF decompression error: <ul style="list-style-type: none">▪ The TIFF format of the attachment is corrupted.▪ Software error. |
| 15-71 | Not Binary Image Data | The file could not be received because the attachment was not binary image data. |
| 15-73 | MDN Status Error | Could not find the Disposition line in the header of the Return Receipt, or there is a problem with the firmware. |
| 15-74 | MSDN Message ID Error | Could not find the Original Message ID line in the header of the Return Receipt, or there is a problem with the firmware. |
| 15-80 | Mail Job Task Read Error | Could not receive the transmission because the destination buffer is full and the destination could not be created (this error may occur when receiving a transfer request or a request for notification of reception). |
| 15-81 | Repeated Destination Registration Error | Could not repeat receive the transmission because the destination buffer is full and the destination could not be created (this error may occur when receiving a transfer request or a request for notification of reception). |
| 15-91 | Send Registration Error | Could not receive the file for transfer to the final destination: <ul style="list-style-type: none">▪ The format of the final destination or the transfer destination is incorrect.▪ Destinations are full so the final and transfer destinations could not be created. |
| 15-92 | Memory Overflow | Transmission could not be received because |

Fax Option
Type 3350
D361

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------------|---|--|
| | | memory overflowed during the transaction. |
| 15-93 | Memory Access Error | Transaction could not complete due to a malfunction of SAF memory. |
| 15-94 | Incorrect ID Code | The machine rejected an incoming e-mail for transfer request, because the ID code in the incoming e-mail did not match the ID code registered in the machine. |
| 15-95 | Transfer Station Function | The machine rejected an incoming e-mail for transfer because the transfer function was unavailable. |
| 22-00 | Original length exceeded the maximum scan length | <ul style="list-style-type: none"> ▪ Divide the original into more than one page. ▪ Check the resolution used for scanning. Lower the scan resolution if possible. ▪ Add optional page memory. |
| 22-01 | Memory overflow while receiving | <ul style="list-style-type: none"> ▪ Wait for the files in the queue to be sent. ▪ Delete unnecessary files from memory. ▪ Transfer the substitute reception files to another fax machine, if the machine's printer is busy or out of order. ▪ Add an optional SAF memory card or hard disk. |
| 22-02 | Tx or rx job stalled due to line disconnection at the other end | <ul style="list-style-type: none"> ▪ The job started normally but did not finish normally; data may or may not have been received fully. ▪ Restart the machine. |
| 22-04 | The machine cannot store received data in the SAF | <ul style="list-style-type: none"> ▪ Update the ROM ▪ Replace the FCU. |
| 22-05 | No G3 parameter confirmation answer | <ul style="list-style-type: none"> ▪ Defective FCU board or firmware. |

Error Codes

| Code | Meaning | Suggested Cause/Action |
|-------|--|---|
| 23-00 | Data read timeout during construction | <ul style="list-style-type: none">▪ Restart the machine.▪ Replace the FCU |
| 25-00 | The machine software resets itself after a fatal transmission error occurred | <ul style="list-style-type: none">▪ Update the ROM▪ Replace the FCU. |
| F0-xx | V.34 modem error | <ul style="list-style-type: none">▪ Replace the FCU. |
| F6-xx | SG3-V34 modem error | <ul style="list-style-type: none">▪ Update the SG3-V34 modem ROM.▪ Replace the SG3-V34 board.▪ Check for line noise or other line problems.▪ Try communicating another V.8/V.34 fax. |

Fax Option
Type 3350
D361

IFAX Troubleshooting

3.2 IFAX TROUBLESHOOTING

Use the following procedures to determine whether the machine or another part of the network is causing the problem.

| Communication Route | Item | Action | Remarks |
|---------------------|-------------------------------|---|---|
| General LAN | 1. Connection with the LAN | <ul style="list-style-type: none">▪ Check that the LAN cable is connected to the machine.▪ Check that the LEDs on the hub are lit. | |
| | 2. LAN activity | <ul style="list-style-type: none">▪ Check that other devices connected to the LAN can communicate through the LAN. | |
| Between IFAX and PC | 1. Network settings on the PC | <ul style="list-style-type: none">▪ Check the network settings on the PC. | <ul style="list-style-type: none">▪ Is the IP address registered in the TCP/IP properties in the network setup correct? Check the IP address with the administrator of the network. |

IFAX Troubleshooting

Fax Option
Type 3350
D361

| Communication Route | Item | Action | Remarks |
|-----------------------------------|---|--|--|
| | 2. Check that PC can connect with the machine | <ul style="list-style-type: none"> ▪ Use the “ping” command on the PC to contact the machine. | <ul style="list-style-type: none"> ▪ At the MS-DOS prompt, type ping then the IP address of the machine, then press Enter. |
| | 3. LAN settings in the machine | <ul style="list-style-type: none"> ▪ Check the LAN parameters ▪ Check if there is an IP address conflict with other PCs. | <ul style="list-style-type: none"> ▪ Use the “Network” function in the User Tools. ▪ If there is an IP address conflict, inform the administrator. |
| Between machine and e-mail server | 1. LAN settings in the machine | <ul style="list-style-type: none"> ▪ Check the LAN parameters ▪ Check if there is an IP address conflict with other PCs. | <ul style="list-style-type: none"> ▪ Use the “Network” function in the User Tools. ▪ If there is an IP address conflict, inform the administrator. |
| | 2. E-mail account on the server | <ul style="list-style-type: none"> ▪ Make sure that the machine can log into the e-mail server. ▪ Check that the account and password stored in the server are the same as in the machine. | <ul style="list-style-type: none"> ▪ Ask the administrator to check. |

IFAX Troubleshooting

| Communication Route | Item | Action | Remarks |
|------------------------------------|---------------------------------|---|--|
| | 3. E-mail server | <ul style="list-style-type: none"> ▪ Make sure that the client devices which have an account in the server can send/receive e-mail. | <ul style="list-style-type: none"> ▪ Ask the administrator to check. ▪ Send a test e-mail with the machine's own number as the destination. The machine receives the returned e-mail if the communication is performed successfully. |
| Between e-mail server and internet | 1. E-mail account on the Server | <ul style="list-style-type: none"> ▪ Make sure that the PC can log into the e-mail server. ▪ Check that the account and password stored in the server are the same as in the machine. | <ul style="list-style-type: none"> ▪ Ask the administrator to check. |

IFAX Troubleshooting

| Communication Route | Item | Action | Remarks |
|---------------------|-------------------------------|---|--|
| | 2. E-mail server | <ul style="list-style-type: none"> ▪ Make sure that the client devices which have an account in the server can send/receive e-mail. | <ul style="list-style-type: none"> ▪ Ask the administrator to check. ▪ Send a test e-mail with the machine's own number as the destination. The machine receives the returned e-mail if the communication is performed successfully. |
| | 3. Destination e-mail address | <ul style="list-style-type: none"> ▪ Make sure that the e-mail address is actually used. ▪ Check that the e-mail address contains no incorrect characters such as spaces. | |
| | 4. Router settings | <ul style="list-style-type: none"> ▪ Use the "ping" command to contact the router. ▪ Check that other devices connected to the router can sent data over the router. | <ul style="list-style-type: none"> ▪ Ask the administrator of the server to check. |

Fax Option
 Type 3350
 D361

IFAX Troubleshooting

| Communication Route | Item | Action | Remarks |
|---------------------|---|---|--|
| | 5. Error message by e-mail from the network of the destination. | <ul style="list-style-type: none">▪ Check whether e-mail can be sent to another address on the same network, using the application e-mail software.▪ Check the error e-mail message. | <ul style="list-style-type: none">▪ Inform the administrator of the LAN. |

3.3 IP-FAX TROUBLESHOOTING

3.3.1 IP-FAX TRANSMISSION

Cannot send by IP Address/Host Name

| Check Point | | Action |
|-------------|--|--|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | Specified IP address/host name correct? | Check the IP address/host name. |
| 3 | Firewall/NAT is installed? | Cannot breach the firewall. Send by using another method (Fax, Internet Fax) |
| 4 | Transmission sent manually? | Manual sending not supported. |
| 5 | IP address of local machine registered? | Register the IP address. |
| 6 | Remote terminal port number setting other than 1720? | Send by specifying the port number. |
| 7 | Specified port number correct? | Confirm the port number of the remote fax. |
| 8 | DNS server registered when host name specified? | Contact the network administrator. |
| 9 | Remote fax a T.38 terminal? | Check whether the remote fax is a T38 terminal. |
| 10 | Remote fax switched off or busy? | Check that the remote fax is switched on. |
| 11 | Network bandwidth too narrow? | Request the network administrator to increase the bandwidth. Raise the delay level. IPFAX SW 01 Bit 0 to 3 |

IP-Fax Troubleshooting

| Check Point | | Action |
|-------------|------------------------------------|--|
| | | IP-Fax bandwidth is the same as the DCS speed. Set IP-Fax SW00 Bit 6 to 1. |
| 12 | Remote fax cancelled transmission? | Check whether the remote fax cancelled the transmission. |

Cannot send via VoIP Gateway

| Check Point | | Action |
|-------------|---|--|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | VoIP Gateway T.38 standard? | Contact the network administrator. |
| 3 | VoIP Gateway installed correctly? | Contact the network administrator. |
| 4 | VoIP Gateway power switched on? | Contact the network administrator. |
| 5 | Is the IP address/host name of the specified Gateway correct? | Check the IP address/host name. |
| 6 | Number of the specified fax correct? | Check the remote fax number. |
| 7 | Firewall/NAT is installed? | Cannot breach the firewall. Send by using another method (Fax, Internet Fax) |
| 8 | Transmission sent manually? | Manual sending not supported. |
| 9 | IP address of local fax registered? | Register the IP address. |
| 10 | DNS registered when host name specified? | Contact the network administrator. |
| 11 | Remote fax a G3 fax? | Check that the remote fax is a G3 fax. |
| 12 | G3 fax is connected to VoIP gateway? | Check that G3 fax is connected. |

IP-Fax Troubleshooting

Fax Option
Type 3350
D361

| Check Point | | Action |
|-------------|-------------------------------|--|
| 13 | Remote G3 fax turned on? | Check that G3 fax is switched on. |
| 14 | Network bandwidth too narrow? | Request the network administrator to increase the bandwidth. |
| | | Raise the network delay level. IPFAX SW 01 Bit 0 to 3 |
| | | IP-Fax bandwidth is the same as the DCS speed. Set IP-Fax SW00 Bit 6 to 1. |

Cannot send by Alias Fax number.

| Check Point | | Action |
|-------------|--|--|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | Number of specified Alias fax correct? | Confirm the Alias of the remote fax. Error Code: 13-14 |
| 3 | Firewall/NAT installed? | Cannot breach the firewall. Send by using another method (Fax, Internet Fax) |
| 4 | Transmission sent manually? | Manual sending not supported. |
| 5 | Gatekeeper installed correctly? | Contact the network administrator. |
| 6 | Gatekeeper power switched on? | Contact the network administrator. |
| 7 | IP address/host name of Gatekeeper correct? | Check the IP address/host name. |
| 8 | DNS server registered when Gatekeeper host name specified? | Contact the network administrator. |
| 9 | Enable H.323 SW is set to on? | Check the settings. See User Parameter SW 34 Bit 0 |

IP-Fax Troubleshooting

| Check Point | | Action |
|-------------|---------------------------------------|---|
| 10 | IP address of local fax registered? | Register the IP address of the local fax. |
| 11 | Alias number of local fax registered? | Register the Alias number of the local fax. |
| 12 | Remote fax registered in Gatekeeper? | Contact the network administrator. |
| 13 | Remote fax a T.38 terminal? | Check whether the remote fax is a T38 terminal. |
| 14 | Remote fax switched off or busy? | Contact the network administrator. |
| 15 | Network bandwidth too narrow? | Request the system administrator to increase the bandwidth. |
| | | Raise the delay level. IPFAX SW 01 Bit 0 to 3 |
| | | Lower the modem transmission baud rate. IPFAX SW 05 |
| 16 | Remote fax cancelled transmission? | Check whether the remote fax cancelled the transmission. |

3.3.2 IP-FAX RECEPTION

Cannot receive by IP Address/Host name

| Check Point | | Action |
|-------------|---|--|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | Firewall/NAT is installed? | Cannot breach the firewall. Send by using another method (Fax, Internet Fax) |
| 3 | IP address of local fax registered? | Register the IP address. |
| 4 | Port number specified at remote sender fax (if required)? | Request the sender to specify the port number. |

IP-Fax Troubleshooting

| Check Point | | Action |
|-------------|--|--|
| 5 | Specified port number correct (if required)? | Request the sender to check the port number. |
| 6 | DNS server registered when host name specified on sender side? | Contact the network administrator. Note: The sender machine displays this error code if the sender fax is a Ricoh model. |
| 7 | Network bandwidth too narrow? | Request the system administrator to increase the bandwidth. |
| | | Lower the start modem reception baud rate on the receiving side. IPFAX SW06 |
| 8 | Remote fax cancelled transmission? | Check whether the remote fax cancelled the transmission. |

Fax Option
Type 3350
D361

Cannot receive by VoIP Gateway.

| Check Point | | Action |
|-------------|--|--|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | Firewall/NAT is installed? | Cannot breach the firewall. Request the remote fax to send by using another method (Fax, Internet Fax) |
| 3 | VoIP Gateway installed correctly? | Contact the network administrator. |
| 4 | VoIP Gateway power switched on? | Contact the network administrator. |
| 5 | IP address/host name of specified VoIP Gateway correct on sender's side? | Request the remote fax to check the IP address/host name. |
| 6 | DNS server registered when host name specified on sender side? | Contact the network administrator. |
| 7 | Network bandwidth too narrow? | Request the network administrator to |

IP-Fax Troubleshooting

| Check Point | | Action |
|-------------|---------------------------|-----------------------------------|
| | | increase the bandwidth. |
| 8 | G3 fax connected? | Check that G3 fax is connected. |
| 9 | G3 fax power switched on? | Check that G3 fax is switched on. |

Cannot receive by Alias Fax number.

| Check Point | | Action |
|-------------|---|---|
| 1 | LAN cable connected? | Check the LAN cable connection. |
| 2 | Firewall/NAT is installed? | Cannot breach firewall. Request the remote fax to send by using another method (Fax, Internet Fax) |
| 3 | Gatekeeper installed correctly? | Contact the network administrator. Note: The sender machine displays this error code if the sender fax is a Ricoh model. |
| 4 | Power to Gatekeeper switched on? | Contact the network administrator. Note: The sender machine displays this error code if the sender fax is a Ricoh model. |
| 5 | IP address/host name of Gatekeeper correct on the sender's side? | Request the sender to check the IP address/host name. Note: The sender machine displays this error code if the sender fax is a Ricoh model. |
| 6 | DNS server registered when Gatekeeper host name specified on sender's side? | Contact the network administrator. Note: The sender machine displays this error code if the sender fax is a Ricoh model. |

IP-Fax Troubleshooting

| Check Point | | Action |
|-------------|-------------------------------------|---|
| 7 | Enable H.323 SW is set to on? | <p>Request the sender to check the settings. User Parameter SW 34 Bit 0</p> <p>Note: Only if the remote sender fax is a Ricoh fax.</p> |
| 8 | Local fax IP address registered? | Register the IP address. |
| 9 | Local fax Alias number registered? | Register the Alias number. |
| 10 | Network bandwidth too narrow? | Request the system administrator to increase the bandwidth. |
| | | <p>Lower the start modem reception baud rate on the receiving side. IPFAX SW06</p> |
| 11 | Remote fax cancelled transmission? | Check whether the remote fax cancelled the transmission. |
| 12 | Local fax registered in Gatekeeper? | <p>Contact the network administrator.</p> <p>Note: The sender machine displays this error code if the sender fax is a Ricoh model.</p> |

Fax Option
 Type 3350
 D361

4. SERVICE TABLE

4.1 CAUTIONS

CAUTION

- Never turn off the main power switch when the power LED is lit or flashing. To avoid damaging the hard disk or memory, press the operation power switch to switch the power off, wait for the power LED to go off, and then switch the main power switch off.

Note

- The main power LED () lights or flashes while the platen cover or ARDF is open, while the main machine is communicating with a facsimile or the network server, or while the machine is accessing the hard disk or memory for reading or writing data.

4.2 SERVICE PROGRAM TABLES

4.2.1 SP1-XXX (BIT SWITCHES)

| 1 | Mode No. | | Function |
|-----|----------------------|---------|--|
| | System Switch | | |
| 101 | 001 – 032 | 00 – 1F | Changes the bit switches for system settings for the fax option. See section 4.2 Bit Switches |
| | Ifax Switch | | |
| 102 | 001 – 016 | 00 – 0F | Changes the bit switches for internet fax settings for the fax option. See section 4.2 Bit Switches |
| | Printer Switch | | |
| 103 | 001 – 016 | 00 – 0F | Changes the bit switches for printer settings for the fax option. See section 4.2 Bit Switches |
| | Communication Switch | | |
| 104 | 001 – 032 | 00 – 1F | Changes the bit switches for communication settings for the fax option. See section 4.2 Bit Switches |
| | G3-1 Switch | | |
| 105 | 001 – 016 | 00 – 0F | Changes the bit switches for the protocol settings of the standard G3 board. See section 4.2 Bit Switches |
| 106 | G3-2 Switch | | |

Service Program Tables

| 1 | Mode No. | | Function |
|-----|---------------------|---------|--|
| | 001 – 016 | 00 – 0F | Changes the bit switches for the protocol settings of the optional G3 board. See section 4.2 Bit Switches |
| | G3-3 Switch | | |
| 107 | 001 – 016 | 00 – 0F | Changes the bit switches for the protocol settings of the optional G3 board. See section 4.2 Bit Switches |
| | G4 Internal Switch | | |
| 108 | 001 – 032 | 00 – 1F | Not used (Do not change the bit switches) |
| | G4 Parameter Switch | | |
| 109 | 001 – 016 | 00 – 0F | Not used (Do not change the bit switches) |
| | IP fax Switch | | |
| 111 | 001 – 016 | 00 – 0F | Changes the bit switches for optional IP fax parameters. See section 4.2 Bit Switches |

4.2.2 SP2-XXX (RAM DATA)

| 2 | Mode No. | | Function |
|-----|----------------|------------------|---|
| | RAM Read/Write | | |
| 101 | 001 | | Changes RAM data for the fax board directly. See section 4.5 Service RAM Addresses. |
| | Memory Dump | | |
| 102 | 001 | G3-1 Memory Dump | Prints out RAM data for the fax board. See section 4.5 Service RAM Addresses. |

Service Program Tables

| 2 | Mode No. | | Function |
|-----|---------------------|------------------|--|
| | 002 | G3-2 Memory Dump | Prints out RAM data for the optional SG3 board. |
| | 003 | G3-3 Memory Dump | Prints out RAM data for the optional SG3 board. |
| | 004 | G4 Memory Dump | Prints out RAM data for the SiG4 board. |
| 103 | G3-1 NCU Parameters | | |
| | 001 – 023 | CC, 01 – 22 | NCU parameter settings for the standard G3 board. See section 4.3 NCU Parameters. |
| 104 | G3-2 NCU Parameters | | |
| | 001 – 023 | CC, 01 – 22 | NCU parameter settings for the optional G3 board. See section 4.3 NCU Parameters. |
| 105 | G3-3 NCU Parameters | | |
| | 001 – 023 | CC, 01 – 22 | NCU parameter settings for the optional G3 board. See section 4.3 NCU Parameters. |

4.2.3 SP3-XXX (TEL LINE SETTINGS)

| 3 | Mode No. | | Function |
|-----|-----------------|-------------|--|
| 101 | Service Station | | |
| | 001 | Fax Number | Enter the fax number of the service station. |
| | 002 | Select Line | Select the line type. |
| 102 | Serial Number | | |
| | 000 | | Enter the fax unit's serial number. |

Service Program Tables

| 3 | Mode No. | | Function |
|-----|----------------------|----------------------|--|
| 103 | PSTN-1 Port Settings | | |
| | 001 | Select Line | Select the line type setting for the G3-1 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)". |
| | 002 | PSTN Access Number | Enter the PSTN access number for the G3-1 line. |
| | 003 | Memory Lock Disabled | If the customer does not want to receive transmissions using Memory Lock on this line, turn this SP on. |
| 104 | PSTN-2 Port Settings | | |
| | 001 | Select Line | Select the line setting for the G3-2 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)". |
| | 002 | PSTN Access Number | Enter the PSTN access number for the G3-2 line. |
| | 003 | Memory Lock Disabled | If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on. |
| 105 | PSTN-3 Port Settings | | |
| | 001 | Select Line | Select the line setting for the G3-3 line. If the machine is installed on a PABX line, select "PABX", "PABX(GND)" or "PABX(FLASH)". |

Service Program Tables

| 3 | Mode No. | | Function |
|----------|---------------------|-------------------------|--|
| | 002 | PSTN Access Number | Enter the PSTN access number for the G3-3 line. |
| | 003 | Memory Lock Disabled | If the customer does not want to receive transmissions using Memory Lock on this line, change this SP to on. |
| | 004 | Transmission Disabled | If you turn this SP on, the machine does not send any fax messages on the G3-3 line. |
| 106 | ISDN Port Settings | | |
| | 001 | Select Line | Not used (Do not change the bit switches) |
| | 002 | PSTN Access Number | |
| | 003 | Memory Lock Disabled | |
| | 106 | 004 | Transmission Disabled |
| 107 | IPFAX Port Settings | | |
| | 001 | H323 Port | |
| | 002 | SIP Port | |
| | 003 | RAS Port | |
| | 004 | Gatekeeper port | |
| | 005 | T.38 Port | |
| | 006 | SIP Server Port | |
| | 007 | IPFAX Protocol Priority | Select "H323" or "SIP". |
| 201 | FAX SW | | |

Fax Option
Type 3350
D361

Service Program Tables

| 3 | Mode No. | | Function |
|---|-----------|---------|----------|
| | 001 – 032 | 00 – 1F | |

4.2.4 SP4-XXX (ROM VERSIONS)

| 4 | Mode No. | | Function |
|-----|----------|--------------------|---|
| 101 | 001 | FCU ROM Version | Displays the FCU ROM version. |
| 102 | 001 | Error Codes | Displays the latest 64 fax error codes. |
| 103 | 001 | G3-1 ROM Version | Displays the G3-1 modem version. |
| 104 | 001 | G3-2 ROM Version | Displays the G3-2 modem version. |
| 105 | 001 | G3-3 ROM Version | Displays the G3-3 modem version. |
| 106 | 001 | G4 ROM Version | Not used (Do not change the bit switches) |
| 107 | 001 | Charge ROM Version | Not used (Do not change the bit switches) |

4.2.5 SP5-XXX (INITIALIZING)

| 5 | Mode No. | | Function |
|-----|--------------------|--|--|
| | Initialize SRAM | | |
| 101 | 000 | | Initializes the bit switches and user parameters, user data in the SRAM, files in the SAF memory, and clock. |
| | Erase All Files | | |
| 102 | 000 | | Erases all files stored in the SAF memory. |
| 103 | Reset Bit Switches | | |

Service Program Tables

| 5 | Mode No. | | Function |
|-----|----------------------------------|--|--|
| | 000 | | Resets the bit switches and user parameters. |
| | Factory setting | | |
| 104 | 000 | | Resets the bit switches and user parameters, user data in the SRAM and files in the SAF memory. |
| 105 | Initialize All Bit Switches | | |
| | 000 | | Initializes all the current bit switch settings. |
| | Initialize Security Bit Switches | | |
| 106 | 000 | | Initializes only the security bit switches. If you select automatic output/display for the user parameter switches, the security settings are initialized. |

Fax Option
Type 3350
D361

4.2.6 SP6-XXX (REPORTS)

| 6 | Mode No. | | Function |
|-----|------------------------|-----------------------|---|
| | System Parameter List | | |
| 101 | 000 | | Touch the "ON" button to print the system parameter list. |
| | Service Monitor Report | | |
| 102 | 000 | | Touch the "ON" button to print the service monitor report. |
| | G3 Protocol Dump List | | |
| 103 | 001 | G3 All Communications | Prints the protocol dump list of all communications for all G3 lines. |

Service Program Tables

| 6 | Mode No. | | Function |
|----------|-----------------------|---------------------------|--|
| | 002 | G3-1 (All Communications) | Prints the protocol dump list of all communications for the G3-1 line. |
| 103 | 003 | G3-1 (1 Communication) | Prints the protocol dump list of the last communication for the G3-1 line. |
| | 004 | G3-2 (All Communications) | Prints the protocol dump list of all communications for the G3-2 line. |
| | 005 | G3-2 (1 Communication) | Prints the protocol dump list of the last communication for the G3-2 line. |
| | 006 | G3-3 (All Communications) | Prints the protocol dump list of all communications for the G3-3 line. |
| | 007 | G3-3 (1 Communication) | Prints the protocol dump list of the last communication for the G3-3 line. |
| | G4 Protocol Dump List | | |
| | 001 | Dch + Bch 1 | Not used (Do not change the bit switches) |
| 104 | 002 | Dch | |
| | 003 | Bch 1 Link Layer | |
| | 004 | Dch Link Layer | |
| | 005 | Dch +Bch 2 | |
| | 006 | Bch 2 Link Layer | |
| 105 | All Files print out | | |
| | 000 | | Prints out all the user files in the SAF memory, including confidential messages. Note: Do not use this function, unless the customer is having trouble printing confidential messages or recovering files stored using the memory lock feature. |

Service Program Tables

| 6 | Mode No. | | Function |
|-----|-----------------------|--------------------|--|
| 106 | Journal Print out | | |
| | 001 | All Journals | The machine prints all the communication records on the report. |
| | 002 | Specified Date | The machine prints all communication records after the specified date. |
| 107 | Log List Print out | | |
| | 001 | All log files | These log print out functions are for designer use only. |
| | 002 | Printer | |
| | 003 | SC/TRAP Stored | |
| | 004 | Decompression | |
| | 005 | Scanner | |
| | 006 | JOB/SAF | |
| | 007 | Reconstruction | |
| | 008 | JBIG | |
| | 009 | Fax Driver | |
| | 010 | G3CCU | |
| | 011 | Fax Job | |
| | 012 | CCU | |
| | 013 | Scanner Condition | |
| 108 | IP Protocol Dump List | | |
| | 001 | All Communications | Prints the protocol dump list of all communications for the IP fax line. |
| | 002 | 1 Communication | Prints the protocol dump list of the last communication for the IP fax line. |

Fax Option
 Type 3350
 D361

Service Program Tables

4.2.7 SP7-XXX (TEST MODES)

These are the test modes for PTT approval.

| 7 | Function |
|-----|-----------------------|
| 101 | G3-1 Modem Tests |
| 102 | G3-1 DTMF Tests |
| 103 | Ringer Test |
| 104 | G3-1 V34 (S2400baud) |
| 105 | G3-1 V34 (S2800baud) |
| 106 | G3-1 V34 (S3000baud) |
| 107 | G3-1 V34 (S3200baud) |
| 108 | G3-1 V34 (S3429baud) |
| 109 | Recorded Message Test |
| 110 | G3-2 Modem Tests |
| 111 | G3-2 DTMF Tests |
| 112 | G3-2 V34 (S2400baud) |
| 113 | G3-2 V34 (S2800baud) |
| 114 | G3-2 V34 (S3000baud) |
| 115 | G3-2 V34 (S3200baud) |
| 116 | G3-2 V34 (S3429baud) |
| 117 | G3-3 Modem Tests |
| 118 | G3-3 DTMF Tests |
| 119 | G3-3 V34 (S2400baud) |
| 120 | G3-3 V34 (S2800baud) |

Service Program Tables

| 7 | Function |
|-----|----------------------------------|
| 121 | G3-3 V34 (S3000baud) |
| 122 | G3-3 V34 (S3200baud) |
| 123 | G3-3 V34 (S3429baud) |
| 124 | IG3-1 Modem Tests - Not used |
| 125 | IG3-1 DTMF Tests - Not used |
| 126 | IG3-1 V34 (S2400baud) - Not used |
| 127 | IG3-1 V34 (S2800baud) - Not used |
| 128 | IG3-1 V34 (S3000baud) - Not used |
| 129 | IG3-1 V34 (S3200baud) - Not used |
| 130 | IG3-1 V34 (S3429baud) - Not used |
| 131 | IG3-2 Modem Tests - Not used |
| 132 | IG3-2 DTMF Tests - Not used |
| 133 | IG3-2 V34 (S2400baud) - Not used |
| 134 | IG3-2 V34 (S2800baud) - Not used |
| 135 | IG3-2 V34 (S3000baud) - Not used |
| 136 | IG3-2 V34 (S3200baud) - Not used |
| 137 | IG3-2 V34 (S3429baud) - Not used |

Fax Option
Type 3350
D361

4.2.8 SP9-XXX (DESIGN SWITCH MODE)

| 9 | Mode No. | Function |
|-----|---------------|----------|
| 702 | Design Switch | DFU |

Bit Switches

4.3 BIT SWITCHES

 Note

- Do not adjust a bit switch or use a setting that is described as "Not used", as this may cause the machine to malfunction or to operate in a manner that is not accepted by local regulations. Such bits are for use only in other areas, such as Japan.

Default settings for bit switches are not listed in this manual. Refer to the System Parameter List printed by the machine.

4.3.1 SYSTEM SWITCHES

| System Switch 00 (SP No. 1-101-001) | | |
|-------------------------------------|---|--|
| No | Function | Comments |
| 0 | Dedicated transmission parameter programming 0: Disabled 1: Enabled | Set this bit to 1 before changing any dedicated transmission parameters. Reset this bit to 0 after programming dedicated transmission parameters. |
| 1 | Not used | Do not change |
| 2 | Technical data printout on the Journal 0: Disabled 1: Enabled | 1: Instead of the personal name, the following data are listed on the Journal for each G3 communication. |

Bit Switches

| System Switch 00 (SP No. 1-101-001) | | |
|--|--|---|
| No | Function | Comments |
| | <p>Example:</p> <p>0000 32V34 288/264 L0100 03 04 (1) (2)(3) (4) (5) (6) (7) (8)</p> <p>(1): EQM value (Line quality data). A larger number means more errors. (2): Symbol rate (V.34 only) (3): Final modem type used (4): Starting data rate (for example, 288 means 28.8 kbps) (5): Final data rate (6): Rx level (see below for how to read the rx level) (7): Total number of error lines that occurred during non-ECM reception. (8): Total number of burst error lines that occurred during non-ECM reception.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ EQM and rx level are fixed at "FFFF" in tx mode. ▪ The seventh and eighth numbers are fixed at "00" for transmission records and ECM reception records. | |
| | <p>Rx level calculation</p> <p>Example:</p> <p>0000 32V34 288/264 L0100 03 04 (1) (2)(3) (4) (5) (6) (7) (8)</p> <p>The four-digit hexadecimal value (N) after "L" indicates the rx level.</p> <p>The high byte is given first, followed by the low byte. Divide the decimal value of N by -16 to get the rx level.</p> <p>In the above example, the decimal value of N (= 0100 [H]) is 256.</p> <p>So, the actual rx level is $256/-16 = -16$ dB</p> | |
| 3 | Not used | Do not change this setting. |
| 4 | Line error mark print 0: OFF, 1: ON (print) | When "1" is selected, a line error mark is printed on the printout if a line error occurs during reception. |
| 5 | G3/G4 communication parameter display 0: Disabled | This is a fault-finding aid. The LCD shows the key parameters (see below). This is normally disabled because it cancels the CSI display for the user. |

Fax Option
Type 3350
D361

Bit Switches

| System Switch 00 (SP No. 1-101-001) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| | 1: Enabled | Be sure to reset this bit to 0 after testing. |
| 6 | Protocol dump list output after each communication 0: Off 1: On | This is only used for communication troubleshooting. It shows the content of the transmitted facsimile protocol signals. Always reset this bit to 0 after finishing testing. If system switch 09 bit 6 is at "1", the list is only printed if there was an error during the communication. |
| 7 | Not used | Do not change the setting. |

G3 Communication Parameters

| | | |
|------------------|---|--|
| Modem rate | 336: 33600 bps 312: 31200 bps 288: 28800 bps 264: 26400 bps 240: 24000 bps 216: 21600 bps 192: 19200 bps | 168: 16800 bps 144: 14400 bps 120: 12000 bps 96: 9600 bps 72: 7200 bps 48: 4800 bps 24: 2400 bps |
| Resolution | S: Standard (8 x 3.85 dots/mm) D: Detail (8 x 7.7 dots/mm) F: Fine (8 x 15.4 dots/mm) SF: Superfine (16 x 15.4 dots/mm) 21: Standard (200 x 100 dpi) 22: Detail (200 x 200 dpi) 44: Superfine (400 x 400 dpi) | |
| Compression mode | MMR: MMR compression MR: MR compression MH: MH compression JBO: JBIG compression (Optional mode) JBB: JBIG compression (Basic mode) | |

Bit Switches

| | |
|--|--|
| Communication mode | ECM: With ECM NML: With no ECM |
| Width and reduction | A4: A4 (8.3"), no reduction B4: B4 (10.1"), no reduction A3: A3 (11.7"), no reduction |
| I/O rate | 0: 0 ms/line 5: 5 ms/line 10: 10 ms/line 20: 20 ms/line 25: 2.5 ms/line 40: 40 ms/line  Note "40" is displayed while receiving a fax message using AI short protocol. |
| System Switch 01 - Not used (Do not change the factory settings.) | |

Fax Option
Type 3350
D361

System Switch 02 (SP No. 1-101-003)

| No | Function | Comments |
|-----|--|---|
| 0 | Not used | Do not change these settings. |
| 2 | Forced reset after transmission stalls 0: Off 1: On | With this setting on, the machine resets itself automatically if a transmission stalls and fails to complete the job. |
| 3 | Not used | Do not change these settings. |
| 4 | File retention time 0: Depends on User Parameter 24 [18(H)] 1: No limit | 1: A file that had a communication error will not be erased unless the communication is successful. |
| 5 | Not used | Do not change this setting. |
| 6-7 | Memory read/write by RDS | (0,0): All RDS systems are always locked out. |

Bit Switches

| System Switch 02 (SP No. 1-101-003) | | | | | |
|-------------------------------------|----------|-------|-----------------|--|--|
| No | Function | | | Comments | |
| | Bit 7 | Bit 6 | Setting | (0,1), (1,0): Normally, RDS systems are locked out, but the user can temporarily switch RDS on to allow RDS operations to take place. RDS will automatically be locked out again after a certain time, which is stored in System Switch 03. Note that if an RDS operation takes place, RDS will not switch off until this time limit has expired. (1,1): At any time, an RDS system can access the machine. | |
| | 0 | 0 | Always disabled | | |
| | 0 | 1 | User selectable | | |
| | 1 | 0 | User selectable | | |
| | 1 | 1 | Always enabled | | |
| | | | | | |

| System Switch 03 (SP No. 1-101-004) | | |
|-------------------------------------|---|--|
| No | Function | Comments |
| 0 to 7 | Length of time that RDS is temporarily switched on when bits 6 and 7 of System Switch 02 are set to "User selectable" | 00 - 99 hours (BCD). This setting is only valid if bits 6 and 7 of System Switch 02 are set to "User selectable". The default setting is 24 hours. |

| System Switch 04 (SP No. 1-101-005) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| 0-2 | Not used | Do not change these settings. |
| 3 | Printing dedicated tx parameters on Quick/Speed Dial Lists 0: Disabled 1: Enabled | 1: Each Quick/Speed dial number on the list is printed with the dedicated tx parameters (10 bytes each). The first 10 bytes of data are the programmed dedicated tx parameters; 34 bytes of data are printed (the other 24 bytes have no use for service technicians). |
| 4-7 | Not used | Do not change these settings. |

Bit SwitchesFax Option
Type 3350
D361**System Switch 05** - Not used (Do not change the factory settings.)**System Switch 06 (SP No. 1-101-007)**

| No | Function | Comments |
|--------|---|--|
| 0 to 7 | Margin setting for Create Margin Transmission | 71 to 99 (BCD) %. This setting determines the reduction ratio when the user uses the Create Margin Transmission feature. Default setting: 1001 0011 (93%) |

System Switch 07 - Not used (Do not change the factory settings.)**System Switch 08** - Not used (Do not change the factory settings.)**System Switch 09 (SP No. 1-101-010)**

| No | Function | Comments |
|----|--|---|
| 0 | Addition of image data from confidential transmissions on the transmission result report 0: Disabled 1: Enabled | If this feature is enabled, the top half of the first page of confidential messages will be printed on transmission result reports. |
| 1 | Inclusion of communications on the Journal when no image data was exchanged. 0: Disabled 1: Enabled | 0: Communications that reached phase C (message tx/rx) of the T.30 protocol are listed on the Journal. 1: Communications that reached phase A (call setup) of T.30 protocol are listed on the Journal. This will include telephone calls. |
| 2 | Automatic error report printout 0: Disabled 1: Enabled | 0: Error reports will not be printed. 1: Error reports will be printed automatically after failed communications. |
| 3 | Printing of the error code on the | 1: Error codes are printed on the error reports. |

Bit Switches

| System Switch 09 (SP No. 1-101-010) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| | error report 0: No 1: Yes | |
| 4 | Not used | Do not change this setting. |
| 5 | Power failure report 0: Disabled 1: Enabled | 1: A power failure report will be automatically printed after the power is switched on if a fax message disappeared from the memory when the power was turned off last. |
| 6 | Conditions for printing the protocol dump list 0: Print for all communications 1: Print only when there is a communication error | This switch becomes effective only when system switch 00 bit 6 is set to 1. 1: Set this bit to 1 when you wish to print a protocol dump list only for communications with errors. |
| 7 | Priority given to various types of remote terminal ID when printing reports 0: RTI > CSI > Dial label > Tel. number 1: Dial label > Tel. number > RTI > CSI | This bit determines which set of priorities the machine uses when listing remote terminal names on reports. Dial Label: The name stored, by the user, for the Quick/Speed Dial number. |

| System Switch 0A (SP No. 1-101-011) | | |
|-------------------------------------|--|---|
| No | Function | Comments |
| 0 | Automatic port selection 0: Disabled, 1: Enabled | When "1" is selected, a suitable port is automatically selected if the selected port is not used. |
| 1-2 | Not used | Do not change these settings. |
| 3 | Continuous polling reception 0: Disabled 1: Enabled | This feature allows a series of stations to be polled in a continuous cycle. This will continue until the |

Bit Switches

| System Switch 0A (SP No. 1-101-011) | | |
|-------------------------------------|--|---|
| No | Function | Comments |
| | | polling reception file is erased. The dialing interval is the same as memory transmission. |
| 4 | Dialing on the ten-key pad when the external telephone is off-hook 0: Disabled 1: Enabled | 0: Prevents dialing from the ten-key pad while the external telephone is off-hook. Use this setting when the external telephone is not by the machine, or if a wireless telephone is connected as an external telephone. 1: The user can dial on the machine's ten-key pad when the handset is off-hook. |
| 5 | On hook dial 0: Disabled 1: Enabled | 0: On hook dial is disabled. |
| 6-7 | Not used | Do not change the factory settings |

System Switch 0B - Not used (Do not change the factory settings.)

System Switch 0C - Not used (Do not change the factory settings.)

System Switch 0D - Not used (Do not change the factory settings.)

System Switch 0E (SP No. 1-101-015)

| No | Function | Comments |
|-----|--|--|
| 0-1 | Not used | Do not change the settings. |
| 2 | Enable/disable for direct sending selection 0: Direct sending off 1: Direct sending on | Direct sending cannot operate when the capture function is on during sending. Setting this switch to "1" enables direct sending without capture. Setting this switch to "0" masks the direct sending function on the operation panel so it cannot be selected. |

Bit Switches

| System Switch 0E (SP No. 1-101-015) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| 3 | Action when the external handset goes off-hook 0: Manual tx and rx operation 1: Memory tx and rx operation (the display remains the same) | 0: Manual tx and rx are possible while the external handset is off-hook. However, memory tx is not possible. 1: The display stays in standby mode even when the external handset is used, so that other people can use the machine for memory tx operation. Note that manual tx and rx are not possible with this setting. |
| 4-7 | Not used | Do not change these settings. |

Bit Switches

Fax Option
Type 3350
D361

| System Switch 0F (SP No. 1-101-016) | | | |
|-------------------------------------|---|------------------|--|
| No | Function | | Comments |
| 0 to 7 | Country/area code for functional settings (Hex) | | <p>This country/area code determines the factory settings of bit switches and RAM addresses. However, it has no effect on the NCU parameter settings and communication parameter RAM addresses.</p> <p>Cross reference NCU country code: SP No. 2-103-001 for G3-1 SP No. 2-104-001 for G3-2 SP No. 2-105-001 for G3-3</p> |
| | 00: France | 11: USA | |
| | 01: Germany | 12: Asia | |
| | 02: UK | 13: Japan | |
| | 03: Italy | 14: Hong Kong | |
| | 04: Austria | 15: South Africa | |
| | 05: Belgium | 16: Australia | |
| | 06: Denmark | 17: New Zealand | |
| | 07: Finland | 18: Singapore | |
| | 08: Ireland | 19: Malaysia | |
| | 09: Norway | 1A: China | |
| | 0A: Sweden | 1B: Taiwan | |
| | 0B: Switz. | 1C: Korea | |
| | 0C: Portugal | 20: Turkey | |
| | 0D: Holland | 21: Greece | |
| | 0E: Spain | 22: Hungary | |
| | 0F: Israel | 23: Czech | |
| | 10: --- | 24: Poland | |

Bit Switches

| System Switch 10 (SP No. 1-101-017) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| 0-7 | Threshold memory level for parallel memory transmission | Threshold = N x 128 KB + 256 KB N can be between 00 - FF(H) Default setting: 02(H) = 512 KB |

| System Switch 11 (SP No. 1-101-018) | | |
|-------------------------------------|--|--|
| No | Function | Comments |
| 0 | TTI printing position 0: Superimposed on the page data 1: Printed before the data leading edge | Change this bit to 1 if the TTI overprints information that the customer considers to be important (G3 transmissions). |
| 1 | TSI (G3) printing position 0: Superimposed on the page data 1: Printed before the data leading edge | Change this bit to 1 if the TSI (G3) overprints information that the customer considers to be important. |
| 2 | Not used | Do not change the factory settings. |
| 3 | TTI used for broadcasting 0: The TTIs selected for each Quick/Speed dial are used 1: The same TTI is used for all destinations | 1: The TTI (TTI_1 or TTI_2) which is selected for all destinations during broadcasting. |
| 4-7 | Not used | Do not change the factory settings. |

Bit Switches

Fax Option
 Type 3350
 D361

| System Switch 12 (SP No. 1-101-019) | | |
|-------------------------------------|--|--|
| No | Function | Comments |
| 0-7 | TTI printing position in the main scan direction | <p>TTI: 08 to 92 (BCD) mm Input even numbers only.</p> <p>This setting determines the print start position for the TTI from the left edge of the paper. If the TTI is moved too far to the right, it may overwrite the file number which is on the top right of the page. On an A4 page, if the TTI is moved over by more than 50 mm, it may overwrite the page number.</p> |

| |
|--|
| System Switch 13 - Not used (do not change these settings) |
| System Switch 14 - Not used (do not change these settings) |

| System Switch 15 (SP No. 1-101-022) | | |
|-------------------------------------|--|--|
| No | Function | Comments |
| 0 | Not used | Do not change the settings. |
| 1 | Going into the Energy Saver mode automatically 0: Enabled 1: Disabled | 1: The machine will restart from the Energy Saver mode quickly, because the +5V power supply is active even in the Energy Saver mode. |
| 2-3 | Not used | Do not change these settings. |
| 4-5 | Interval for preventing the machine from entering Energy Saver mode if there is a pending transmission file. | If there is a file waiting for transmission, the machine does not go to Energy Saver mode during the selected period. After transmitting the file, if there is no file waiting for transmission, the machine goes to the Energy Saver mode. |
| | Bit 5 | Bit 4 |
| | 0 | Setting 1 min |

Bit Switches

| System Switch 15 (SP No. 1-101-022) | | | | | |
|-------------------------------------|----------|---|----------|---------------|--|
| No | Function | | | Comments | |
| 0 | 0 | 1 | 30 min | | |
| | 1 | 0 | 1 hour | | |
| | 1 | 1 | 24 hours | | |
| 6-7 | Not used | | | Do not change | |

| System Switch 16 (SP No. 1-101-023) | | | | | |
|-------------------------------------|---|--|--|---|--|
| No | Function | | | Comments | |
| 0 | Parallel Broadcasting 0: Disabled 1: Enabled | | | 1: The machine sends messages simultaneously using all available ports during broadcasting. | |
| 1 | Priority setting for the G3 line. 0: PSTN-1 > PSTN-2 or 3 1: PSTN-2 or 3 > PSTN-1 | | | This function allows the user to select the default G3 line type. The optional SG3 units are required to use the PSTN-2 or 3 setting. | |
| 2-7 | Not used | | | Do not change these settings. | |

| |
|---|
| System Switch 17 - Not used (do not change these settings) |
| System Switch 18 - Not used (do not change these settings) |

| System Switch 19 (SP No. 1-101-026) | | | | | |
|-------------------------------------|--|--|--|--|--|
| No | Function | | | Comments | |
| 0-5 | Not used | | | Do not change the settings. | |
| 6 | Extended scanner page memory after memory option is installed 0: Disabled | | | 0: After installing the memory expansion option, the scanner page memory is extended to 4 MB from 2 MB. 1: If this bit is set to 1 after installing the | |

Bit Switches

| System Switch 19 (SP No. 1-101-026) | | |
|--|--|--|
| No | Function | Comments |
| | 1: Enabled | memory expansion option, the scanner page memory is extended to 12 MB. But the SAF memory decreases to 18 MB. |
| 7 | Special Original mode 0: Disabled 1: Enabled | 1: If the customer frequently wishes to transmit a form or letterhead which has a colored or printed background, change this bit to "1". "Original 1" and "Original 2" can be selected in addition to the "Text", "Text/Photo" and "Photo" modes. |

Fax Option
Type 3350
D361

| System Switch 1A (SP No. 1-101-027) | | |
|--|--|---|
| No | Function | Comments |
| 0 to 7 | LS RX memory capacity threshold setting 00-FF (0-1020 Kbyte: Hex) | Sets the value to x4KB. When the amount of available memory drops below this setting, RX documents are printed to conserve memory. Initial setting 0x80 (512 KB) |

| |
|---|
| System Switch 1B - Not used (do not change these settings) |
| System Switch 1C - Not used (do not change these settings) |

| System Switch 1D (SP No. 1-101-030) | | |
|--|---|---|
| No | Function | Comments |
| 0 | RTI/CSI/CPS code display 0: Enable 1: Disable | 0: RTI, CSI, CPS codes are displayed on the top line of the LCD panel during communication. 1: Codes are switched off (no display) |
| 1 | Not used | Do not change this setting. |

Bit Switches

| System Switch 1D (SP No. 1-101-030) | | |
|-------------------------------------|--|---|
| No | Function | Comments |
| 2 | Destination telephone number display limitation 0: OFF, 1: ON | When "1" is selected, the destination telephone number display is limited and redial is disabled. |
| 3-7 | Not used | Do not change these settings. |

| System Switch 1E (SP No. 1-101-031) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| 0 | Communication after the Journal data storage area has become full 0: Impossible 1: Possible | <p>0: When this switch is on and the journal history becomes full, the next report prints. If the journal history is not deleted, the next transmission cannot be received. This prevents overwriting communication records before the machine can print them.</p> <p>1: If the buffer memory of the communication records for the Journal is full, fax communications are still possible. But the machine will overwrite the oldest communication records.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper). |
| 1 | Action when the SAF memory has become full during scanning 0: The current page is erased. 1: The entire file is erased. | <p>0: If the SAF memory becomes full during scanning, the successfully scanned pages are transmitted.</p> <p>1: If the SAF memory becomes full during scanning, the file is erased and no pages are transmitted.</p> <p> Note</p> |

Bit Switches

| System Switch 1E (SP No. 1-101-031) | | |
|-------------------------------------|---|--|
| No | Function | Comments |
| | | <ul style="list-style-type: none"> ▪ This setting is effective only when Automatic Journal printout is enabled but the machine cannot print the report (e.g., no paper). |
| 2 | RTI/CSI display priority 0: RTI 1: CSI | This bit determines which identifier, RTI or CSI, is displayed on the LCD while the machine is communicating in G3 non-standard mode. |
| 3 | File No. printing 0: Enabled 1: Disabled | 1: File numbers are not printed on any reports. |
| 4 | Action when authorized reception is enabled but authorized RTIs/CSIs are not yet programmed 0: All fax reception is disabled 1: Faxes can be received if the sender has an RTI or CSI | If authorized reception is enabled but the user has stored no acceptable sender RTIs or CSIs, the machine will not be able to receive any fax messages. If the customer wishes to receive messages from any sender that includes an RTI or CSI, and to block messages from senders that do not include an RTI or CSI, change this bit to "1", then enable Authorized Reception. Otherwise, keep this bit at "0 (default setting)". |
| 5-7 | Not used | Do not change the settings |

Fax Option
 Type 3350
 D361

| System Switch 1F (SP No. 1-101-032) | | |
|-------------------------------------|--|--|
| No | Function | Comments |
| 0 | Not used | Do not change the settings. |
| 1 | Report printout after an original jam during SAF storage or if the SAF memory fills up | 0: When an original jams, or the SAF memory overflows during scanning, a report will be printed. |

Bit Switches

| System Switch 1F (SP No. 1-101-032) | | |
|-------------------------------------|---|---|
| No | Function | Comments |
| | 0: Enabled 1: Disabled | Change this bit to "1" if the customer does not want to have a report in these cases. Memory tx – Memory storage report Parallel memory tx – Transmission result report |
| 2 | Not used | Do not change the settings. |
| 3 | Received fax print start timing (G3 reception) 0: After receiving each page 1: After receiving all pages | 0: The machine prints each page immediately after the machine receives it. 1: The machine prints the complete message after the machine receives all the pages in the memory. |
| 4-6 | Not used | Do not change the factory settings. |
| 7 | Action when a fax SC has occurred 0: Automatic reset 1: Fax unit stops | 0: When the fax unit detects a fax SC code other than SC1201 and SC1207, the fax unit automatically resets itself. 1: When the fax unit detects any fax SC code, the fax unit stops. Cross Reference Fax SC codes - See "Troubleshooting" |

4.3.2 I-FAX SWITCHES

| I-fax Switch 00 (SP No. 1-102-001) | | |
|------------------------------------|--------------------------------------|--|
| No | Function | Comments |
| | Original Width of TX Attachment File | This setting sets the maximum size of the original that the destination can receive. (Bits 3~7 are reserved for future use or not used.) |
| 0 | A4 | 0: Off (not selected), 1: On (selected) |

Bit Switches

| I-fax Switch 00 (SP No. 1-102-001) | | |
|------------------------------------|----------|--|
| No | Function | Comments |
| 1 | B4 | If more than one of these three bits is set to "1", the larger size has priority. For example, if both Bit 2 and Bit 1 are set to "1" then the maximum size is "A3" (Bit 2). |
| 2 | A3 | |
| 3-6 | Reserved | |
| 7 | Not used | <p>When mail is sent, there is no negotiation with the receiving machine at the destination, so the sending machine cannot make a selection for the receiving capabilities (original width setting) of the receiving machine. The original width selected with this switch is used as the RX machine's original width setting, and the original is reduced to this size before sending. The default is A4.</p> <p>If the width selected with this switch is higher than the receiving machine can accept, the machine detects this and this causes an error.</p> |

Fax Option
 Type 3350
 D361

| I-fax Switch 01 (SP No. 1-102-002) | | |
|--|----------------------|---|
| No | Function | Comments |
| Original Line Resolution of TX Attachment File | | These settings set the maximum resolution of the original that the destination can receive. |
| 0 | 200x100 Standard | 0: Not selected 1: Selected |
| 1 | 200x200 Detail | |
| 2 | 200x400 Fine | |
| 3 | 300 x 300 Reserve | |
| 4 | 400 x 400 Super Fine | |
| 5 | 600 x 600 Reserve | |

Bit Switches

| I-fax Switch 01 (SP No. 1-102-002) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| 6 | Reserve | |
| 7 | mm/inch | |
| | <p>This setting selects mm/inch conversion for mail transmission. 0: Off (No conversion), 1: On (Conversion)</p> <p>When on (set to "1"), the machine converts millimeters to inches for sending mail. There is no switch for converting inches to millimeters.</p> <p>Unlike G3 fax transmissions which can negotiate between sender and receiver to determine the setting, mail cannot negotiate between terminals; the mm/inch selection is determined by the sender fax.</p> <p>When this switch is Off (0):</p> <ul style="list-style-type: none"> ▪ Images scanned in inches are sent in inches. ▪ Images scanned in mm are sent in mm. ▪ Images received in inches are transmitted in inches. ▪ Images received in mm are transmitted in mm. <p>When this switch is On (1):</p> <ul style="list-style-type: none"> ▪ Images scanned in inches are sent in inches. ▪ Images scanned in mm are converted to inches. ▪ Images received in inches are transmitted in inches. ▪ Images received in mm are converted to inches. | |

| I-fax Switch 02 (SP No. 1-102-003) | | |
|------------------------------------|--------------------------------|----------|
| No | Function | Comments |
| 0 | RX Text Mail Header Processing | |

Bit Switches

| I-fax Switch 02 (SP No. 1-102-003) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| | <p>This setting determines whether the header information is printed with text e-mails when they are received.</p> <p>0: Prints only text mail. 1: Prints mail header information attached to text mail.</p> <p>When a text mail is received with this switch On (1), the "From" address and "Subject" address are printed as header information.</p> <p>When a mail with only binary data is received (a TIFF-F file, for example), this setting is ignored and no header is printed.</p> | |
| 1 | <p>Output from Attached Document at E-mail TX Error</p> <p>This setting determines whether only the first page or all pages of an e-mail attachment are printed at the sending station when a transmission error occurs.</p> <p>This allows the customer to see which documents have not reached their intended destinations if sent to the wrong e-mail addresses, for example.</p> <p>0: Prints 1st page only. 1: Prints all pages.</p> | |
| 2-3 | <p>Text String for Return Receipt</p> <p>This setting determines the text string output for the Return Receipt that confirms the transmission was received normally at the destination.</p> | |

Fax Option
 Type 3350
 D361

Bit Switches

| I-fax Switch 02 (SP No. 1-102-003) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| | <p>00: "Dispatched" Sends from PC mail a request for a Return Receipt. Receives the Return Receipt with "dispatched" in the 2nd part: Disposition: Automatic-action/MDN-send automatically; dispatched The "dispatched" string is included in the Subject string.</p> <p>01: "Displayed" Sends from PC mail a request for a Return Receipt. Receives the Return Receipt with "displayed" in the 2nd part: Disposition: Automatic-action/MDN-send automatically; displayed The "displayed" string is included in the Subject string.</p> <p>10: Reserved</p> <p>11: Reserved</p> <p>A mail requesting a Return Receipt sent from an IFAX with this switch set to "00" (for "dispatched") received by Microsoft Outlook 2000 may cause an error. If any setting other than "displayed" (01) causes a problem, change the setting to "01" to enable normal sending of the Return Receipt.</p> | |
| 4 | <p>Media accept feature</p> <p>This setting adds or does not add the media accept feature to the answer mail to confirm a reception.</p> <p>0: Does not add the media accept feature to the answer mail</p> <p>1: Adds the media accept feature to the answer mail.</p> <p>Use this bit switch if a problem occurs when the machine receives an answer mail, which contains the media accept feature field.</p> | |
| 5-6 | Not Used | |
| 7 | Image Resolution of RX Text Mail | |

Bit Switches

| I-fax Switch 02 (SP No. 1-102-003) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| | This setting determines the image resolution of the received mail. 0: 200 x 200 1: 400 x 400 The "1" setting requires installation of the Function Upgrade Card in order to have enough SAF (Store and Forward) memory to receive images at 400 x 400 resolution. | |

Fax Option
Type 3350
D361

| I-fax Switch 03 (SP No. 1-102-004) | | |
|------------------------------------|---|----------|
| No | Function | Comments |
| 0 | Original Output at Transfer Station | |
| | This setting determines whether the original is output at the transfer station when it is received from the sender that initiated the transfer transmission. This feature is the same as for G3 transfer transmissions. 0: Received original not output at the transfer station. 1: Received original output. The original is printed after the transfer station has transferred it to the destinations, so its output confirms that the original has been transferred. | |
| 1 | Transfer Result Report | |
| | This setting determines when a Transfer Result Report is generated and returned to the transfer requestor. 0: Returns the report after each transfer. 1: Returns the report only if an error occurred during transfer. | |
| 2 | Destination Error Handling for Reception Transfer Request | |

Bit Switches

| I-fax Switch 03 (SP No. 1-102-004) | | |
|------------------------------------|---|----------|
| No | Function | Comments |
| | <p>This setting restricts transfer transmission based on whether the final destinations are correct or not.</p> <p>0: The transfer station transmits to correct destinations only (addresses with no errors in them).</p> <p>1: If any address has an error in it, the transfer station transfers no transmissions and returns a transfer transmission failure report to the requestor that initiated the transfer.</p> <p>There is no negotiation between the transfer initiator and the transfer station to determine whether the final destination addresses are correct or not. This setting determines whether or not the transfer station transfers the transmissions if there is a mistake in even one of the final destination addresses.</p> | |
| 3 | <p>Polling ID Check for Reception of Transfer Request</p> <p>This setting determines whether the polling IDs of incoming transmissions are checked to ensure that the polling IDs match.</p> <p>0: Receives and transfers only messages that have matching polling IDs.</p> <p>1: Receives and transfers all messages, even if the polling IDs do not match.</p> | |
| 4-7 | Not Used | |

| I-fax Switch 04 (SP No. 1-102-005) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| 0 | <p>Subject for Delivery TX/Memory Transfer</p> <p>This setting determines whether the RTI/CSI registered on this machine or the RTI/CSI of the originator is used in the subject lines of transferred documents.</p> <p>0: Puts the RTI/CSI of the originator in the Subject line. If this is used, either the RTI or CSI is used. Only one of these can be received for use in the subject line.</p> <p>1: Puts the RTI/CSI registered on this machine in the Subject line.</p> <p>When this switch is used to transfer and deliver mail to a PC, the information in the Subject line that indicates where the transmission originated can be used to determine automatically the destination folder for each e-mail.</p> | |

Bit Switches

| I-fax Switch 04 (SP No. 1-102-005) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| 1 | <p>Subject corresponding to mail post database</p> <p>0: Standard subject</p> <p>1: Mail post database subject</p> <p>The standard subject is replaced by the mail post database subject in the following three cases:</p> <ol style="list-style-type: none"> 1) When the service technician sets the service (software) switch. 2) When memory sending or delivery specified by F code is applied by the SMTP server 3) With relay broadcasting (1st stage without the Schmidt 4 function). <p> Note</p> <ul style="list-style-type: none"> ▪ This switch does not apply for condition 3) when the RX system is set up for memory sending, delivery by F-code, sending with SMTP RX and when operators are using FOL (to prevent problems when receiving transmissions). | |
| 2-7 | Not Used | |

Fax Option
Type 3350
D361

| I-fax Switch 05 (SP No. 1-102-006) | | |
|------------------------------------|---|----------|
| No | Function | Comments |
| 0 | <p>Mail Addresses of SMTP Broadcast Recipients</p> <p>Determines whether the e-mail addresses of the destinations that receive transmissions broadcasted using SMTP protocol are recorded in the Journal.</p> <p>For example: "1st destination + Total number of destinations: 9" in the Journal indicates a broadcast to 9 destinations.</p> <p>0: Not recorded</p> <p>1: Recorded</p> | |
| 1-7 | Not Used | |

I-fax Switch 06 - Not used (do not change the settings)

Bit Switches

I-fax Switch 07 - Not used (do not change the settings)

I-fax Switch 08 (SP No. 1-102-009)

| No | Function | Comments |
|-----|---|----------|
| 0-7 | Memory Threshold for POP Mail Reception This setting determines the amount of SAF (Store and Forward) memory. (SAF stores fax messages to send later for transmission to more than one location, and also holds incoming messages if they cannot be printed.) When the amount of SAF memory available falls below this setting, mail can no longer be received; received mail is then stored on the mail server. 00-FF (0 to 1024 KB: HEX) The hexadecimal number you enter is multiplied by 4 KB to determine the amount of memory. | |

I-fax Switch 09 (SP No. 1-102-010)

| No | Function | Comments |
|-----|---------------------|--|
| 0-3 | Not used | Do not change the settings |
| 4-7 | Restrict TX Retries | This setting determines the number of retries when connection and transmission fails due to errors. 01-F (1-15 Hex) |

I-fax Switch 0A - Not used (do not change the settings)

I-fax Switch 0B - Not used (do not change the settings)

I-fax Switch 0C - Not used (do not change the settings)

I-fax Switch 0D - Not used (do not change the settings)

I-fax Switch 0E - Not used (do not change the settings)

Bit Switches

| I-fax Switch 0F (SP No. 1-102-016) | | |
|------------------------------------|--|----------|
| No | Function | Comments |
| 0 | <p>Delivery Method for SMTP RX Files</p> <p>This setting determines whether files received with SMTP protocol are delivered or output immediately.</p> <p>0: Off. Files received via SMTP are output immediately without delivery. 1: On. Files received via SMTP are delivered immediately to their destinations.</p> | |
| 1-7 | Not used | |

Fax Option
Type 3350
D361

4.3.3 PRINTER SWITCHES

| Printer Switch 00 (SP No. 1-103-001) | | |
|--------------------------------------|--|--|
| No | Function | Comments |
| 0 | <p>Select page separation marks</p> <p>0: Off 1: On</p> | <p>0: If a 2 page RX transmission is split, [*] is printed in the bottom right corner of the 1st page and only a [2] is printed in the upper right corner of the 2nd page.</p> <p>1: If a 2 page RX transmission is split into two pages, for example, [*] [2] is printed in the bottom right corner of the 1st page and only a [2] is printed in the upper right corner of the 2nd page.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ This helps the user to identify pages that have been split because the size of the paper is smaller than the size of the document received. (When A5 is used to print an A4 size document, for example.) |
| 1 | Repetition of data when the received page is longer than the printer paper | 1: Default. 10 mm of the trailing edge of the previous page are repeated at the top of the next page. |

Bit Switches

| Printer Switch 00 (SP No. 1-103-001) | | |
|--------------------------------------|--|--|
| No | Function | Comments |
| | 0: Off 1: On | 0: The next page continues from where the previous page stopped without any repeated text. |
| 2 | Prints the date and time on received fax messages 0: Disabled 1: Enabled | This switch is only effective when user parameter 02 - bit 2 (printing the received date and time on received fax messages) is enabled. 1: The machine prints the received and printed date and time at the bottom of each received page. |
| 3-7 | Not used | Do not change the settings. |

| Printer Switch 01 (SP No. 1-103-002) | | | |
|--------------------------------------|--|--|----------|
| No | Function | Comments | |
| 0-2 | Not used | Do not change the settings. | |
| 3-4 | Maximum print width used in the setup protocol | These bits are only effective when bit 7 of printer switch 01 is "1". | |
| | Bit 4 | Bit 3 | Setting |
| | 0 | 0 | Not used |
| | 0 | 1 | A3 |
| | 1 | 0 | B4 |
| | 1 | 1 | A4 |
| 5-6 | Not used | Do not change the settings. | |
| 7 | Received message width restriction in the protocol signal to the sender 0: Disabled | 0: The machine informs the transmitting machine of the print width depending on the paper size available from the paper feed stations. | |

Bit Switches

| Printer Switch 01 (SP No. 1-103-002) | | |
|--------------------------------------|------------|--|
| No | Function | Comments |
| | 1: Enabled | <p>Refer to the table on the next page for how the machine chooses the paper width used in the setup protocol (NSF/DIS).</p> <p>1: The machine informs the transmitting machine of the fixed paper width which is specified by bits 3 and 4 above.</p> |

Fax Option
Type 3350
D361

Relationship between available paper sizes and printer width used in the setup protocol

| Available Paper Size | Printer width used in the Protocol (NSF/DIS) |
|--------------------------------|--|
| A4 or 8.5" x 11" | 297 mm width |
| B5 | 256 mm width |
| A5 or 8.5" x 5.5" | 216 mm width |
| No paper available (Paper end) | 216 mm width |

| Printer Switch 02 (SP No. 1-103-003) | | |
|--------------------------------------|--|--|
| No | Function | Comments |
| 0 | 1st paper feed station usage for fax printing 0: Enabled 1: Disabled | <p>0: The paper feed station can be used to print fax messages and reports.</p> <p>1: The specified paper feed station will not be used for printing fax messages and reports.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ Do not disable usage for a paper feed station which has been specified by |
| 1 | 2nd paper feed station usage for fax printing 0: Enabled 1: Disabled | |

Bit Switches

| Printer Switch 02 (SP No. 1-103-003) | | |
|--------------------------------------|--|---|
| No | Function | Comments |
| 2 | 3rd paper feed station usage for fax printing 0: Enabled 1: Disabled | User Parameter Switch 0F (15), or which is used for the Specified Cassette Selection feature. |
| 3 | 4th paper feed station usage for fax printing 0: Enabled 1: Disabled | |
| 4 | LCT usage for fax printing 0: Enabled 1: Disabled | |
| 5-7 | Not used | Do not change the settings. |

| Printer Switch 03 (SP No. 1-103-004) | | |
|--------------------------------------|--|---|
| No | Function | Comments |
| 0 | Length reduction of received data 0: Disabled 1: Enabled | 0: Incoming pages are printed without length reduction. (Page separation threshold: Printer Switch 03, bits 4 to 7) 1: Incoming page length is reduced when printing. (Maximum reducible length: Printer Switches 04, bits 0 to 4) |
| 1-3 | Not used | Do not change the settings |
| 4 to 7 | Page separation setting when sub scan compression is forbidden 00-0F (0-15 mm: Hex) | Page separation threshold (with reduction disabled with switch 03-0 above). For example, if this setting is set to "10", and A4 is the selected paper size: |

Bit Switches

| Printer Switch 03 (SP No. 1-103-004) | | |
|---|-----------------|--|
| No | Function | Comments |
| | Default: 6 mm | If the received document is 10 mm or less longer than A4, then the 10 mm are cut and only 1 page prints. If the received document is 10 mm longer than A4, then the document is split into 2 pages. |

Fax Option
Type 3350
D361

| Printer Switch 04 (SP No. 1-103-005) | | | | | |
|---|--|-------|-----------------|-------|--------|
| No | Function | | Comments | | |
| 0 to 4 | Maximum reducible length when length reduction is enabled with switch 03-0 above. [Maximum reducible length] = [Paper length] + (N x 5mm) "N" is the decimal value of the binary setting of bits 0 to 4. | | | | |
| | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 |
| | 0 | 0 | 0 | 0 | 0 mm |
| | 0 | 0 | 0 | 0 | 5 mm |
| | 0 | 0 | 1 | 0 | 20 mm |
| | 1 | 1 | 1 | 1 | 155 mm |
| For A5 sideways and B5 sideways paper [Maximum reducible length] = [Paper length] + 0.75 x (N x 5mm) | | | | | |
| 5 6 | Length of the duplicated image on the next page, when page separation has taken place. | | | | |
| | Bit 6 | Bit 5 | Setting | | |
| | 0 | 0 | 4 mm | | |
| | 0 | 1 | 10 mm | | |
| | 1 | 0 | 15 mm | | |

Bit Switches

| Printer Switch 04 (SP No. 1-103-005) | | | |
|--------------------------------------|-----------|----------------------------|----------|
| No | Function | Comments | |
| | 1 | 1 | Not used |
| 7 | Not used. | Do not change the setting. | |

Printer Switch 05 - Not used (do not change the settings)

| Printer Switch 06 (SP No. 1-103-007) | | |
|--------------------------------------|---|--|
| No | Function | Comments |
| 0 | Printing while a paper cassette is pulled out, when the Just Size Printing feature is enabled. 0: Printing will not start 1: Printing will start if another cassette has a suitable size of paper, based on the paper size selection priority tables. | Cross reference Just size printing on/off – User switch 05, bit 5 |
| 1-7 | Not used. | Do not change the settings. |

Bit Switches

Fax Option
Type 3350
D361

| Printer Switch 07 (SP No. 1-103-008) | | |
|---|---|--|
| No | Function | Comments |
| 0 | Reduction for Journal printing 0: Off 1: On | 1: The Journal is reduced to 91% to ensure that there is enough space in the left margin for punch holes or staples. |
| 2-3 | Not used. | Do not change the settings. |
| 4 | List of destinations in the Communication Failure Report for broadcasting 0: All destinations 1: Only destinations where communication failure occurred | 1: Only destinations where communication failure occurred are printed on the Communication Failure Report. |
| 5-7 | Not used. | Do not change the settings. |

| |
|--|
| Printer Switch 08 - Not used (do not change the settings) |
| Printer Switch 09 - Not used (do not change the settings) |
| Printer Switch 0A - Not used (do not change the settings) |
| Printer Switch 0B - Not used (do not change the settings) |
| Printer Switch 0C - Not used (do not change the settings) |
| Printer Switch 0D - Not used (do not change the settings) |

| Printer Switch 0E (SP No. 1-103-015) | | |
|---|--|---|
| No | Function | Comments |
| 0 | Paper size selection priority 0: Width 1: Length | 0: A paper size that has the same width as the received data is selected first. 1: A paper size which has enough |

Bit Switches

| Printer Switch 0E (SP No. 1-103-015) | | | | | |
|--------------------------------------|--|-------|----------------------------------|--|--|
| No | Function | | | Comments | |
| | | | | length to print all the received lines without reduction is selected first. | |
| 1 | Paper size selected for printing A4 width fax data 0: 8.5" x 11" size 1: A4 size | | | This switch determines which paper size is selected for printing A4 width fax data, when the machine has both A4 and 8.5" x 11" size paper. | |
| 2 | Page separation 0: Enabled 1: Disabled | | | 1: If all paper sizes in the machine require page separation to print a received fax message, the machine does not print the message (Substitute Reception is used). After a larger size of paper is set in a cassette, the machine automatically prints the fax message. | |
| 3-4 | Printing the sample image on reports | | | "Same size" means the sample image is printed at 100%, even if page separation occurs. User Parameter Switch 19 (13H) bit 4 must be set to "0" to enable this switch. Refer to Detailed Section Descriptions for more on this feature. | |
| | Bit 4 | Bit 3 | Setting | | |
| | 0 | 0 | The upper half only | | |
| | 0 | 1 | 50% reduction (sub-scan only) | | |
| | 1 | 0 | Same size | | |
| | 1 | 1 | Not used | | |
| 5-6 | Not used | | | Do not change the settings. | |
| 7 | Equalizing the reduction ratio among | | | 0: When page separation has | |

Bit Switches

| Printer Switch 0E (SP No. 1-103-015) | | | |
|--------------------------------------|---|--|---|
| No | Function | | Comments |
| | separated pages (Page Separation) 0: Enabled 1: Disabled | | taken place, all the pages are reduced with the same reduction ratio. 1: Only the last page is reduced to fit the selected paper size when page separation has taken place. Other pages are printed without reduction. |

Fax Option
 Type 3350
 D361

| Printer Switch 0F (SP No. 1-103-016) | | | | |
|--------------------------------------|--|-------|----------|--|
| No | Function | | | Comments |
| 0-1 | Smoothing feature | | | (0, 0) (0, 1): Disable smoothing if the machine receives halftone images from other manufacturers fax machines frequently. |
| | Bit 1 | Bit 0 | Setting | |
| | 0 | 0 | Disabled | |
| | 0 | 1 | Disabled | |
| | 1 | 0 | Enabled | |
| | 1 | 1 | Not used | |
| 2 | Duplex printing 0: Disabled 1: Enabled | | | 1: The machine always prints received fax messages in duplex printing mode: |
| 3 | Binding direction for Duplex printing 0: Left binding 1: Top binding | | | 0: Sets the binding for the left edge of the stack. 1: Sets the binding for the top of the stack. |
| 4-7 | Not used | | | Do not change the settings. |

Bit Switches

4.3.4 COMMUNICATION SWITCHES

| Communication Switch 00 (SP No. 1-104-001) | | | | | |
|--|---|-------|----------------|--|--|
| No | Function | | | Comments | |
| 0-1 | Compression modes available in receive mode | | | These bits determine the compression capabilities to be declared in phase B (handshaking) of the T.30 protocol. | |
| | Bit 1 | Bit 0 | Modes | | |
| | 0 | 0 | MH only | | |
| | 0 | 1 | MH/MR | | |
| | 1 | 0 | MH/MR/MMR | | |
| | 1 | 1 | MH/MR/MMR/JBIG | | |
| 2-3 | Compression modes available in transmit mode | | | These bits determine the compression capabilities to be used in the transmission and to be declared in phase B (handshaking) of the T.30 protocol. | |
| | Bit 3 | Bit 2 | Modes | | |
| | 0 | 0 | MH only | | |
| | 0 | 1 | MH/MR | | |
| | 1 | 0 | MH/MR/MMR | | |
| | 1 | 1 | MH/MR/MMR/JBIG | | |
| 4 | Not used | | | Do not change the settings. | |
| 5 | JBIG compression method: Reception 0: Only basic supported 1: Basic and optional both supported | | | Change the setting when communication problems occur using JBIG compression. | |
| 6 | JBIG compression method: Transmission 0: Basic mode priority 1: Optional mode priority | | | Change the setting when communication problems occur using JBIG compression. | |
| 7 | Closed network (reception) | | | 1: Reception will not go ahead if the | |

Bit Switches

| Communication Switch 00 (SP No. 1-104-001) | | |
|--|---------------------------|---|
| No | Function | Comments |
| | 0: Disabled 1: Enabled | polling ID code of the remote terminal does not match the polling ID code of the local terminal. This function is only available in NSF/NSS mode. |

Fax Option
Type 3350
D361

| Communication Switch 01 (SP No. 1-104-002) | | | | | | | | | | | | | | | | | |
|--|---|--|-------|---------|---|---|------|---|---|-------------|---|---|-------------|---|---|---------|---|
| No | Function | Comments | | | | | | | | | | | | | | | |
| 0 | ECM 0: Off 1: On | If this bit is set to 0, ECM is switched off for all communications. In addition, V.8 protocol and JBIG compression are switched off automatically. | | | | | | | | | | | | | | | |
| 1 | Not used | Do not change the setting. | | | | | | | | | | | | | | | |
| 2-3 | Wrong connection prevention method <table border="1" style="margin-left: 20px;"> <tr> <th>Bit 3</th> <th>Bit 2</th> <th>Setting</th> </tr> <tr> <td>0</td> <td>0</td> <td>None</td> </tr> <tr> <td>0</td> <td>1</td> <td>8 digit CSI</td> </tr> <tr> <td>1</td> <td>0</td> <td>4 digit CSI</td> </tr> <tr> <td>1</td> <td>1</td> <td>CSI/RTI</td> </tr> </table> | Bit 3 | Bit 2 | Setting | 0 | 0 | None | 0 | 1 | 8 digit CSI | 1 | 0 | 4 digit CSI | 1 | 1 | CSI/RTI | (0,1): The machine will disconnect the line without sending a fax message, if the last 8 digits of the received CSI do not match the last 8 digits of the dialed telephone number. This does not work when manually dialed. (1,0): The same as above, except that only the last 4 digits are compared. (1,1): The machine will disconnect the line without sending a fax message, if the other end does not identify itself with an RTI or CSI. (0,0): Nothing is checked; transmission will always go ahead. <div style="border: 1px solid blue; padding: 2px; display: inline-block;"> Note </div> <ul style="list-style-type: none"> ▪ This function does not work when dialing is done from the external telephone. |
| Bit 3 | Bit 2 | Setting | | | | | | | | | | | | | | | |
| 0 | 0 | None | | | | | | | | | | | | | | | |
| 0 | 1 | 8 digit CSI | | | | | | | | | | | | | | | |
| 1 | 0 | 4 digit CSI | | | | | | | | | | | | | | | |
| 1 | 1 | CSI/RTI | | | | | | | | | | | | | | | |

Bit Switches

| Communication Switch 01 (SP No. 1-104-002) | | | | | |
|--|---|-------|-------------|---|--|
| No | Function | | | Comments | |
| 4-5 | Not used | | | Do not change the setting. | |
| 6-7 | Maximum printable page length available | | | The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames). | |
| | Bit 7 | Bit 6 | Setting | | |
| | 0 | 0 | No limit | | |
| | 0 | 1 | B4 (364 mm) | | |
| | 1 | 0 | A4 (297 mm) | | |
| | 1 | 1 | Not used | | |

| Communication Switch 02 (SP No. 1-104-003) | | | | | | | |
|--|---|--|---------------|---|--|--|--|
| No | Function | | | Comments | | | |
| 0 | G3 Burst error threshold 0: Low 1: High | | | If there are more consecutive error lines in the received page than the threshold, the machine will send a negative response. The Low and High threshold values depend on the sub-scan resolution, and are as follows. | | | |
| | 100 dpi | | 6(L) → 12(H) | | | | |
| | 200 dpi | | 12(L) → 24(H) | | | | |
| | 300 dpi | | 18(L) → 36(H) | | | | |
| | 400 dpi | | 24(L) → 48(H) | | | | |
| | Acceptable total error line ratio 0: 5% 1: 10% | | | If the error line ratio for a page exceeds the acceptable ratio, RTN will be sent to the other end. | | | |

Bit Switches

| Communication Switch 02 (SP No. 1-104-003) | | |
|--|--|---|
| No | Function | Comments |
| 2 | Treatment of pages received with errors during G3 reception 0: Deleted from memory without printing 1: Printed | 0: Pages received with errors are not printed. |
| 3 | Hang-up decision when a negative code (RTN or PIN) is received during G3 immediate transmission 0: No hang-up, 1: Hang-up | 0: The next page will be sent even if RTN or PIN is received. 1: The machine will send DCN and hang up if it receives RTN or PIN. This bit is ignored for memory transmissions or if ECM is being used. |
| 4-7 | Not used | Do not change the settings. |

| Communication Switch 03 (SP No. 1-104-004) | | |
|--|--|--|
| No | Function | Comments |
| 0-7 | Maximum number of page retransmissions in a G3 memory transmission | 00 - FF (Hex) times. This setting is not used if ECM is switched on. Default setting - 03(H) |

| |
|--|
| Communication Switch 04 - Not used (do not change the settings) |
| Communication Switch 05 - Not used (do not change the settings) |
| Communication Switch 06 - Not used (do not change the settings) |
| Communication Switch 07 - Not used (do not change the settings) |
| Communication Switch 08 - Not used (do not change the settings) |
| Communication Switch 09 - Not used (do not change the settings) |

Fax Option
Type 3350
D361

Bit Switches

| Communication Switch 0A (SP No. 1-104-011) | | |
|--|---|--|
| No | Function | Comments |
| 0 | Point of resumption of memory transmission upon redialing 0: From the error page 1: From page 1 | 0: The transmission begins from the page where transmission failed the previous time. 1: Transmission begins from the first page, using normal memory transmission. |
| 1-7 | Not used | Do not change the settings. |

| Communication Switch 0B (SP No. 1-104-012) | | |
|--|---|--|
| No | Function | Comments |
| 0 | Use of Economy Transmission during a Transfer operation to end receivers 0: Disabled, 1: Enabled | These bits determine whether the machine uses the Economy Transmission feature when it is carrying out a Transfer operation as a Transfer Station. |
| 1 | Use of Economy Transmission during a Transfer operation to the Next Transfer Stations 0: Disabled, 1: Enabled | |
| 2 | Use of Label Insertion for the End Receivers in a Transfer operation 0: Disabled, 1: Enabled | This bit determines whether the machine uses the Label Insertion feature when it is carrying out a Transfer operation as a Transfer Station. |
| 3 | Conditions required for Transfer Result Report transmission 0: Always transmitted 1: Only transmitted if there was an error | 0: When acting as a Transfer Station, the machine will always send a Transfer Result Report back to the Requesting Station after completing the Transfer Request, even if there were no problems. 1: The machine will only send back a Transfer Result Report if there were errors during communication, meaning one or more of the End Receivers could not be contacted. |

Bit Switches

| Communication Switch 0B (SP No. 1-104-012) | | |
|--|--|---|
| No | Function | Comments |
| 4 | Printout of the message when acting as a Transfer Station 0: Disabled, 1: Enabled | When the machine is acting as a Transfer Station, this bit determines whether the machine prints the fax message coming in from the Requesting Terminal. |
| 5 | Action when there is no fax number in the programmed Quick/Speed dials which meets the requesting terminal's own fax number 0: Transfer is disabled 1: Transfer is enabled | After the machine receives a transfer request, the machine compares the last N digits of the requesting terminal's own fax number with all the Quick/Speed dials programmed in the machine. (N is the number programmed in communication switch 0C.) 0: If there is no matching number programmed in the machine, the machine rejects the transfer request. 1: Even if there is no matching number programmed in the machine, the machine accepts the transfer request. The result report will be printed at the transfer terminal, but will not be sent back to the requesting terminal. |
| 6-7 | Not used | Do not change the settings. |

Fax Option
Type 3350
D361

| Communication Switch 0C (SP No. 1-104-013) | | |
|--|--|--|
| No | Function | Comments |
| 0-4 | Number of digits compared to find the requester's fax number from the programmed Quick/Speed Dials when acting as a Transfer Station | 00 – 1F (0 to 31 digits) After the machine receives a transfer request, the machine compares the own telephone number sent from the Requesting Terminal with all Quick/Speed Dials programmed in the machine, starting from Quick Dial 01 to the end of the Speed Dials. This number determines how many digits from the |

Bit Switches

| Communication Switch 0C (SP No. 1-104-013) | | |
|--|----------|--|
| No | Function | Comments |
| | | <p>end of the telephone numbers the machine compares.</p> <p>If it is set to 00, the machine will send the report to the first Quick/Speed Dial that the machine compared. If Quick Dial 01 is programmed, the machine will send the report to Quick 01. If Quick Dial 01 through 04 are not programmed and Quick Dial 05 is programmed, the machine will send the report to Quick 05.</p> <p>Default setting – 05(H) = 5 digits</p> |
| 5-7 | Not used | Do not change the settings. |

| Communication Switch 0D (SP No. 1-104-014) | | |
|--|---|--|
| No | Function | Comments |
| 0-7 | The available memory threshold, below which ringing detection (and therefore reception into memory) is disabled | <p>00 to FF (Hex), unit = 4 kbytes (e.g., 06(H) = 24 kbytes)</p> <p>One page is about 24 kbytes.</p> <p>The machine refers to this setting before each fax reception. If the amount of remaining memory is below this threshold, the machine cannot receive any fax messages.</p> <p>If this setting is kept at 0, the machine will detect ringing signals and go into receive mode even if there is no memory available. This will result in communication failure.</p> |

| Communication Switch 0E (SP No. 1-104-015) | | |
|--|--------------------------|----------------------------|
| No | Function | Comments |
| 0-7 | Minimum interval between | 06 to FF (Hex), unit = 2 s |

Bit Switches

| Communication Switch 0E (SP No. 1-104-015) | | |
|--|--|---|
| No | Function | Comments |
| | automatic dialing attempts (e.g., 06(H) = 12 s) | This value is the minimum time that the machine waits before it dials the next destination. |

Fax Option
Type 3350
D361

Communication Switch 0F – Not used (do not change the settings.)

| Communication Switch 10 (SP No. 1-104-017) | | |
|--|--|---------------------|
| No | Function | Comments |
| 0-7 | Memory transmission: Maximum number of dialing attempts to the same destination | 01 – FE (Hex) times |

Communication Switch 11 – Not used (do not change the settings.)

| Communication Switch 12 (SP No. 1-104-019) | | |
|--|--|-----------------------|
| No | Function | Comments |
| 0-7 | Memory transmission: Interval between dialing attempts to the same destination | 01 – FF (Hex) minutes |

Communication Switch 13 – Not used (do not change the settings.)

| Communication Switch 14 (SP No. 1-104-021) | | |
|--|------------------------------|------------------------------------|
| No | Function | Comments |
| 0 | Inch-to-mm conversion during | 0: In immediate transmission, data |

Bit Switches

| Communication Switch 14 (SP No. 1-104-021) | | | |
|--|---|-------|--|
| No | Function | | Comments |
| | transmission 0: Disabled, 1: Enabled | | <p>scanned in inch format are transmitted without conversion.</p> <p>In memory transmission, data stored in the SAF memory in mm format are transmitted without conversion.</p> <p>Note: When storing the scanned data into SAF memory, the fax unit always converts the data into mm format.</p> <p>1: The machine converts the scanned data or stored data in the SAF memory to the format which was specified in the set-up protocol (DIS/NSF) before transmission.</p> |
| 1-5 | Not used | | Do not change the factory settings. |
| 6-7 | Available unit of resolution in which fax messages are received | | <p>For the best performance, do not change the factory settings.</p> <p>The setting determined by these bits is informed to the transmitting terminal in the pre-message protocol exchange (in the DIS/NSF frames).</p> |
| | Bit 7 | Bit 6 | Unit |
| | 0 | 0 | mm |
| | 0 | 1 | inch |
| | 1 | 0 | mm and inch |
| | 1 | 1 | Not used |

Communication Switch 15 – Not used (do not change the settings)

Bit Switches

Fax Option
Type 3350
D361

| Communication Switch 16 (SP No. 1-104-023) | | |
|--|---|--|
| No | Function | Comments |
| 0 | Not used | Do not change the settings. |
| 1 | Optional G3 unit (G3-2) 0: Not installed 1: Installed | Change this bit to 1 when installing the first optional G3 unit. |
| 2 | Not used | |
| 3 | Select PSTN connection 0: Off 1: On | This switch enables the G3-2. 0: Off, no connection 1: Recognizes and enables G3-2. This switch can be used only after G3-2 has been installed. |
| 4-7 | Not used | Do not change the settings. |

| Communication Switch 17 (SP No. 1-104-024) | | |
|--|---|--|
| No | Function | Comments |
| 0 | SEP reception 0: Disabled 1: Enabled | 0: Polling transmission to another maker's machine using the SEP (Selective Polling) signal is disabled. |
| 1 | SUB reception 0: Disabled 1: Enabled | 0: Confidential reception to another maker's machine using the SUB (Sub-address) signal is disabled. |
| 2 | PWD reception 0: Disabled 1: Enabled | 0: Disables features that require PWD (Password) signal reception. |
| 3-6 | Not used | Do not change the settings. |
| 7 | Action when there is no box with an F-code that matches | Change this setting when the customer requires. |

Bit Switches

| Communication Switch 17 (SP No. 1-104-024) | | |
|--|--|----------|
| No | Function | Comments |
| | the received SUB code 0: Disconnect the line 1: Receive the message (using normal reception mode) | |

| |
|--|
| Communication Switch 18 - Not used (do not change the settings) |
| Communication Switch 19 - Not used (do not change the settings) |
| Communication Switch 1A - Not used (do not change the settings) |

| Communication Switch 1B (SP No. 1-104-028) | | |
|--|--|---|
| No | Function | Comments |
| 0-7 | Extension access code (0 to 7) to turn V.8 protocol On/Off 0: On 1: Off | If the PABX does not support V.8/V.34 protocol procedure, set this bit to "1" to disable V.8. Example: If "0" is the PSTN access code, set bit 0 to 1. When the machine detects "0" as the first dialed number, it automatically disables V.8 protocol. (Alternatively, if "3" is the PSTN access code, set bit 3 to 1.) |

| Communication Switch 1C (SP No. 1-104-029) | | |
|--|--|---|
| No | Function | Comments |
| 0-1 | Extension access code (8 and 9) to turn V.8 protocol On/Off 0: On 1: Off | Refer to communication switch 1B. Example: If "8" is the PSTN access code, set bit 0 to 1. When the machine detects "8" as the first dialed number, it automatically disables V.8 protocol. (If "9" is the PSTN access code, use bit 1.) |

Bit Switches

| Communication Switch 1C (SP No. 1-104-029) | | |
|--|----------|-----------------------------|
| No | Function | Comments |
| 2-7 | Not used | Do not change the settings. |

Fax Option
Type 3350
D361

| |
|---|
| Communication Switch 1D - Not used (do not change the settings) |
| Communication Switch 1E - Not used (do not change the settings) |
| Communication Switch 1F - Not used (do not change the settings) |

4.3.5 G3 SWITCHES

| G3 Switch 00 (SP No. 1-105-001) | | | | | |
|---------------------------------|--|-------|---------------|--|--|
| No | Function | | | Comments | |
| 0 | Monitor speaker during communication (tx and rx) | | | (0, 0): The monitor speaker is disabled all through the communication. (0, 1): The monitor speaker is on up to phase B in the T.30 protocol. (1, 0): Used for testing. The monitor speaker is on all through the communication. Make sure that you reset these bits after testing. | |
| | Bit 1 | Bit 0 | Setting | | |
| | 0 | 0 | Disabled | | |
| | 1 | 0 | Up to Phase B | | |
| | 1 | 0 | All the time | | |
| | 1 | 1 | Not used | | |
| | | | | | |
| 2 | Monitor speaker during memory transmission 0: Disabled 1: Enabled | | | 1: The monitor speaker is enabled during memory transmission. | |
| 3-7 | Not used | | | Do not change the settings. | |

Bit Switches

| G3 Switch 01 (SP No. 1-105-002) | | |
|---------------------------------|---|---|
| No | Function | Comments |
| 0 | Not used | Do not change the settings. |
| 1 | Select V.8 protocol for manual RX function 0: No 1: Yes | This switch switches the V.8 protocol for manual receiving off and on. |
| 2-3 | Not used | Do not change the settings. |
| 4 | DIS frame length 0: 10 bytes 1: 4 bytes | 1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames). |
| 5 | Not used | Do not change the setting. |
| 6 | Forbid CED/AMsam output 0: Off 1: On (Forbid output) | Do not change this setting (Default: 0: Off), unless communication problem is caused by a CED or ANSam transmission. |
| 7 | Not used | Do not change the setting. |

| G3 Switch 02 (SP No. 1-105-003) | | |
|---------------------------------|---|---|
| No | Function | Comments |
| 0 | G3 protocol mode used 0: Standard and non-standard 1: Standard only | Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. 1: Disables NSF/NSS signals (these are used in non-standard mode communication) |
| 1-4 | Not used | Do not change the settings. |
| 5 | Use of modem rate history for transmission using Quick/Speed Dials | 0: Communications using Quick/Speed Dials always start from the highest modem rate. 1: The machine refers to the modem rate history |

Bit Switches

| G3 Switch 02 (SP No. 1-105-003) | | |
|--|--|---|
| No | Function | Comments |
| | 0: Disabled 1: Enabled | for communications with the same machine when determining the most suitable rate for the current communication. |
| 6 | Not Used | Do not change the settings. |
| 7 | Short preamble 0: Disabled 1: Enabled | Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble. |

Fax Option
Type 3350
D361

| G3 Switch 03 (SP No. 1-105-004) | | |
|--|--|--|
| No | Function | Comments |
| 0 | DIS detection number (Echo countermeasure) 0: 1 1: 2 | 0: The machine will hang up if it receives the same DIS frame twice. 1: Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line. |
| 1 | Not Used | Do not change the settings. |
| 2 | V.8 protocol 0: Disabled 1: Enabled | 0: V.8/V.34 communications will not be possible. ↓ Note <ul style="list-style-type: none"> ▪ Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower. |
| 3 | ECM frame size 0: 256 bytes 1: 64 bytes | Keep this bit at "0" in most cases. |
| 4 | CTC transmission conditions 0: After one PPR signal received 1: After four PPR signals received (ITU-T standard) | 0: When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. |

Bit Switches

| G3 Switch 03 (SP No. 1-105-004) | | |
|---------------------------------|--|--|
| No | Function | Comments |
| | | <p>$\sqrt{N_{Transmit} \leq N_{Resend}}$</p> <p>NTransmit- Number of transmitted frames NResend- Number of frames to be retransmitted 1: When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications.</p> |
| 5 | Modem rate used for the next page after receiving a negative code (RTN or PIN) 0: No change 1: Fallback | 1: The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used. |
| 6 | Not used | Do not change the settings |
| 7 | Select detection of reverse polarity in ringing 0: Off 1: On | This switch is used to prevent reverse polarity in ringing on the phone line (applied to PSTN-G3 ringing). Do not change this setting 0: No detection (Outside Japan) 1: Detection (Inside Japan only) |

| G3 Switch 04 (SP No. 1-105-005) | | |
|---------------------------------|------------------------------------|--|
| No | Function | Comments |
| 0-3 | Training error detection threshold | 0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded. |
| 4-7 | Not used | Do not change the settings. |

Bit Switches

| G3 Switch 05 (SP No. 1-105-006) | | | | | | |
|---------------------------------|---|-------|---------|-------|---|--|
| No | Function | | | | Comments | |
| 0-3 | Initial Tx modem rate (kbps) | | | | <p>These bits set the initial starting modem rate for transmission.</p> <p>Use the dedicated transmission parameters if you need to change this for specific receivers.</p> <p>If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.</p> <p>Cross reference</p> <p>V.8 protocol on/off - G3 switch 03, bit 2</p> | |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | kbps | |
| | 0 | 0 | 0 | 1 | 2.4 | |
| | 0 | 0 | 1 | 0 | 4.8 | |
| | 0 | 0 | 1 | 1 | 7.2 | |
| | 0 | 1 | 0 | 0 | 9.6 | |
| | 0 | 1 | 0 | 1 | 12.0 | |
| | 0 | 1 | 1 | 0 | 14.4 | |
| | 0 | 1 | 1 | 1 | 16.8 | |
| | 1 | 0 | 0 | 0 | 19.2 | |
| | 1 | 0 | 0 | 1 | 21.6 | |
| | 1 | 0 | 1 | 0 | 24.0 | |
| | 1 | 0 | 1 | 1 | 26.4 | |
| | 1 | 1 | 0 | 0 | 28.8 | |
| | 1 | 1 | 0 | 1 | 31.2 | |
| | 0 | 0 | 1 | 1 | 33.6 | |
| Other settings - Not used | | | | | | |
| 4-5 | Initial modem type for 9.6 k or 7.2 kbps. | | | | <p>These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds.</p> | |
| | Bit 5 | Bit 4 | Setting | | | |
| | 0 | 0 | V.29 | | | |
| | 0 | 1 | V.17 | | | |

Fax Option
 Type 3350
 D361

Bit Switches

| G3 Switch 05 (SP No. 1-105-006) | | | | | |
|---------------------------------|----------|---|----------|-----------------------------|--|
| No | Function | | | Comments | |
| | 1 | 0 | V.34 | | |
| | 1 | 1 | Not used | | |
| 6-7 | Not used | | | Do not change the settings. | |

| G3 Switch 06 (SP No. 1-105-007) | | | | | |
|---------------------------------|-----------------------------|-------|-------|----------|------|
| No | Function | | | Comments | |
| 0-3 | Initial Rx modem rate(kbps) | | | | |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | kbps |
| | 0 | 0 | 0 | 1 | 2.4 |
| | 0 | 0 | 1 | 0 | 4.8 |
| | 0 | 0 | 1 | 1 | 7.2 |
| | 0 | 1 | 0 | 0 | 9.6 |
| | 0 | 1 | 0 | 1 | 12.0 |
| | 0 | 1 | 1 | 0 | 14.4 |
| | 0 | 1 | 1 | 1 | 16.8 |
| | 1 | 0 | 0 | 0 | 19.2 |
| | 1 | 0 | 0 | 1 | 21.6 |
| | 1 | 0 | 1 | 0 | 24.0 |
| | 1 | 0 | 1 | 1 | 26.4 |
| | 1 | 1 | 0 | 0 | 28.8 |
| | 1 | 1 | 0 | 1 | 31.2 |
| Other settings - Not used | | | | | |

These bits set the initial starting modem rate for reception.
Use a lower setting if high speeds pose problems during reception.
If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.
Cross reference
V.8 protocol on/off - G3 switch 03, bit2

Bit Switches

| G3 Switch 06 (SP No. 1-105-007) | | | | | |
|---------------------------------|--|-------|-------|----------|-------------------------------|
| No | Function | | | Comments | |
| 4-7 | <p>Modem types available for reception</p> <p>The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode.</p> <p>If V.34 is not selected, V.8 protocol must be disabled manually.</p> <p>Cross reference</p> <p>V.8 protocol on/off - G3 switch 03, bit 2</p> | | | | |
| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Types |
| | 0 | 0 | 0 | 1 | V.27ter |
| | 0 | 0 | 1 | 0 | V.27ter, V.29 |
| | 0 | 0 | 1 | 1 | V.27ter, V.29, V.33 |
| | 0 | 1 | 0 | 0 | V.27ter, V.29, V.17/V.33 |
| | 0 | 1 | 0 | 1 | V.27ter, V.29, V.17/V33, V.34 |
| Other settings - Not used | | | | | |

| G3 Switch 07 (SP No. 1-105-008) | | | | | |
|---------------------------------|---|-------|---------|--|--|
| No | Function | | | Comments | |
| 0-1 | PSTN cable equalizer (tx mode: Internal) | | | Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. | |
| | Bit 1 | Bit 0 | Setting | | |
| | 0 | 0 | None | Use the dedicated transmission parameters for specific receivers. | |
| | 0 | 1 | Low | | |
| | 1 | 0 | Medium | Also, try using the cable equalizer if one or more of the following symptoms | |
| | 1 | 1 | High | | |

Fax Option
 Type 3350
 D361

Bit Switches

| G3 Switch 07 (SP No. 1-105-008) | | | | | | |
|---------------------------------|---|-------|---------|--|--|--|
| No | Function | | | | Comments | |
| | | | | | <p>occurs.</p> <p>Communication error</p> <p>Modem rate fallback occurs frequently.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ This setting is not effective in V.34 communications. | |
| 2-3 | PSTN cable equalizer (rx mode: Internal) | | | | <p>Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange.</p> <p>Also, try using the cable equalizer if one or more of the following symptoms occurs.</p> <p>Communication error with error codes such as 0-20, 0-23, etc.</p> <p>Modem rate fallback occurs frequently.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ This setting is not effective in V.34 communications. | |
| | Bit 3 | Bit 2 | Setting | | | |
| | 0 | 0 | None | | | |
| | 0 | 1 | Low | | | |
| | 1 | 0 | Medium | | | |
| | 1 | 1 | High | | | |
| | | | | | | |
| 4 | PSTN cable equalizer (V.8/V.17 rx mode: External) 0: Disabled 1: Enabled | | | | Keep this bit at "1". | |
| 5-7 | Not used | | | | Do not change the settings. | |

G3 Switch 08 - Not used (do not change the settings)

G3 Switch 09 - Not used (do not change the settings)

| G3 Switch 0A (SP No. 1-105-011) | | | | | | |
|---------------------------------|--|-------|------------|---|--|--|
| No | Function | | | Comments | | |
| 0-1 | Maximum allowable carrier drop during image data reception | | | These bits set the acceptable modem carrier drop time. Try a longer setting if error code 0-22 is frequent. | | |
| | Bit 1 | Bit 0 | Value (ms) | | | |
| | 0 | 0 | 200 | | | |
| | 0 | 1 | 400 | | | |
| | 1 | 0 | 800 | | | |
| | 1 | 1 | Not used | | | |
| 2 | Select cancellation of high-speed RX if carrier signal lost while receiving 0: Off 1: On | | | This switch setting determines if high-speed receiving ends if the carrier signal is lost when receiving during non-ECM mode | | |
| 3 | Not used | | | Do not change the settings | | |
| 4 | Maximum allowable frame interval during image data reception. 0: 5 s 1: 13 s | | | This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end. Try using a longer setting if error code 0-21 is frequent. | | |
| 5 | Not used | | | Do not change the settings. | | |
| 6 | Reconstruction time for the first line in receive mode 0: 6 s 1: 12 s | | | When the sending terminal is controlled by a computer, there may be a delay in receiving page data after the local machine accepts set-up data and sends CFR. This is outside the T.30 recommendation. But, if this delay occurs, set this bit to 1 to give the | | |

Bit Switches

| G3 Switch 0A (SP No. 1-105-011) | | |
|---------------------------------|----------|--|
| No | Function | Comments |
| | | sending machine more time to send data. Refer to error code 0-20. ITU-T T.30 recommendation: The first line should come within 5 s of CFR. |
| 7 | Not used | Do not change the settings. |

| |
|---|
| G3 Switch 0B Not used (do not change the settings). |
| G3 Switch 0C Not used (do not change the settings). |
| G3 Switch 0D Not used (do not change the settings). |

| G3 Switch 0E (SP No. 1-105-015) | | |
|---------------------------------|--|---|
| No | Function | Comments |
| 0-7 | Set CNG send time interval Some machines on the receiving side may not be able to automatically switch the 3-second CNG interval. | |
| | High order bit | 3000-2250ms: 3000-50xNms 3000 – 50 x Nms 0F (3000 ms) ≤ N ≤ FF (2250 ms) |
| | Low order bit | 00-0E(3000-3700ms: 3000+50xNms 3000 – 50 x Nms 0F (3000 ms) ≤ N ≤ 0F (3700 ms) |

| G3 Switch 0F (SP No. 1-105-016) | | |
|---------------------------------|--|--|
| No | Function | Comments |
| 0 | Alarm when an error occurred in Phase C or later | If the customer wants to hear an alarm after each error communication, change this bit to "1". |

Bit Switches

| G3 Switch 0F (SP No. 1-105-016) | | |
|---------------------------------|---|--|
| No | Function | Comments |
| | 0: Disabled 1: Enabled | |
| 1 | Alarm when the handset is off-hook at the end of communication 0: Disabled 1: Enabled | If the customer wants to hear an alarm if the handset is off-hook at the end of fax communication, change this bit to "1". |
| 2-7 | Not used | Do not change the settings. |

Fax Option
Type 3350
D361

4.3.6 G3-2 AND G3-3 SWITCHES

These switches require an optional G3 interface unit.

G3-3 switches are the same as for G3-2 switches.

| G3-2 Switch 00 (SP No. 1-106-001) | | | | |
|-----------------------------------|--|-------|---------------|--|
| No | Function | | | Comments |
| 0 | Monitor speaker during communication (tx and rx) | | | (0, 0): The monitor speaker is disabled all through the communication. (0, 1): The monitor speaker is on up to phase B in the T.30 protocol. (1, 0): Used for testing. The monitor speaker is on all through the communication. Make sure that you reset these bits after testing. |
| | Bit 1 | Bit 0 | Setting | |
| | 0 | 0 | Disable | |
| | 0 | 1 | Up to Phase B | |
| | 1 | 0 | All the time | |
| | 1 | 1 | Not used | |
| | | | | |
| 2 | Monitor speaker during memory transmission | | | 1: The monitor speaker is enabled during memory transmission. |

Bit Switches

| G3-2 Switch 00 (SP No. 1-106-001) | | |
|-----------------------------------|------------------------|-----------------------------|
| No | Function | Comments |
| | 0: Disabled 1: Enabled | |
| 3-7 | Not used | Do not change the settings. |

| G3-2 Switch 01 (SP No. 1-106-002) | | |
|-----------------------------------|--|---|
| No | Function | Comments |
| 0-3 | Not used | Do not change the settings. |
| 4 | DIS frame length 0: 10 bytes 1: 4 bytes | 1: The bytes in the DIS frame after the 4th byte will not be transmitted (set to 1 if there are communication problems with PC-based faxes which cannot receive the extended DIS frames). |
| 5 | Not used | Do not change the setting. |
| 6 | Forbid CED/AMsam output 0: Off 1: On (Forbid output) | Do not change this setting (Default: 0: Off), unless communication problem is caused by a CED or ANSam transmission. |
| 7 | Not used | Do not change the setting. |

| G3-2 Switch 02 (SP No. 1-106-003) | | |
|-----------------------------------|---|---|
| No | Function | Comments |
| 0 | G3 protocol mode used 0: Standard and non-standard 1: Standard only | Change this bit to 1 only when the other end can only communicate with machines that send T.30-standard frames only. 1: Disables NSF/NSS signals (these are used in non-standard mode communication) |
| 1-4 | Not used | Do not change the settings. |
| 5 | Use of modem rate history for | 0: Communications using Quick/Speed Dials |

Bit Switches

| G3-2 Switch 02 (SP No. 1-106-003) | | |
|--|---|--|
| No | Function | Comments |
| | transmission using Quick/Speed Dials 0: Disabled 1: Enabled | always start from the highest modem rate. 1: The machine refers to the modem rate history for communications with the same machine when determining the most suitable rate for the current communication. |
| 6 | Not Used | Do not change the settings. |
| 7 | Short preamble 0: Disabled 1: Enabled | Refer to Appendix B in the Group 3 Facsimile Manual for details about Short Preamble. |

Fax Option
Type 3350
D361

| G3-2 Switch 03 (SP No. 1-106-004) | | |
|--|---|---|
| No | Function | Comments |
| 0 | DIS detection number (Echo countermeasure) 0: 1 1: 2 | 0: The machine will hang up if it receives the same DIS frame twice. 1: Before sending DCS, the machine will wait for the second DIS which is caused by echo on the line. |
| 1 | Not Used | Do not change the settings. |
| 2 | V.8 protocol 0: Disabled 1: Enabled | 0: V.8/V.34 communications will not be possible. <div style="border: 1px solid blue; padding: 2px; display: inline-block;"> ↓ Note </div> <ul style="list-style-type: none"> ▪ Do not set to 0 unless the line condition is always bad enough to slow down the data rate to 14.4 kbps or lower. |
| 3 | ECM frame size 0: 256 bytes 1: 64 bytes | Keep this bit at "0" in most cases. |
| 4 | CTC transmission conditions 0: After one PPR signal received | 0: When using ECM in non-standard (NSF/NSS) mode, the machine sends a CTC to drop back the modem rate after receiving a PPR, if the following |

Bit Switches

| G3-2 Switch 03 (SP No. 1-106-004) | | |
|-----------------------------------|--|--|
| No | Function | Comments |
| | 1: After four PPR signals received (ITU-T standard) 0: None | condition is met in communications at 14.4, 12.0, 9.6, and 7.2 kbps. $\sqrt{N_{Transmit} \leq N_{Resend}}$ Ntransmit = Number of transmitted frames Nresend = Number of frames to be retransmitted 1: When using ECM, the machine sends a CTC to drop back the modem rate after receiving four PPRs. PPR, CTC: These are ECM protocol signals. This bit is not effective in V.34 communications. |
| 5 | Modem rate used for the next page after receiving a negative code (RTN or PIN) 0: No change 1: Fallback | 1: The machine's tx modem rate will fall back before sending the next page if a negative code is received. This bit is ignored if ECM is being used. |
| 6 | Not used | Do not change the settings |
| 7 | Select detection of reverse polarity in ringing 0: Off 1: On | This switch is used to prevent reverse polarity in ringing on the phone line (applied to PSTN-G3 ringing). Do not change this setting 0: No detection (Outside Japan) 1: Detection (Inside Japan only) |

| G3-2 Switch 04 (SP No. 1-106-005) | | |
|-----------------------------------|------------------------------------|--|
| No | Function | Comments |
| 0-3 | Training error detection threshold | 0 - F (Hex); 0 - 15 bits If the number of error bits in the received TCF is below this threshold, the machine informs the sender that training has succeeded. |

Bit Switches

| G3-2 Switch 04 (SP No. 1-106-005) | | |
|-----------------------------------|----------|-----------------------------|
| No | Function | Comments |
| 4-7 | Not used | Do not change the settings. |

Fax Option
Type 3350
D361

| G3-2 Switch 05 (SP No. 1-106-006) | | | | | |
|-----------------------------------|------------------------------|-------|-------|-------|---|
| No | Function | | | | Comments |
| 0-3 | Initial Tx modem rate (kbps) | | | | <p>These bits set the initial starting modem rate for transmission.</p> <p>Use the dedicated transmission parameters if you need to change this for specific receivers.</p> <p>If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually.</p> <p>Cross reference</p> <p>V.8 protocol on/off - G3 switch 03, bit 2</p> |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | kbps |
| | 0 | 0 | 0 | 1 | 2.4 |
| | 0 | 0 | 1 | 0 | 4.8 |
| | 0 | 0 | 1 | 1 | 7.2 |
| | 0 | 1 | 0 | 0 | 9.6 |
| | 0 | 1 | 0 | 1 | 12.0 |
| | 0 | 1 | 1 | 0 | 14.4 |
| | 0 | 1 | 1 | 1 | 16.8 |
| | 1 | 0 | 0 | 0 | 19.2 |
| | 1 | 0 | 0 | 1 | 21.6 |
| | 1 | 0 | 1 | 0 | 24.0 |
| | 1 | 0 | 1 | 1 | 26.4 |
| | 1 | 1 | 0 | 0 | 28.8 |
| | 1 | 1 | 0 | 1 | 31.2 |
| Other settings - Not used | | | | | |

Bit Switches

| G3-2 Switch 05 (SP No. 1-106-006) | | | | | |
|-----------------------------------|---|-------|----------|---|--|
| No | Function | | | Comments | |
| 4-5 | Initial modem type for 9.6 k or 7.2 kbps. | | | These bits set the initial modem type for 9.6 and 7.2 kbps, if the initial modem rate is set at these speeds. | |
| | Bit 5 | Bit 4 | Setting | | |
| | 0 | 0 | V.29 | | |
| | 0 | 1 | V.17 | | |
| | 1 | 0 | V.34 | | |
| | 1 | 1 | Not used | | |
| 6-7 | Not used | | | Do not change the settings. | |

| G3-2 Switch 06 (SP No. 1-106-007) | | | | | |
|-----------------------------------|-----------------------------|-------|-------|--|------|
| No | Function | | | Comments | |
| 0-3 | Initial Rx modem rate(kbps) | | | These bits set the initial starting modem rate for reception. Use a lower setting if high speeds pose problems during reception. If a modem rate 14.4 kbps or slower is selected, V.8 protocol should be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit2 | |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | kbps |
| | 0 | 0 | 0 | 1 | 2.4 |
| | 0 | 0 | 1 | 0 | 4.8 |
| | 0 | 0 | 1 | 1 | 7.2 |
| | 0 | 1 | 0 | 0 | 9.6 |
| | 0 | 1 | 0 | 1 | 12.0 |
| | 0 | 1 | 1 | 0 | 14.4 |
| | 0 | 1 | 1 | 1 | 16.8 |
| | 1 | 0 | 0 | 0 | 19.2 |
| | 1 | 0 | 0 | 1 | 21.6 |
| | 1 | 0 | 1 | 0 | 24.0 |

Bit Switches

| G3-2 Switch 06 (SP No. 1-106-007) | | | | | |
|---|---------------------------|-------|-------|-------|----------|
| No | Function | | | | Comments |
| 4-7 | 1 | 0 | 1 | 1 | 26.4 |
| | 1 | 1 | 0 | 0 | 28.8 |
| | 1 | 1 | 0 | 1 | 31.2 |
| | Other settings - Not used | | | | |
| Modem types available for reception The setting of these bits is used to inform the transmitting terminal of the available modem type for the machine in receive mode. If V.34 is not selected, V.8 protocol must be disabled manually. Cross reference V.8 protocol on/off - G3 switch 03, bit 2 | | | | | |
| 4-7 | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Types |
| | 0 | 0 | 0 | 1 | V.27ter |
| | 0 | 0 | 1 | 0 | V.27ter |
| | 0 | 0 | 1 | 1 | V.27ter |
| | 0 | 1 | 0 | 0 | V.27ter |
| | 0 | 1 | 0 | 1 | V.27ter |
| Other settings - Not used | | | | | |

Fax Option
 Type 3350
 D361

Bit Switches

| G3-2 Switch 07 (SP No. 1-106-008) | | | | |
|-----------------------------------|--|-------|---------|--|
| No | Function | | | Comments |
| 0-1 | PSTN cable equalizer (tx mode: Internal) | | | Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. |
| | Bit 1 | Bit 0 | Setting | |
| | 0 | 0 | None | |
| | 0 | 1 | Low | Use the dedicated transmission parameters for specific receivers. |
| | 1 | 0 | Medium | Also, try using the cable equalizer if one or more of the following symptoms occurs. |
| | 1 | 1 | High | Communication error |
| | | | | Modem rate fallback occurs frequently. Note <ul style="list-style-type: none">▪ This setting is not effective in V.34 communications. |
| 2-3 | PSTN cable equalizer (rx mode: Internal) | | | Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange. |
| | Bit 3 | Bit 2 | Setting | |
| | 0 | 0 | None | |
| | 0 | 1 | Low | Also, try using the cable equalizer if one or more of the following symptoms occurs. |
| | 1 | 0 | Medium | Communication error with error codes such as 0-20, 0-23, etc. |
| | 1 | 1 | High | Modem rate fallback occurs frequently. |
| | | | | Note <ul style="list-style-type: none">▪ This setting is not effective in V.34 communications. |
| 4 | PSTN cable equalizer (V.8/V.17 rx mode: External) | | | Keep this bit at "1". |

Bit Switches

| G3-2 Switch 07 (SP No. 1-106-008) | | |
|--|---------------------------|-----------------------------|
| No | Function | Comments |
| | 0: Disabled 1: Enabled | |
| 5-7 | Not used | Do not change the settings. |

| |
|---|
| G3-2 Switch 08 - Not used (do not change the settings) |
| G3-2 Switch 09 - Not used (do not change the settings) |

| G3-2 Switch 0A (SP No. 1-106-011) | | |
|--|--|---|
| No | Function | Comments |
| 0-1 | Maximum allowable carrier drop during image data reception | These bits set the acceptable modem carrier drop time. Try a longer setting if error code 0-22 is frequent. |
| | Bit 1 Bit 0 Value (ms) | |
| | 0 0 200 | |
| | 0 1 400 | |
| | 1 0 800 | |
| | 1 1 Not used | |
| 2 | Select cancellation of high-speed RX if carrier signal lost while receiving 0: Off 1: On | This switch setting determines if high-speed receiving ends if the carrier signal is lost when receiving during non-ECM mode |
| 3 | Not used | Do not change the settings |
| 4 | Maximum allowable frame interval during image data reception. 0: 5 s 1: 13 s | This bit set the maximum interval between EOL (end-of-line) signals and the maximum interval between ECM frames from the other end. |

Fax Option
Type 3350
D361

Bit Switches

| G3-2 Switch 0A (SP No. 1-106-011) | | |
|-----------------------------------|--|---|
| No | Function | Comments |
| | | Try using a longer setting if error code 0-21 is frequent. |
| 5 | Not used | Do not change the settings. |
| 6 | Reconstruction time for the first line in receive mode 0: 6 s 1: 12 s | When the sending terminal is controlled by a computer, there may be a delay in receiving page data after the local machine accepts set-up data and sends CFR. This is outside the T.30 recommendation. But, if this delay occurs, set this bit to 1 to give the sending machine more time to send data. Refer to error code 0-20. ITU-T T.30 recommendation: The first line should come within 5 s of CFR. |
| 7 | Not used | Do not change the settings. |

| |
|--|
| G3-2 Switch 0B- Not used (do not change the settings) |
| G3-2 Switch 0C- Not used (do not change the settings) |
| G3-2 Switch 0D - Not used (do not change the settings) |
| G3-2 Switch 0E - Not used (do not change the settings) |
| G3-2 Switch 0F - Not used (do not change the settings) |

4.3.7 G4 INTERNAL SWITCHES

The G4 internal switches (SW00 to 1F) are displayed but do not change these settings.

4.3.8 G4 PARAMETER SWITCHES

The G4 parameter switches (SW00 to 0F) are displayed but do not change these settings.

4.3.9 IP FAX SWITCHES

| IP Fax Switch 00 (SP No. 1-111-001) | | |
|-------------------------------------|--|---|
| No. | Function | Comments |
| 0 | Not used | Do not change this setting. |
| 1 | IP Fax Transport 0: TCP, 1: UDP | Selects TCP or UDP protocol for IP-Fax |
| 2 | IP Fax single port selection 0: OFF, 1: ON (enable) | Selects single data port. |
| 3 | IP Fax double ports (single data port) selection 0: OFF, 1: ON (enable) | Selects whether IP-Fax uses a double port. |
| 4 | IP Fax Gatekeeper 0: OFF, 1: ON (enable) | Enables/disables the gatekeeper for IP-Fax. |
| 5 | IP Fax T30 bit signal reverse 0: LSB first, 1: MSB first | Reverses the T30 bit signal. |
| 6 | IP Fax max bit rate setting 0: Not affected, 1: Affected | When "0" is selected, the max bit rate does not affect the value of the DIS/DCS. When "1" is selected, the max bit rate affects the value of the DIS/DCS. |
| 7 | IP Fax received telephone number confirmation 0: No confirmation, 1: Confirmation | When "0" is selected, fax data is received without checking the telephone number. When "1" is selected, fax data is received only when confirming that the telephone number from the sender matches the registered telephone number in this machine. If this confirmation fails, the line is disconnected. |

Bit Switches

| IP Fax Switch 01 (SP No. 1-111-002) | | | | | |
|-------------------------------------|---|-------|-------|---|---------|
| No. | Function | | | Comments | |
| 0-3 | IP Fax delay level setting Selects the acceptable delay level. Level 0 is the highest quality Default is "0000" (level 0). | | | | |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | |
| | 0 | 0 | 0 | 0 | Level 0 |
| | 0 | 0 | 0 | 1 | Level 1 |
| | 0 | 0 | 1 | 0 | Level 2 |
| | 0 | 0 | 1 | 1 | Level 3 |
| 4-7 | IP Fax preamble wait time setting | | | Selects the preamble wait time. [00 to 0f] There are 16 values in this 4-bit binary switch combination. Waiting time: set value level x 100 ms Max: 0f (1500 ms) Min: 00 (No wait time) The default is "0000" (00H). | |

| IP Fax Switch 02 (SP No. 1-111-003) | | |
|-------------------------------------|--|---|
| No. | Function | Comments |
| 0 | IP Fax bit signal reverse setting 0: Maker code setting 1: Internal bit switch setting | When "0" is selected, the bit signal reverse method is decided by the maker code. When "1" is selected, the bit signal reverse method is decided by the internal bit switch. When communicating between IP Fax devices, LSB first is selected.) |
| 1 | IP Fax transmission speed setting | Selects the transmit speed for IP Fax |

Bit Switches

| IP Fax Switch 02 (SP No. 1-111-003) | | |
|-------------------------------------|---|--|
| No. | Function | Comments |
| | 0: Modem speed 1: No limitation | communication. |
| 2 | SIP transport setting 0: TCP 1: UDP | This bit switch sets the transport that has priority for receiving IP Fax data. This function is activated only when the sender has both TCP and UDP. |
| 3-7 | Not used | Do not change these settings. |

Fax Option
Type 3350
D361

| IP Fax Switch 03 (SP No. 1-111-004) | | |
|-------------------------------------|---|--|
| No. | Function | Comments |
| 0 | Effective field limitation for G3 standard function information 0: OFF, 1: 4byte (DIS) | Limits the effective field for standard G3 function information. |
| 1 | Switching between G3 standard and G3 non standard 0: Enable switching 1: G3 standard only | Enables/disables switching between G3 standard and G3 non-standard. |
| 2 | AI modem rate function 0: OFF, 1: ON (enable) | Enables/disables the AI modem rate. |
| 3 | ECM frame size selection at transmitting 0: 256byte, 1: 64byte | Selects the ECM frame size for sending. |
| 4 | DIS detection times for echo prevention 0: 1 time, 1: 2 times | Sets the number of times for DIS to detect echoes. |
| 5 | CTC transmission selection 0: PPRx1 | When "0" is selected, the transmission condition is decided by error frame |

Bit Switches

| IP Fax Switch 03 (SP No. 1-111-004) | | |
|-------------------------------------|--|---|
| No. | Function | Comments |
| | 1: PPRx4 numbers. When "1" is selected, the transmission condition is based on the ITU-T method. | |
| 6 | Shift down setting at receiving negative code 0: OFF, 1: ON | Selects whether to shift down when negative codes are received. |
| 7 | Not used | Do not change this setting. |

| IP Fax Switch 04 (SP No. 1-111-005) | | |
|-------------------------------------|---------------------|--|
| No. | Function | Comments |
| 0-3 | TCF error threshold | Sets the TCF error threshold level. [00 to 0f] The default is "1111" (0fH). |
| 4-7 | Not used | Do not change these settings. |

| IP Fax Switch 05 (SP No. 1-111-006) | | | | | | |
|-------------------------------------|--|-------|-------|-------|------|--|
| No. | Function | | | | | Comments |
| 0-3 | Modem bit rate setting for transmission (kbps) | | | | | Sets the modem bit rate for transmission. The default is "0110" (14.4K bps). |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | kbps | |
| | 0 | 0 | 0 | 1 | 2.4 | |
| | 0 | 0 | 1 | 1 | 4.8 | |
| | 0 | 0 | 1 | 1 | 7.2 | |
| | 0 | 1 | 0 | 0 | 9.6 | |
| | 0 | 1 | 0 | 1 | 12.0 | |

Bit Switches

| IP Fax Switch 05 (SP No. 1-111-006) | | | | | |
|-------------------------------------|--------------------------------|---|-------|----------|---|
| No. | Function | | | | Comments |
| | 0 | 1 | 1 | 0 | 14.4 |
| | 0 | 1 | 1 | 1 | 16.8 |
| | 1 | 0 | 0 | 0 | 19.2 |
| | 1 | 0 | 0 | 1 | 21.6 |
| | 1 | 0 | 1 | 0 | 24.0 |
| | 1 | 0 | 1 | 1 | 26.4 |
| | 1 | 1 | 0 | 0 | 28.8 |
| | 1 | 1 | 0 | 1 | 31.2 |
| | 1 | 1 | 1 | 0 | 33.6 |
| 4-5 | Modem setting for transmission | | | | Sets the modem type for transmission. The default is "00" (V29). |
| | Bit 5 | | Bit 4 | Types | |
| | 0 | | 0 | V29 | |
| | 0 | | 1 | V17 | |
| | 1 | | 0 | V34 | |
| | 1 | | 1 | Not used | |
| 6-7 | Not used | | | | Do not change these settings. |

| IP Fax Switch 06 (SP No. 1-111-007) | | |
|-------------------------------------|---|----------|
| No. | Function | Comments |
| 0-3 | Modem bit rate setting for reception Sets the modem bit rate for reception. The default is "0110" (14.4K bps). | |

Fax Option
Type 3350
D361

Bit Switches

| IP Fax Switch 06 (SP No. 1-111-007) | | | | | |
|-------------------------------------|---|-------|-------|----------|--------------------------|
| No. | Function | | | Comments | |
| 4-7 | Modem setting for reception Sets the modem type for reception. The default is "0100" (V27ter, V29, V17). | | | | |
| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | Types |
| | 0 | 0 | 0 | 1 | V.27ter |
| | 0 | 0 | 1 | 0 | V.27ter, V.29 |
| | 0 | 0 | 1 | 1 | V.27ter, V.29, V.33 |
| | 0 | 1 | 0 | 0 | V.27ter, V.29, V.17/V.33 |
| Other settings - Not used | | | | | |

| IP Fax Switch 07 (SP No. 1-111-008) | | | | | |
|-------------------------------------|---|--|--|--|--|
| No. | Function | | | Comments | |
| 0 | TSI information 0: Not added, 1: Added | | | Adds or does not add TSI information to NSS(S). | |
| 1 | DCN transmission setting at T1 timeout 0: Not transmitted 1: Transmitted | | | Transmits or does not transmit DCN at T1 timeout. | |
| 2 | Not used | | | Do not change this setting. | |
| 3 | Hang up setting at DIS reception disabled 0: No hang up 1: Hang up after transmitting DCN | | | Sets whether the machine disconnects after DIS reception. | |
| 4 | Number of times for training 0: 1 time, 1: 2 times | | | Selects the number of times training is done at the same bit rate. | |
| 5 | Space CSI transmission setting at | | | When "0" is selected, frame data is enabled. | |

Bit Switches

| IP Fax Switch 07 (SP No. 1-111-008) | | |
|-------------------------------------|---|---|
| No. | Function | Comments |
| | no CSI registration 0: Not transmitted 1: Transmitted | When "1" is selected, the transmitted data is all spaces. |
| 6-7 | Not used | Do not change these settings. |

Fax Option
Type 3350
D361

Bit Switches

| IP Fax Switch 08 (SP No. 1-111-009) | | | | | |
|-------------------------------------|---------------------|-------|-------|---|--|
| No. | Function | | | Comments | |
| 0-1 | T1 timer adjustment | | | Adjusts the T1 timer. The default is "00" (35 seconds). | |
| | Bit 1 | Bit 0 | | | |
| | 0 | 0 | 35 s | | |
| | 0 | 1 | 40 s | | |
| | 1 | 0 | 50 s | | |
| | 1 | 1 | 60 s | | |
| 2-3 | T4 timer adjustment | | | Adjust the T4 timer. The default is "00" (3 seconds). | |
| | Bit 3 | Bit 2 | | | |
| | 0 | 0 | 3 s | | |
| | 0 | 1 | 3.5 s | | |
| | 1 | 0 | 4 s | | |
| | 1 | 1 | 5 s | | |
| 4-5 | T0 timer adjustment | | | Adjusts the fail safe timer. This timer sets the interval between "setup" data transmission and T.38 phase decision. If your destination return is late on the network or G3 fax return is late, adjust the longer interval timer. The default is "00" (75 seconds). | |
| | Bit 5 | Bit 4 | | | |
| | 0 | 0 | 75 s | | |
| | 0 | 1 | 120 s | | |
| | 1 | 0 | 180 s | | |
| | 1 | 1 | 240 s | | |
| 6-7 | Not used | | | Do not change these settings. | |

4.4 NCU PARAMETERS

The following tables give the RAM addresses and the parameter calculation units that the machine uses for ringing signal detection and automatic dialing. The factory settings for each country are also given. Most of these must be changed by RAM read/write (SP2-102), but some can be changed using NCU Parameter programming (SP2-103, 104 and 105); if SP2-103, 104 and 105 can be used, this will be indicated in the Remarks column. The RAM is programmed in hex code unless (BCD) is included in the Unit column.

 Note

- The following addresses describe settings for the standard NCU.
- Change the fourth digit from "5" to "6" (e.g. 680500 to 680600) for the settings for the first optional G3 interface unit and from "5" to "7" (e.g. 680700) for the settings for the second optional G3 interface unit.

| Address | Function | | Unit | | Remarks | | | |
|---------|---|---------|------|--------------|---------|---------|-----|--|
| 680500 | Country/Area code for NCU parameters | | | | | | | |
| | Use the Hex value to program the country/area code directly into this address, or use the decimal value to program it using SP2-103-001 | | | | | | | |
| | Country/Area | Decimal | Hex | Country/Area | | Decimal | Hex | |
| | France | 00 | 00 | Hong Kong | | 20 | 14 | |
| | Germany | 01 | 01 | South Africa | | 21 | 15 | |
| | UK | 02 | 02 | Australia | | 22 | 16 | |
| | Italy | 03 | 03 | New Zealand | | 23 | 17 | |
| | Austria | 04 | 04 | S'pore | | 24 | 18 | |
| | Belgium | 05 | 05 | Malaysia | | 25 | 19 | |
| | Denmark | 06 | 06 | China | | 26 | 1A | |
| | Finland | 07 | 07 | Taiwan | | 27 | 1B | |
| | Ireland | 08 | 08 | Korea | | 28 | 1C | |

NCU Parameters

| Address | Function | | | Unit | Remarks | | | | | | | | |
|---------|--|----|----|----------|--|--|----|----|--|--|--|--|--|
| | Norway | 09 | 09 | Turkey | | | 32 | 20 | | | | | |
| | Sweden | 10 | 0A | Greece | | | 33 | 21 | | | | | |
| | Switz. | 11 | 0B | Hungary | | | 34 | 22 | | | | | |
| | Portugal | 12 | 0C | Czech | | | 35 | 23 | | | | | |
| | Holland | 13 | 0D | Poland | | | 36 | 24 | | | | | |
| | Spain | 14 | 0E | | | | | | | | | | |
| | Israel | 15 | 0F | | | | | | | | | | |
| | USA | 17 | 11 | | | | | | | | | | |
| 680501 | Line current detection time | | | 20 ms | Line current detection is disabled. Line current is not detected if 680501 contains FF. | | | | | | | | |
| 680502 | Line current wait time | | | | | | | | | | | | |
| 680503 | Line current drop detect time | | | | | | | | | | | | |
| 680504 | PSTN dial tone frequency upper limit (high byte) | | | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | | | | | | |
| 680505 | PSTN dial tone frequency upper limit (low byte) | | | | | | | | | | | | |
| 680506 | PSTN dial tone frequency lower limit (high byte) | | | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | | | | | | |
| 680507 | PSTN dial tone frequency lower limit (low byte) | | | | | | | | | | | | |
| 680508 | PSTN dial tone detection time | | | 20 ms | If 680508 contains FF(H), the machine pauses for the pause time (address 68050D / 68050E). | | | | | | | | |
| 680509 | PSTN dial tone reset time (LOW) | | | | | | | | | | | | |
| 68050A | PSTN dial tone reset time (HIGH) | | | | | | | | | | | | |
| 68050B | PSTN dial tone continuous tone time | | | | | | | | | | | | |

NCU Parameters

| Address | Function | Unit | Remarks | | | |
|---------|--|----------|--|--|--|--|
| 68050C | PSTN dial tone permissible drop time | | Italy: See Note 2. | | | |
| 68050D | PSTN wait interval (LOW) | | | | | |
| 68050E | PSTN wait interval (HIGH) | | | | | |
| 68050F | PSTN ring-back tone detection time | 20 ms | Detection is disabled if this contains FF. | | | |
| 680510 | PSTN ring-back tone off detection time | 20 ms | | | | |
| 680511 | PSTN detection time for silent period after ring-back tone detected (LOW) | 20 ms | | | | |
| 680512 | PSTN detection time for silent period after ring-back tone detected (HIGH) | 20 ms | | | | |
| 680513 | PSTN busy tone frequency upper limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680514 | PSTN busy tone frequency upper limit (low byte) | | | | | |
| 680515 | PSTN busy tone frequency lower limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680516 | PSTN busy tone frequency lower limit (low byte) | | | | | |
| 680517 | PABX dial tone frequency upper limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680518 | PABX dial tone frequency upper limit (low byte) | | | | | |
| 680519 | PABX dial tone frequency lower limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 68051A | PABX dial tone frequency lower limit (low byte) | | | | | |

Fax Option
Type 3350
D361

NCU Parameters

| Address | Function | Unit | Remarks | | | |
|---------|---|----------|---|--|--|--|
| 68051B | PABX dial tone detection time | 20 ms | If 68051B contains FF, the machine pauses for the pause time (680520 / 680521). | | | |
| 68051C | PABX dial tone reset time (LOW) | | | | | |
| 68051D | PABX dial tone reset time (HIGH) | | | | | |
| 68051E | PABX dial tone continuous tone time | | | | | |
| 68051F | PABX dial tone permissible drop time | | | | | |
| 680520 | PABX wait interval (LOW) | | | | | |
| 680521 | PABX wait interval (HIGH) | | | | | |
| 680522 | PABX ringback tone detection time | 20 ms | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680523 | PABX ringback tone off detection time | 20 ms | | | | |
| 680524 | PABX detection time for silent period after ringback tone detected (LOW) | 20 ms | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680525 | PABX detection time for silent period after ringback tone detected (HIGH) | 20 ms | | | | |
| 680526 | PABX busy tone frequency upper limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680527 | PABX busy tone frequency upper limit (low byte) | | | | | |
| 680528 | PABX busy tone frequency lower limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | |
| 680529 | PABX busy tone frequency lower limit (low byte) | | | | | |
| 68052A | Busy tone ON time: range 1 | 20 ms | | | | |
| 68052B | Busy tone OFF time: range 1 | | | | | |
| 68052C | Busy tone ON time: range 2 | | | | | |

NCU Parameters

| Address | Function | | | Unit | Remarks | | | | | | | |
|---------|---|-------|-------|------|----------|--|--|--|--|--|--|--|
| 68052D | Busy tone OFF time: range 2 | | | | 20 ms | | | | | | | |
| 68052E | Busy tone ON time: range 3 | | | | | | | | | | | |
| 68052F | Busy tone OFF time: range 3 | | | | | | | | | | | |
| 680530 | Busy tone ON time: range 4 | | | | | | | | | | | |
| 680531 | Busy tone OFF time: range 4 | | | | | | | | | | | |
| 680532 | Busy tone continuous tone detection time | | | | | | | | | | | |
| 680533 | Busy tone signal state time tolerance for all ranges, and number of cycles required for detection (a setting of 4 cycles means that ON-OFF-ON or OFF-ON-OFF must be detected twice). Tolerance (\pm) | | | | | | | | | | | |
| | Bit 1 | Bit 0 | | | | | | | | | | |
| | 0 | 0 | 75% | | | | | | | | | |
| | 0 | 1 | 50% | | | | | | | | | |
| | 1 | 0 | 25% | | | | | | | | | |
| | 1 | 1 | 12.5% | | | | | | | | | |
| | Bits 2 and 3 must always be kept at 0. Bits 7, 6, 5, 4 - number of cycles required for cadence detection | | | | | | | | | | | |
| 680534 | International dial tone frequency upper limit (high byte) | | | | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | | | | |
| 680535 | International dial tone frequency upper limit (low byte) | | | | | | | | | | | |
| 680536 | International dial tone frequency lower limit (high byte) | | | | Hz (BCD) | If both addresses contain FF(H), tone | | | | | | |

Fax Option
 Type 3350
 D361

NCU Parameters

| Address | Function | Unit | Remarks | | | | |
|---------|--|----------|---|--|--|--|--|
| 680537 | International dial tone frequency lower limit (low byte) | | detection is disabled. | | | | |
| 680538 | International dial tone detection time | 20 ms | If 680538 contains FF, the machine pauses for the pause time (68053D / 68053E). Belgium: See Note 2. | | | | |
| 680539 | International dial tone reset time (LOW) | | | | | | |
| 68053A | International dial tone reset time (HIGH) | | | | | | |
| 68053B | International dial tone continuous tone time | | | | | | |
| 68053C | International dial tone permissible drop time | | | | | | |
| 68053D | International dial wait interval (LOW) | | | | | | |
| 68053E | International dial wait interval (HIGH) | | | | | | |
| 68053F | Country dial tone upper frequency limit (HIGH) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. | | | | |
| 680540 | Country dial tone upper frequency limit (LOW) | | | | | | |
| 680541 | Country dial tone lower frequency limit (HIGH) | | If both addresses contain FF(H), tone detection is disabled. | | | | |
| 680542 | Country dial tone lower frequency limit (LOW) | | | | | | |
| 680543 | Country dial tone detection time | 20 ms | If 680543 contains FF, the machine pauses for the pause time (680548 / 680549). | | | | |
| 680544 | Country dial tone reset time (LOW) | | | | | | |
| 680545 | Country dial tone reset time (HIGH) | | | | | | |
| 680546 | Country dial tone continuous tone time | | | | | | |

NCU Parameters

| Address | Function | Unit | Remarks | | | |
|---------|---|-------|--|--|--|--|
| 680547 | Country dial tone permissible drop time | 20 ms | | | | |
| 680548 | Country dial wait interval (LOW) | | | | | |
| 680549 | Country dial wait interval (HIGH) | | | | | |
| 68054A | Time between opening or closing the DO relay and opening the OHDI relay | 1 ms | See Notes 3, 6 and 8. SP2-103-012 (parameter 11). | | | |
| 68054B | Break time for pulse dialing | 1 ms | See Note 3. SP2-103-013 (parameter 12). | | | |
| 68054C | Make time for pulse dialing | 1 ms | See Note 3. SP2-103-014 (parameter 13). | | | |
| 68054D | Time between final OHDI relay closure and DO relay opening or closing | 1 ms | See Notes 3, 6 and 8. SP2-103-015 (parameter 14). This parameter is only valid in Europe. | | | |
| 68054E | Minimum pause between dialed digits (pulse dial mode) | 20 ms | See Note 3 and 8. SP2-103-016 (parameter 15). | | | |
| 68054F | Time waited when a pause is entered at the operation panel | | SP2-103-017 (parameter 16). See Note 3. | | | |
| 680550 | DTMF tone on time | 1 ms | SP2-103-018 (parameter 17). | | | |
| 680551 | DTMF tone off time | | SP2-103-019 (parameter 18). | | | |

Fax Option
Type 3350
D361

NCU Parameters

| Address | Function | Unit | Remarks |
|---------|--|----------------------|---|
| 680552 | Tone attenuation level of DTMF signals while dialing | -N x 0.5 -3.5 dBm | SP2-103-020 (parameter 19). See Note 5. |
| 680553 | Tone attenuation value difference between high frequency tone and low frequency tone in DTMF signals | -dBm x 0.5 | SP2-103-021 (parameter 20). The setting must be less than -5dBm, and should not exceed the setting at 680552h above. See Note 5. |
| 680554 | PSTN: DTMF tone attenuation level after dialling | -N x 0.5 -3.5 dBm | SP2-103-022 (parameter 21). See Note 5. |
| 680555 | ISDN: DTMF tone attenuation level after dialling | -dBm x 0.5 | See Note 5 |
| 680556 | Not used | | Do not change the settings. |
| 680557 | Time between 68054Dh (NCU parameter 14) and 68054Eh (NCU parameter 15) | 1 ms | This parameter takes effect when the country code is set to France. |
| 680558 | Not used | | Do not change the setting. |
| 680559 | Grounding time (ground start mode) | 20 ms | The Gs relay is closed for this interval. |
| 68055A | Break time (flash start mode) | 1 ms | The OHDI relay is open for this interval. |
| 68055B | International dial access code (High) | BCD | For a code of 100: 68055B - F1 |
| 68055C | International dial access code (Low) | | 68055C - 00 |

NCU Parameters

| Address | Function | Unit | Remarks | | | | |
|-------------------------|---|------------------|--|-----------------------------|-------|--|--|
| 68055D | PSTN access pause time | 20 ms | This time is waited for each pause input after the PSTN access code. If this address contains FF[H], the pause time stored in address 68054F is used. Do not set a number more than 7 in the UK. | | | | |
| 68055E | Progress tone detection level, and cadence detection enable flags | | | | | | |
| | | | Bit 7 | Bit 6 | Bit 5 | | |
| | | | 0 | 0 | 0 | | |
| | | | 0 | 0 | 1 | | |
| | | | 0 | 1 | 0 | | |
| | | | 1 | 0 | 0 | | |
| Bits 2, 0 - See Note 2. | | | | | | | |
| 68055F to 680564 | Not used | | | Do not change the settings. | | | |
| 680565 | Long distance call prefix (HIGH) | BCD | For a code of 0: 680565 - FF 680566 - FF | | | | |
| 680566 | Long distance call prefix (LOW) | BCD | | | | | |
| 680567 to 680571 | Not used | | Do not change the settings. | | | | |
| 680572 | Acceptable ringing signal frequency: range 1, upper limit | 1000/ N (Hz). | SP2-103-003 (parameter 02). | | | | |

Fax Option
 Type 3350
 D361

NCU Parameters

| Address | Function | Unit | Remarks |
|------------------------|--|-------|--|
| 680573 | Acceptable ringing signal frequency: range 1, lower limit | | SP2-103-004 (parameter 03). |
| 680574 | Acceptable ringing signal frequency: range 2, upper limit | | SP2-103-005 (parameter 04). |
| 680575 | Acceptable ringing signal frequency: range 2, lower limit | | SP2-103-006 (parameter 05). |
| 680576 | Number of rings until a call is detected | 1 | SP2-103-007 (parameter 06). The setting must not be zero. |
| 680577 | Minimum required length of the first ring | 20 ms | See Note 4. SP2-103-008 (parameter 07). |
| 680578 | Minimum required length of the second and subsequent rings | 20 ms | SP2-103-009 (parameter 08). |
| 680579 | Ringing signal detection reset time (LOW) | 20 ms | SP2-103-010 (parameter 09). |
| 68057A | Ringing signal detection reset time (HIGH) | | SP2-103-011 (parameter 10). |
| 68057B to 680580 | Not used | | Do not change the settings. |
| 680581 | Interval between dialing the last digit and switching the Oh relay over to the external telephone when dialing from the operation panel in handset mode. | 20 ms | Factory setting: 500 ms |
| 680582 | Bits 0 and 1 - Handset off-hook detection time | | |

NCU Parameters

| Address | Function | | Unit | Remarks | | | | |
|------------------------|--|-------|------------------|--|-----------------------------|--|--|--|
| | Bit 1 | Bit 0 | Setting | | | | | |
| | 0 | 0 | 200 ms | | | | | |
| | 0 | 1 | 800 ms | | | | | |
| | Other | | Not used | | | | | |
| | Bits 2 and 3 - Handset on-hook detection time | | | | | | | |
| | Bit 3 | Bit 2 | Setting | | | | | |
| | 0 | 0 | 200 ms | | | | | |
| | 0 | 1 | 800 ms | | | | | |
| | Other | | Not used | | | | | |
| | Bits 4 to 7 - Not used | | | | | | | |
| 6805A3 to 6805A0 | Not used | | | | Do not change the settings. | | | |
| 6805A1 | Acceptable CED detection frequency upper limit (high byte) | | BCD (Hz) | If both addresses contain FF(H), tone detection is disabled. | | | | |
| 6805A2 | Acceptable CED detection frequency upper limit (low byte) | | | | | | | |
| 6805A3 | Acceptable CED detection frequency lower limit (high byte) | | BCD (Hz) | If both addresses contain FF(H), tone detection is disabled. | | | | |
| 6805A4 | Acceptable CED detection frequency lower limit (low byte) | | | | | | | |
| 6805A5 | CED detection time | | 20 ms ± 20 ms | Factory setting: 200 ms | | | | |
| 6805A6 | Acceptable CNG detection frequency upper limit (high byte) | | BCD (Hz) | If both addresses contain FF(H), tone | | | | |

Fax Option
Type 3350
D361

NCU Parameters

| Address | Function | Unit | Remarks |
|---------|---|----------|--|
| 6805A7 | Acceptable CNG detection frequency upper limit (low byte) | | detection is disabled. |
| 6805A8 | Acceptable CNG detection frequency lower limit (high byte) | BCD (Hz) | If both addresses contain FF(H), tone detection is disabled. |
| 6805A9 | Acceptable CNG detection frequency lower limit (low byte) | | |
| 6805AA | Not used | | Do not change the setting. |
| 6805AB | CNG on time | 20 ms | Factory setting: 500 ms |
| 6805AC | CNG off time | 20 ms | Factory setting: 3000 ms |
| 6805AD | Number of CNG cycles required for detection | | The data is coded in the same way as address 680533. |
| 6805AE | Not used | | Do not change the settings. |
| 6805AF | Acceptable AI short protocol tone (800Hz) detection frequency upper limit (high byte) | Hz (BCD) | If both addresses contain FF(H), tone detection is disabled. |
| 6805B0 | Acceptable AI short protocol tone (800Hz) detection frequency upper limit (low byte) | | |
| 6805B1 | Acceptable AI short protocol tone (800Hz) detection frequency lower limit (high byte) | Hz(BCD) | If both addresses contain FF(H), tone detection is disabled. |
| 6805B2 | Acceptable AI short protocol tone (800Hz) detection frequency lower limit (low byte) | | |

NCU Parameters

| Address | Function | Unit | Remarks | | | | |
|------------------------|---|---|---|--|--|--|--|
| 6805B3 | Detection time for 800 Hz AI short protocol tone | 20 ms | Factory setting: 360 ms | | | | |
| 6805B4 | PSTN: Tx level from the modem | -N – 3 dBm | SP2-103-002 (parameter 01). | | | | |
| 6805B5 | PSTN: 1100 Hz tone transmission level | - N 6805B4 - 0.5N 6805B5 –3.5 (dB) See Note 7. | | | | | |
| 6805B6 | PSTN: 2100 Hz tone transmission level | - N 6805B4 - 0.5N 6805B6 –3 (dB) See Note 7. | | | | | |
| 6805B7 | PABX: Tx level from the modem | - dBm | | | | | |
| 6805B8 | PABX: 1100 Hz tone transmission level | - N 6805B7 - 0.5N 6805B8 (dB) | | | | | |
| 6805B9 | PABX: 2100 Hz tone transmission level | - N 6805B7 - 0.5N 6805B9 (dB) | | | | | |
| 6805BD | Modem turn-on level (incoming signal detection level) | -37-0.5N (dBm) | | | | | |
| 6805BE to 6805C6 | Not used | | Do not change the settings. | | | | |
| 6805C7 | Bits 0 to 3 – Not used. Bit 4 – V.34 protocol dump - 0: Simple, 1: Detailed (default) Bits 5 to 7 – Not used. | | | | | | |
| 6805C8 to 6805D9 | Not used | | Do not change the settings. | | | | |
| 6805DA | T.30 T1 timer | 1 s | | | | | |
| 6805E0 bit 3 | Maximum wait time for post message | 0: 12 s 1: 30 s | 1: Maximum wait time for post message (EOP/EOM/MPS) can | | | | |

Fax Option
 Type 3350
 D361

NCU Parameters

| Address | Function | | | | Unit | Remarks | | | | | | | |
|---------|---|-------|----------|-------|-----------------------|---|--|--|--|--|--|--|--|
| | | | | | | be changed to 30 s. Change this bit to "1" if communication errors occur frequently during V.17 reception. | | | | | | | |
| 6805E3 | Voltage setting to detect off-hook for voltage/DP detection for an externally connected line. | | | | 0: Auto 1: Fixed V | Do not change these settings | | | | | | | |
| | Here is a summary of the fixed voltage settings (1: Fixed) for an externally connected line. | | | | | | | | | | | | |
| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | | | | | | | | | |
| | 0 | 0 | 0 | 0 | Not used | | | | | | | | |
| | 0 | 0 | 0 | 1 | 2.75 V | | | | | | | | |
| | 0 | 0 | 1 | 0 | 5.5 V | | | | | | | | |
| | 1 | 0 | 0 | 0 | 22 V | | | | | | | | |
| 6805E4 | Bit 1 sets the level of the call signal, Bit 3 sets the call signal impedance | | | Bit 1 | 0 | RT=0 (Low) | | | | | | | |
| | | | | | 1 | RT=1 (High) | | | | | | | |
| | | | | Bit 3 | 0 | RZ=0 (High) | | | | | | | |
| | | | | | 1 | RZ=1 (Composite) | | | | | | | |
| | | | | Bit 0 | 0 | RT=0 (Low) | If any setting is changed, select a setting that is higher than the default setting. | | | | | | |
| 6805E5 | Bit 0 sets the ring detection method, Bit 1 sets the ring detection method when fixed. | | | | 1 | RT=1 (High) | | | | | | | |
| | Bit 1 | 0 | Use RDTP | | | | | | | | | | |
| | | 1 | Use RDTN | | | | | | | | | | |

NCU Parameters

| Address | Function | | | | Unit | Remarks | | |
|---------|---|-------|-------|-------|----------|---------|--|--|
| | Here is a summary of the voltages for the detection of off-hook for DP detection. | | | | | | | |
| | Bit 7 | Bit 6 | Bit 5 | Bit 4 | | | | |
| | 0 | 0 | 0 | 0 | Not used | | | |
| | 0 | 0 | 0 | 1 | 2.75 V | | | |
| | 0 | 0 | 1 | 0 | 5.5 V | | | |
| | 1 | 0 | 0 | 0 | 22 V | | | |
| | 1 | 1 | 1 | 1 | 41.25 V | | | |

Fax Option
Type 3350
D361

Notes

1. If a setting is not required, store FF in the address.

2. Italy and Belgium only

RAM address 68055E: the lower four bits have the following meaning.

Bit 2 - 1: International dial tone cadence detection enabled (Belgium)

Bit 1 - Not used

Bit 0 - 1: PSTN dial tone cadence detection enabled (Italy)

If bit 0 or bit 2 is set to 1, the functions of the following RAM addresses are changed.

680508 (if bit 0 = 1) or 680538 (if bit 2 = 1): tolerance for on or off state

duration (%), and number of cycles required for detection, coded as in address 680533.

68050B (if bit 0 = 1) or 68053B (if bit 2 = 1): on time, hex code (unit = 20 ms)

68050C (if bit 0 = 1) or 68053C (if bit 2 = 1): off time, hex code (unit = 20 ms)

3. Pulse dial parameters (addresses 68054A to 68054F) are the values for 10 pps. If 20 pps is used, the machine automatically compensates.

4. The first ring may not be detected until 1 to 2.5 wavelengths after the time specified by this parameter.

5. The calculated level must be between 0 and 10.

The attenuation levels calculated from RAM data are:

High frequency tone: $-0.5 \times N680552/680554 - 3.5 \text{ dBm}$

$-0.5 \times N680555 \text{ dBm}$

Low frequency tone: $-0.5 \times (N680552/680554 + N680553) - 3.5 \text{ dBm}$

NCU Parameters

- $0.5 \times (N680555 + N680553)$ dBm
- N680552, for example, means the value stored in address 680552(H)
- 6. Ds and Di relay timing
 - 68054A: Europe - Between Ds opening and Di opening, France - Between Ds closing and Di opening
 - 68054D: Europe - Between Ds closing and Di closing, France - Between Ds opening and Di closing
- 7. Tone signals which frequency is lower than 1500Hz (e.g., 800Hz tone for AI short protocol) refer to the setting at 6805B5h. Tones which frequency is higher than 1500Hz refer to the setting at 6805B6h.
- 8. 68054A, 68054D, 68054E: The actual inter-digit pause (pulse dial mode) is the sum of the period specified by the RAM addresses 68054A, 68054D, and 68054E.

4.5 DEDICATED TRANSMISSION PARAMETERS

There are two sets of transmission parameters: Fax and E-mail

Each Quick Dial Key and Speed Dial Code has eight bytes of programmable parameters allocated to it. If transmissions to a particular machine often experience problems, store that terminal's fax number as a Quick Dial or Speed Dial, and adjust the parameters allocated to that number.

The programming procedure will be explained first. Then, the eight bytes will be described.

4.5.1 PROGRAMMING PROCEDURE

1. Set the bit 0 of System Bit Switch 00 to 1.
2. Enter Address Book Management mode ([User Tools]> System Settings> Key Operator> Address Book Management).
3. Select the address book that you want to program.
4. For the fax parameter, select "Fax Dest.", for the E-mail parameter, select "E-mail", then press "Start". Make sure that the LED of the Start button lights green.
5. The settings for the switch 00 are now displayed. Press the bit number that you wish to change.
6. To scroll through the parameter switches, either:
7. Do one of the following:
 Select the next switch: press "Next"
 or
 Select the previous switch: "Prev." until the correct switch is displayed. Then go back to step 6.
8. After the setting is changed, press "OK".
9. After finishing, reset bit 0 of System Bit Switch 00 to 0.

4.5.2 PARAMETERS

Fax Parameters

The initial settings of the following fax parameters are all FF(H). This means that all the parameters are disabled.

Dedicated Transmission Parameters

| Switch 00 |
|---|
| Function and Comments |
| <p>ITU-T T1 time (for PSTN G3 mode)</p> <p>If the connection time to a particular terminal is longer than the NCU parameter setting, adjust this byte. The T1 time is the value stored in this byte (in hex code), multiplied by 1 second.</p> <p>Range: 0 to 120 s (00h to 78h)</p> <p>FFh - The local NCU parameter factory setting is used.</p> <p>Do not program a value between 79h and FEh.</p> |

Dedicated Transmission Parameters

Fax Option
Type 3350
D361

| Switch 01 | | | | | | | |
|--------------|-----------------------------|-------|-------|----------|-------|---|--|
| No | Function | | | | | Function | |
| 0 to 4 | Tx level | | | | | <p>If communication with a particular remote terminal often contains errors, the signal level may be inappropriate. Adjust the Tx level for communications with that terminal until the results are better.</p> <p>If the setting is "Disabled", the NCU parameter 01 setting is used.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ Do not use settings other than listed on the left. | |
| | Bit 4 | Bit 3 | Bit 2 | Bit 1 | Bit 0 | | |
| | 0 | 0 | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 0 | 1 | -1 | |
| | 0 | 0 | 0 | 1 | 0 | -2 | |
| | 0 | 0 | 0 | 1 | 1 | -3 | |
| | 0 | 0 | 1 | 0 | 0 | -4 | |
| | . . . and so on until . . . | | | | | | |
| 5 to 7 | Cable equalizer | | | | | <p>Use a higher setting if there is signal loss at higher frequencies because of the length of wire between the modem and the telephone exchange when calling the number stored in this Quick/Speed Dial.</p> <p>Also, try using the cable equalizer if one or more of the following symptoms occurs.</p> <ul style="list-style-type: none"> ▪ Communication error with error | |
| | Bit 7 | Bit 6 | Bit 5 | | | | |
| | 0 | 0 | 0 | None | | | |
| | 0 | 0 | 1 | Low | | | |
| | 0 | 1 | 0 | Medium | | | |
| | 0 | 1 | 1 | High | | | |
| | 1 | 1 | 1 | Disabled | | | |

Dedicated Transmission Parameters

| Switch 01 | | | | | |
|-----------|----------|--|--|--|--|
| No | Function | | | | Function |
| | | | | | <p>codes such as 0-20, 0-23, etc.</p> <ul style="list-style-type: none"> ▪ Modem rate fallback occurs frequently. <p> Note</p> <ul style="list-style-type: none"> ▪ Do not use settings other than listed on the left. ▪ If the setting is “Disabled”, the bit switch setting is used. |

| Switch 02 | | | | | |
|--------------|------------------------------|-------|-------|-------|---|
| No | Function | | | | Comments |
| 0 to 3 | Initial Tx modem rate (kbps) | | | | <p>If training with a particular remote terminal always takes too long, the initial modem rate may be too high. Reduce the initial Tx modem rate using these bits.</p> <p>For the settings 14.4 or kbps slower, Switch 04 bit 4 must be changed to 0.</p> <p> Note</p> <ul style="list-style-type: none"> ▪ Other settings: Not used <p>If the setting is “Disabled”, the bit switch setting is used.</p> |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | |
| | 0 | 0 | 0 | 0 | |
| | 0 | 0 | 0 | 1 | |
| | 0 | 0 | 1 | 0 | |
| | 0 | 0 | 1 | 1 | |
| | 0 | 1 | 0 | 0 | |
| | 0 | 1 | 0 | 1 | |
| | 0 | 1 | 1 | 0 | |
| | 0 | 1 | 1 | 1 | |
| | 1 | 0 | 0 | 0 | |
| | 1 | 0 | 0 | 1 | |

Dedicated Transmission Parameters

Fax Option
Type 3350
D361

| Switch 02 | | | | | |
|-----------|--|---|--|---|-----------------------------|
| No | Function | | | | Comments |
| | 1 | 0 | 1 | 0 | 24.0 |
| | 1 | 0 | 1 | 1 | 26.4 |
| | 1 | 1 | 0 | 0 | 28.8 |
| | 1 | 1 | 0 | 1 | 31.2 |
| | If all bits are at '1', the setting is 'Disabled' | | | | |
| | Note | | <ul style="list-style-type: none"> ▪ Other settings: Not used | | |
| 4-7 | Not used | | | | Do not change the settings. |

| Switch 03 | | | | | |
|-----------|------------------------------|-------|------------------------------|---|--|
| No | Function | | | Comments | |
| 0-1 | Inch-mm conversion before tx | | | The machine uses inch-based resolutions for scanning. If "inch only" is selected, the printed copy may be slightly distorted at the other end if that machine uses mm-based resolutions. If the setting is "Disabled", the bit switch setting is used. | |
| | Bit 1 | Bit 0 | Setting | | |
| | 0 | 0 | Inch-mm conversion available | | |
| | 0 | 1 | Inch only | | |
| | 1 | 0 | Not used | | |
| | 1 | 1 | Disabled | | |
| | | | | | |
| 2-3 | DIS/NSF detection method | | | (0, 1): Use this setting if echoes on the line are interfering with the set-up protocol at the start of transmission. The machine will then wait for the | |
| | Bit 3 | Bit 2 | Setting | | |
| | 0 | 0 | First DIS or NSF | | |

Dedicated Transmission Parameters

| Switch 03 | | | | | | | |
|-----------|---|-------|-------------------|---|--|---|--|
| No | Function | | | Comments | | | |
| 3 | 0 | 1 | Second DIS or NSF | | | second DIS or NSF before sending DCS or NSS. If the setting is “Disabled”, the bit switch setting is used. | |
| | 1 | 0 | Not used | | | | |
| | 1 | 1 | Disabled | | | | |
| | | | | | | | |
| 4 | V.8 protocol 0: Off 1: Disabled | | | If transmissions to a specific destination always end at a lower modem rate (14,400 bps or lower), disable V.8 protocol so as not to use V.34 protocol. 0: V.34 communication will not be possible. If the setting is “Disabled”, the bit switch setting is used. | | | |
| 5 | Compression modes available in transmit mode 0: MH only 1: Disabled | | | This bit determines the capabilities that are informed to the other terminal during transmission. If the setting is “Disabled”, the bit switch setting is used. | | | |
| 6 7 | ECM during transmission | | | For example, if ECM is switched on but is not wanted when sending to a particular terminal, use the (0, 0) setting. Note that V.8/V.34 protocol and JBIG compression are automatically disabled if ECM is disabled. If the setting is “Disabled”, the bit switch setting is used. | | | |
| | Bit 7 | Bit 6 | Setting | | | | |
| | 0 | 0 | Off | | | | |
| | 0 | 1 | On | | | | |
| | 1 | 0 | Not used | | | | |
| | 1 | 1 | Disabled | | | | |
| | | | | | | | |

Dedicated Transmission Parameters

| |
|--|
| Switch 04 - Not used (do not change the settings) |
| Switch 05 - Not used (do not change the settings) |
| Switch 06 - Not used (do not change the settings) |
| Switch 07 - Not used (do not change the settings) |
| Switch 08 - Not used (do not change the settings) |
| Switch 09 - Not used (do not change the settings) |

Fax Option
Type 3350
D361

E-mail Parameters

The initial settings of the following e-mail parameters are all "0" (all parameters disabled).

| Switch 00 | | |
|-----------|---|---|
| No | Function | Comments |
| 0 | HM Compression mode for e-mail attachments 0: Off 1: On | Switches HM compression on and off for files attached to e-mails for sending. |
| 1 | HR Compression mode for e-mail attachments 0: Off 1: On | Switches HR compression on and off for files attached to e-mails for sending. |
| 2 | MMR Compression mode for e-mail attachments 0: Off 1: On | Switches MMR compression on and off for files attached to e-mails for sending. |
| 3-6 | Not used | Do not change these settings. |
| 7 | Designates the bits to reference for compression method of e-mail attachments | The "0" selection (default) references the settings for Bits 00, 01, 02 above. The "1" selection ignores the selections of Bits 00, 01, 02. |

Dedicated Transmission Parameters

| Switch 00 | | |
|-----------|---|----------|
| No | Function | Comments |
| | 0: Registered (Bit 0 to 6) 1: No registration. | |

| Switch 01 | | |
|-----------|---|---|
| No | Function | Comments |
| 0 | Original width of e-mail attachment: A4 0: Off 1: On | Sets the original width of the e-mail attachment as A4. |
| 1 | Original width of e-mail attachment: B4 0: Off 1: On | Sets the original width of the e-mail attachment as B4. |
| 2 | Original width of e-mail attachment: A3 0: Off 1: On | Sets the original width of the e-mail attachment as A3. |
| 3-6 | Not used | Do not change these settings. |
| 7 | Designates the bits to reference for original size of e-mail attachments 0: Registered (Bit 0 to 6) 1: No registration. | The "0" selection (default) references the settings for Bits 00, 01, 02 above. The "1" selection ignores the selections of Bits 00, 01, 02. |

| Switch 02 | | |
|-----------|---------------------------|--|
| No | Function | Comments |
| 0 | Line resolution of e-mail | Sets the line resolution of the e-mail attachment as |

Dedicated Transmission Parameters

| Switch 02 | | |
|------------------|---|---|
| No | Function | Comments |
| | attachment: 200 x 100 0: Off 1: On | 200 x100. |
| 1 | Line resolution of e-mail attachment: 200 x 200 0: Off 1: On | Sets the line resolution of the e-mail attachment as 200 x 200. |
| 2 | Line resolution of e-mail attachment: 200 x 400 0: Off 1: On | Sets the line resolution of the e-mail attachment as 200 x 400. |
| 3 | Not used | Do not change these settings. |
| 4 | Line resolution of e-mail attachment: 400 x 400 0: Off 1: On | Sets the line resolution of the e-mail attachment as 400 x 400. |
| 5-6 | Not used | Do not change these settings. |
| 7 | Designates the bits to reference for original size of e-mail attachments 0: Registered (Bit 0 to 6) 1: No registration. | The "0" selection (default) references the settings for Bits 00, 01, 02, 04 above. The "1" selection ignores the selections of Bits 00, 01, 02, 04. |

| |
|--|
| Switch 03 - Not used (do not change the settings) |
| Switch 04 - Not used (do not change the settings) |
| Switch 05 - Not used (do not change the settings) |
| Switch 06 - Not used (do not change the settings) |

Fax Option
Type 3350
D361

Dedicated Transmission Parameters

Switch 07 - Not used (do not change the settings)

Switch 08 - Not used (do not change the settings)

Switch 09 - Not used (do not change the settings)

4.6 SERVICE RAM ADDRESSES

 Note

- Do not change the settings which are marked as "Not used" or "Read only."

680001 to 680004(H) - ROM version (Read only)

- 680001(H) - Revision number (BCD)
- 680002(H) - Year (BCD)
- 680003(H) - Month (BCD)
- 680004(H) - Day (BCD)

680006 to 680015(H) - Machine's serial number (16 digits - ASCII)

680018(H) - Total program checksum (low)

680019(H) - Total program checksum (high)

680020 to 68003F(H) - System bit switches

680050 to 68005F(H) - Printer bit switches

680060 to 68007F(H) - Communication bit switches

680080 to 68008F(H) - G3 bit switches

680090 to 68009F(H) - G3-2 bit switches

6800A0 to 6800AF(H) - G3-3 bit switches

6800D0(H) - User parameter switch 00 (SWUER_00): Not used

6800D1(H) - User parameter switch 01 (SWUSR_01): Not used

6800D2(H) - User parameter switch 02 (SWUSR_02)

- Bit 0: Forwarding mark printing on forwarded messages, 0: Disabled, 1: Enabled
- Bit 1: Center mark printing on received copies (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 2: Reception time printing (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 3: TSI print on received messages, 0: Disabled, 1: Enabled
- Bit 4: Checkered mark printing (this switch is not printed on the user parameter list), 0: Disabled, 1: Enabled
- Bit 5: Not used
- Bit 6: Not used
- Bit 7: Not used

6800D3(H) - User parameter switch 03 (SWUSR_03: Automatic report printout)

- Bit 0: Transmission result report (memory transmissions), 0: Off, 1: On
- Bit 1: Not used
- Bit 2: Memory storage report, 0: Off, 1: On

Service RAM Addresses

- Bit 3: Polling reserve report (polling reception), 0: Off, 1: On
- Bit 4: Polling result report (polling reception), 0: Off, 1: On
- Bit 5: Transmission result report (immediate transmissions), 0: Off, 1: On
- Bit 6: Polling clear report, 0: Off, 1: On
- Bit 7: Journal, 0: Off, 1: On

6800D4(H) - User parameter switch 04 (SWUSR_04: Automatic report printout)

- Bit 0: Automatic confidential reception report output, 0: Off, 1: On
- Bit 1: Automatic communication failure report and transfer result report output, 0: Off, 1: On
- Bits 2 to 3: Not used
- Bit 4: Indicates the parties, 0: Not indicated, 1: Indicated
- Bit 5: Include sender's name on reports, 0: Off, 1: On
- Bit 6: Not used
- Bit 7: Inclusion of a sample image on reports, 0: Off, 1: On

6800D5(H) - User parameter switch 05 (SWUSR_05)

- Bit 0: Substitute reception when the base copier is in an SC condition, 0: Enabled, 1: Disabled
- Bits 1 and 2: Condition for substitute rx when the machine cannot print messages
(Paper end, toner end, jam, and during night mode)

| Bit 2 | Bit 1 | Setting |
|-------|-------|--|
| 0 | 0 | The machine receives all the fax messages. |
| 0 | 1 | The machine receives fax messages with RTI or CSI. |
| 1 | 0 | The machine receives fax messages with the same ID code. |
| 1 | 1 | The machine does not receive anything. |

- Bit 3: Not used
- Bit 4: Not used
- Bit 5: Just size printing, 0: Off, 1: On
- Bit 6: Not used
- Bit 7: Add paper display when a cassette is empty. 0: Off, 1: On

6800D6(H) - User parameter switch 06 (SWUSR_06)

- Bits 0 to 5: Not used

Service RAM Addresses

- Bit 6: Scan sequence in Book transmission, 0: Left page then right page
then left page
- Bit 7: Not used

6800D7(H) - User parameter switch 07 (SWUSR_07)

- Bits 0 and 1: Not used
- Bit 2: Parallel memory transmission, 0: Off, 1: On
- Bits 3 to 7: Not used

6800D8(H) - User parameter switch 08 (SWUSR_08)

- Bits 0 and 1: Not used
- Bit 2: Authorized reception
 - 0: Only faxes from senders whose RTIs/CSIs are specified for this feature are accepted.
 - 1: Only faxes from senders whose RTIs/CSIs are not specified for this feature are accepted.
- Bits 3 to 7: Not used

6800D9(H) - User parameter switch 09 (SWUSR_09): Not used

6800DA(H) - User parameter switch 10 (SWUSR_0A)

- Bit 0: Not used
- Bit 1: 2 into 1, 0: Off, 1: On
- Bit 2: Not used
- Bit 3: Page reduction, 0: Off, 1: On
- Bit 4: Not used
- Bit 5: Reception file printout, 0: Disabled, 1: Enabled
- Bit 6: Use both e-mail notification and printed reports to confirm the transmission results, 0: Off, 1: On
- Bit 7: Not used

6800DB(H) - User parameter switch 11 (SWUSR_0B)

- Bit 0: Not used
- Bit 1: Not used
- Bits 2 to 5: Not used
- Bit 6: Printout of messages received while acting as a forwarding station, 0: Off, 1: On
- Bit 7: Polling Standby duration, 0: Once, 1: No limit

6800DC(H) - User parameter switch 12 (SWUSR_0C): Not used

6800DD(H) - User parameter switch 13 (SWUSR_0D): Not used

6800DE(H) - User parameter switch 14 (SWUSR_0E)

- Bit 0: Message printout while the machine is in Night Printing mode, 0: On, 1: Off

Fax Option
Type 3350
D361

Service RAM Addresses

- Bit 1: Maximum document length detection
 - 0: Double letter, 1: Longer than double-letter (well log) – up to 1,200 mm
- Bit 2: Batch transmission, 0: Off, 1: On
- Bit 3: Fax mode settings, such as resolution, before a mode key (Copy, Fax, Printer, or Scanner) is pressed, 0: Not cleared, 1: Cleared
- Bits 4 to 6: Not used
- Bit 7: Manual service call (sends the system parameter list to the service station), 0: Off, 1: On

6800DF(H) - User parameter switch 15 (SWUSR_0F)



- This switch is not printed on the user parameter list.

Bits 0, 1 and 2: Cassette for fax printout

| Bit 2 | Bit 1 | Bit 0 | Setting |
|-------|-------|-------|------------------------|
| 0 | 0 | 1 | 1st paper feed station |
| 0 | 1 | 0 | 2nd paper feed station |
| 0 | 1 | 1 | 3rd paper feed station |
| 1 | 0 | 0 | 4th paper feed station |
| 1 | 0 | 1 | LCT |

Other settings: Not used

- Bits 3 and 4: Not used
- Bit 5: Using the cassette specified by bits 0, 1 and 2 above only, 0: On, 1: Off
- Bits 6 and 7: Not used

6800E0(H) – User parameter switch 16 (SWUSR_10)



- This switch is not printed on the user parameter list.
- Bits 0 and 1: Not used
- Bit 2: Paper size selection priority for an A4 size fax message when A4/LT size paper is not available, 0: A3 has priority, 1: B4 has priority
- Bits 3 to 7: Not used

6800E1(H) – User parameter switch 17 (SWUSR_11)

- Bit 0: IFAX Group Destination Selection/Release Method

Service RAM Addresses

Fax Option
 Type 3350
 D361

| | |
|---|--|
| 0 | Priority Select Mode |
| | Select the priority destination according to input mode. The Group button reflects either email or fax input mode. Released as soon as the entry mode is selected, regardless of the current entry mode. |
| 1 | All Select Mode |
| | Acquires all registered members regardless of entry mode. If both email and fax are registered, both are selected. The Group button reflects either email or fax input mode. All registered members are released, regardless of the entry mode. If both email/fax are registered, both are released. |

- Bit 1: Not used
- Bit 2: Inclusion of the “Add” button when a sequence of Quick/Speed dials is selected for broadcasting, 0:Not needed, 1: Needed
- Bits 3 to 6: Not used
- Bit 7: Press “Start” key without an original when using the on hook dial or the external telephone
 - 0: Displays “Cannot detect original size”
 - 1: Receives fax messages.

6800E2(H) - User parameter switch 18 (SWUSR_12)

- Bit 0: TTI date, 0: Off, 1: On
- Bit 1: TTI sender, 0: Off, 1: On
- Bit 2: TTI file number, 0: Off, 1: On
- Bit 3: TTI page number, 0: Off, 1: On
- Bit 4 to 7: Not used

6800E3(H) - User parameter switch 19 (SWUSR_13)

- Bit 0: Offset sort function for the fax (only using the shift tray on the 1,000 sheet finisher), 0: Disabled, 1: Enabled
- Bit 1: Journal format
 - 0: The Journal is separated into transmissions and receptions
 - 1: The Journal is separated into G3-1, G3-2, and G3-3 communications
- Bit 2: Action when the paper cassette that was selected by the specified cassette selection feature becomes empty.

(This switch is not printed on the user parameter list.)

Service RAM Addresses

- 0: The machine will not print any received files until paper is added.
- 1: The machine will use other cassettes to print received files that are not specified by this feature.
- Bit 3: 90° image rotation during B5 portrait Tx, 0: Off, 1: On
(This switch is not printed on the user parameter list.)
- Bit 4: Reduction of sample images on reports to 50% in the main scan and sub-scan directions. (This switch is not printed on the user parameter list.)
 - 0: Technician adjustment (printer switch 0E bits 3 and 4)
 - 1: 50% reduction
- Bit 5: Use of A5 size paper for reports (This switch is not printed on the user parameter list.)
 - 0: Off, 1: On
- Bits 6 and 7: Not used

6800E4(H) - User parameter switch 20 (SWUSR_14)

- Bit 0: Automatic printing of the LAN fax result report, 0: Off, 1: On
- Bit 1: Not used
- Bits 2 to 5: Store documents in memory which could not be printed from PC fax (LAN fax) driver

| Bit 5 | Bit 4 | Bit 3 | Bit 2 | Setting (minutes) |
|--------------------------|-------|-------|-------|-------------------|
| 0 | 0 | 0 | 0 | 0 |
| 0 | 0 | 0 | 1 | 1 |
| ... and so on, until ... | | | | |
| 1 | 1 | 1 | 0 | 14 |
| 1 | 1 | 1 | 1 | 15 |

- Bits 6 and 7: Not used.

6800E5(H) - User parameter switch 21 (SWUSR_15)

- Bit 0: Print results of sending reception notice request message, 0: Disabled (print only when error occurs), 1: Enabled
- Bit 1: Respond to e-mail reception acknowledgment request, 0: Disabled, 1: Enabled
- Bit 2: Not used
- Bit 3: File format for forwarded folders, 0: TIFF, 1:PDF

- Bit 4: Transmit Journal by E-mail, 0: Disabled, 1: Enabled
- Bit 5: Not used
- Bit 6: Network error display, 0: Displayed, 1: Not displayed
- Bit 7: Transmit error mail notification, 0: Enabled, 1: Disabled

6800E6(H) - User parameter switch 22 (SWUSR_16)
↓ Note

- This switch is not printed on the user parameter list.
- Bit 0: Dial tone detection (PSTN 1), 0: Disabled, 1: Enabled
- Bit 1: Dial tone detection (PSTN 2), 0: Disabled, 1: Enabled
- Bit 2: Dial tone detection (PSTN 3), 0: Disabled, 1: Enabled
- Bits 3 to 7: Not used

6800E7(H) - User parameter switch 23 (SWUSR_17) : Not used
6800E8(H) - User parameter switch 24 (SWUSR_18)

- Bits 0 and 1: File retention time (Cross reference: System switch 02 bit 4)

| Bit 1 | Bit 0 | Setting |
|-------|-------|---------------------------|
| 0 | 0 | File retention impossible |
| 0 | 1 | 24 hours |
| 1 | 0 | File retention impossible |
| 1 | 1 | 72 hours |

- Bits 2 to 7: Not used

6800E9(H) - User parameter switch 25 (SWUSR_19)

- Bit 0 and 1: Not used

- Bit 2: Not used

- Bit 3: Not used

- Bit 4: RDS operation

0: Not acceptable

1: Acceptable for the limit specified by system switch 03

↓ Note

- This bit is only effective when RDS operation can be selected by the user (see system switch 02).
- Bits 5 to 7: Not used

6800EA(H) to 6800EF(H) - User parameter switches 26 to 31 (SWUSR_1A to 1F): Not

Service RAM Addresses

used

6800F0(H) - User parameter switch 32 (SWUSR_20)

- Bit 0: Quotation priority for a destination when there is no destination of the specified type
 - 0: Paper output priority
 - Priority order
 - 1. IP-fax destination, 2. Fax Number, 3. E-mail address, 4. Folder
 - 1: Electric output order
 - Priority order
 - 1. E-mail address, 2. Folder, 3. IP-fax destination, 4. Fax number
- Bits 1 to 7: Not used

6800F1(H) - User parameter switch 33 (SWUSR_21): Not used

6800F2(H) - User parameter switch 34 (SWUSR_22)

- Bit 0: Gatekeeper server used with IP-Fax, 0: Disabled, 1: Enabled
- Bit 1: SIP server used with IP-Fax, 0: Disabled, 1: Enabled

680100 to 68010F(H) - G4 Parameter Switches – Not used

680110 to 68012F(H) - G4 Internal Switches – Not used

680170 to 68017F(H) - IFAX Switches

680180 to 68018F(H) - IP-FAX Switches

680190 to 6801AF(H) - Service station's fax number (SP3-101)

6801B0 to 6801B9(H) - Own fax PABX extension number

6801BA to 6801C3(H) - Own fax number (PSTN)

6801C4 to 6801D7(H) - Own fax number (ISDN G4) – Not used

6801D8 to 6801E3(H) - The first subscriber number (ISDN G3) – Not used

6801E4 to 6801EF(H) - The second subscriber number (ISDN G3) – Not used

6801F0 to 6801FB(H) - The first subscriber number (ISDN G4) – Not used

6801FC to 680207(H) - The second subscriber number (ISDN G4) – Not used

680208 to 68021B(H) - PSTN-1 RTI (Max. 20 characters - ASCII) - See the following note.

68021C to 68022F(H) - PSTN-2 RTI (Max. 20 characters - ASCII) - See the following note.

680230 to 680246(H) - PSTN-3 RTI (Max. 20 characters - ASCII) - See the following note.

680247 to 680286(H) - TTI 1 (Max. 64 characters - ASCII) - See the following note.

680287 to 6802C6(H) - TTI 2 (Max. 64 characters - ASCII) - See the following note.

6802C7 to 680306(H) - TTI 3 (Max. 64 characters - ASCII) - See the following note.

680307 to 68031A(H) - PSTN-1 CSI (Max. 20 characters - ASCII)

68031B to 68032E(H) - PSTN-2 CSI (Max. 20 characters - ASCII)

68032F to 680342(H) - PSTN-3 CSI (Max. 20 characters - ASCII)

Service RAM Addresses

Fax Option
Type 3350
D361

680343(H) - Number of PSTN-1 CSI characters (Hex)

680344(H) - Number of PSTN-2 CSI characters (Hex)

680345(H) - Number of PSTN-3 CSI characters (Hex)-

- If the number of characters is less than the maximum (20 for RTI, 64 for TTI), add a stop code (00[H]) after the last character.

680380 to 680387(H) - Last power off time (Read only)

- 680380(H) - 01(H) - 24-hour clock, 00(H) - 12-hour clock (AM), 02(H) - 12-hour clock (PM)
- 680381(H) - Year (BCD)
- 680382(H) - Month (BCD)
- 680383(H) - Day (BCD)
- 680384(H) - Hour
- 680385(H) - Minute
- 680386(H) - Second
- 680387(H) - 00: Monday, 01: Tuesday, 02: Wednesday, . . . and so on until . . . , 06: Sunday

680394(H) - Optional equipment (Read only – Do not change the settings)

- Bit 0: Page Memory, 0: Not installed, 1: Installed
- Bit 1: SAF Memory, 0: Not installed, 1: Installed
- Bits 2 to 7: Not used

680395(H) - Optional equipment (Read only – Do not change the settings)

- Bits 0 to 3: Not used
- Bit 4: G3-2, 0: Not installed, 1: Installed
- Bit 5: G3-3, 0: Not installed, 1: Installed
- Bit 6 and 7: Not used

680406 to 68040A - Option G3 board (G3-2) ROM information (Read only)

- 680406(H) - Suffix (BCD)
- 680407(H) - Version (BCD)
- 680408(H) - Year (BCD)
- 680409(H) - Month (BCD)
- 68040A(H) - Day (BCD)

68040B to 68040F - Option G3 board (G3-3) ROM information (Read only)

- 68040B(H) - Suffix (BCD)
- 68040C(H) - Version (BCD)
- 68040D(H) - Year (BCD)
- 68040E(H) - Month (BCD)

Service RAM Addresses

- 68040F(H) - Day (BCD)

680410(H) - G3-1 Modem ROM version (Read only)

680412(H) - G3-2 Modem ROM version (Read only)

680414(H) - G3-3 Modem ROM version (Read only)

680420(H) - Number of multiple sets print (Read only)

680476(H) - Time for economy transmission (hour in 24h clock format - BCD)

680477(H) - Time for economy transmission (minute - BCD)

680492(H) - Transmission monitor volume, 00 - 07(H)

680493(H) - Reception monitor volume, 00 - 07(H)

680494(H) - On-hook monitor volume, 00 - 07(H)

680495(H) - Dialing monitor volume, 00 - 07(H)

680496(H) - Buzzer volume, 00 - 07(H)

680497(H) - Beeper volume, 00 - 07(H)

69ED04 to 69F003(H) - SIP server address (Read only)

- 69ED04(H) - Proxy server - Main (Max. 128 characters - ASCII)

- 69ED84(H) - Proxy server - Sub (Max. 128 characters - ASCII)

- 69EE04(H) - Redirect server - Main (Max. 128 characters - ASCII)

- 69EE84(H) - Redirect server - Sub (Max. 128 characters - ASCII)

- 69EF04(H) - Registrar server - Main (Max. 128 characters - ASCII)

- 69EF84(H) - Registrar server - Sub (Max. 128 characters - ASCII)

69F004(H) - Gatekeeper server address - Main (Max. 128 characters - ASCII)

69F084(H) - Gatekeeper server address - Sub (Max. 128 characters - ASCII)

69F104(H) - Alias Number (Max. 128 characters - ASCII)

69F184(H) - SIP user name (Max. 128 characters - ASCII)

69F204(H) - Gateway address information (Max. 128 characters - ASCII)

6A0DC0(H) - Stand-by port number for H.232 connection

6A0DC2(H) - Stand-by port number for SIP connection

6A0DC4(H) - RAS port number

6A0DC6(H) - Gatekeeper port number

6A0DC8(H) - Port number of data waiting for T.38

6A0DCA(H) - Port number of SIP server

6A0DCC(H) - Priority for SIP and H.323, 0: H.323, 1: SIP

6A0DCD(H) - SIP function, 0: Disabled, 1: Enabled

6A0DCE(H) - H.323 function, 0: Disabled, 1: Enabled

6BEBFE(H) - Dial tone detection frequency – Upper limit (High)

Defaults: NA: 06, EU: 06, ASIA: 06

Service RAM Addresses

Fax Option
Type 3350
D361

6BEBFF(H) - Dial tone detection frequency – Upper Limit (Low)

Defaults: NA: 50, EU: 50, ASIA: 50

6BEC00(H) - Dial tone detection frequency – Lower Limit (High)

Defaults: NA: 03, EU: 02, ASIA: 02

6BEC01(H) - Dial tone detection frequency – Lower Limit (Low)

Defaults: NA: 60, EU: 90, ASIA: 90

6BEC02(H) - Dial tone detection waiting time (20 ms)

Defaults: NA: 64, EU 64, ASIA: 64

6BEC03 to 6BEC04 - Dial tone detection monitoring time (20 ms)

Defaults

| Area | 6BEC03 | 6BEC04 |
|------|--------|--------|
| NA | F4 | 01 |
| EU | F4 | 01 |
| ASIA | F4 | 01 |

6BEC05(H) - Dial tone detect judge time (20 ms)

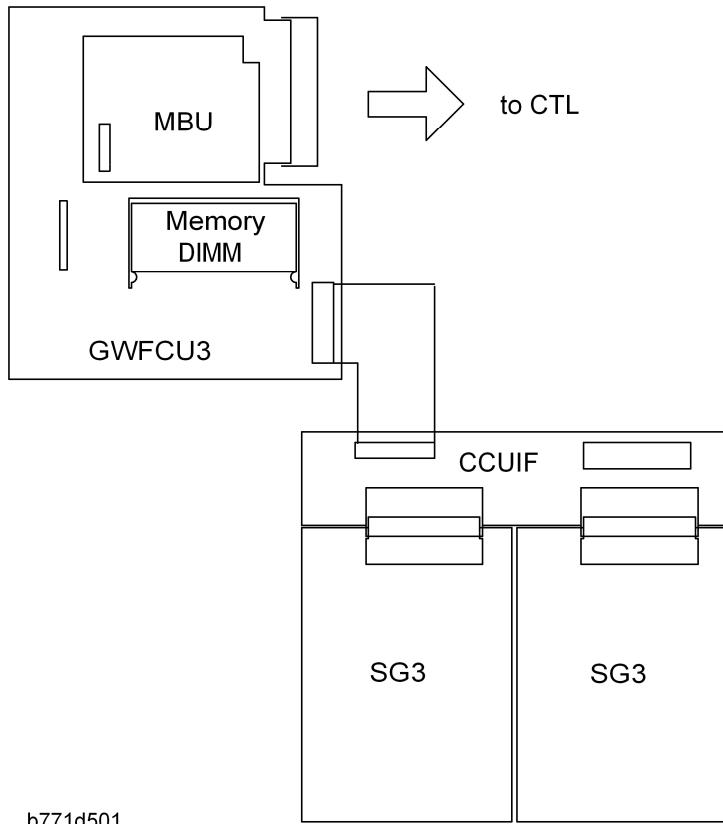
Defaults: NA: 64, EU: 1B, ASIA: 32

6BEC06(H) - Dial tone disconnect permission time (20 ms)

Defaults: NA: 11, EU: 0F, ASIA: 11

5. DETAILED SECTION DESCRIPTIONS

5.1 OVERVIEW



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The basic fax unit consists of two PCBs: an FCU and an MBU.

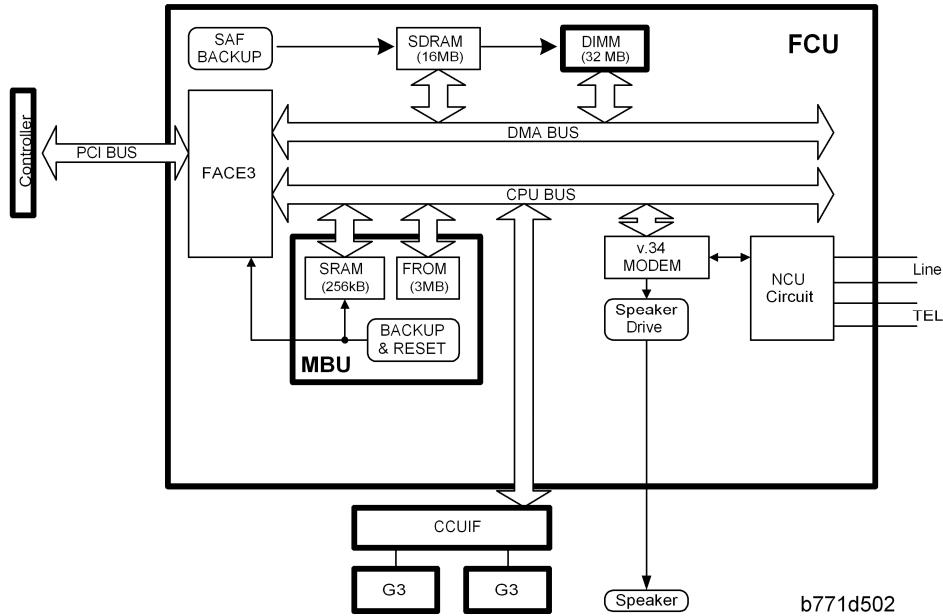
The FCU controls all the fax communications and fax features, in cooperation with the controller board. The MBU contains the ROM and SRAM. Also, the FCU has an NCU circuit.

Fax Options:

- Extra G3 Interface option: This provides one more analog line interface. This allows full dual access. Two extra G3 interface options can be installed.
- Memory Expansion: This expands the SAF memory and the page memory (used for image rotation); without this expansion, the page memory is not big enough for image rotation at 400 dpi, so transmission at 400 dpi is not possible.

5.2 BOARDS

5.2.1 FCU



The FCU (Facsimile Control Unit) controls fax communications, the video interface to the base copier's engine, and all the fax options.

FACE3 (Fax Application Control Engine)

- CPU
- Data compression and reconstruction (DCR)
- DMA control
- Clock generation
- DRAM backup control

Modem (FAME)

- V.34, V33, V17, V.29, V.27ter, V.21, and V.8

DRAM

- The 16 MB of DRAM is shared as follows.
 - SAF memory: 4MB
 - Working memory: 4MB
 - Page memory: 8MB
 - The SAF memory is backed up by a rechargeable battery.

Memory Back-up

- A rechargeable battery backs up the SAF memory (DRAM) for 1 hour.

Boards

5.2.2 MBU

On this board, the flash ROM contains the FCU firmware, and the SRAM contains the system data and user parameters. Even if the FCU is changed, the system data and user parameters are kept on the MBU board.

ROM

- 3MB flash ROMs for system software storage
- 2MB (16bit x 1MB) + 1MB (16bit x 512K)

SRAM

- The 256 KB SRAM for system and user parameter storage is backed up by a lithium battery.

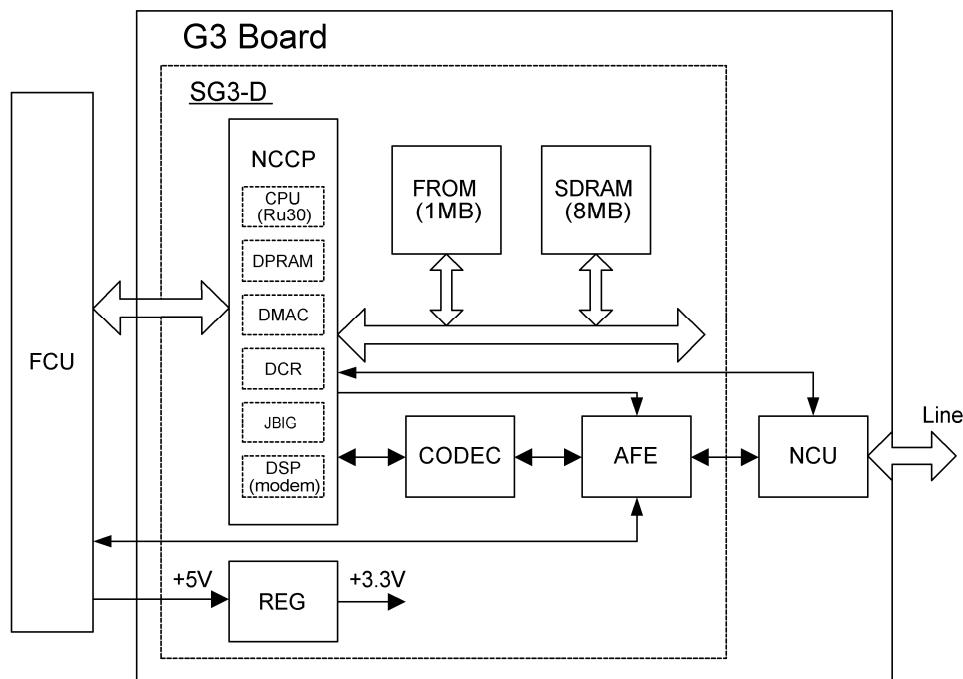
Memory Back-up

- A lithium battery backs up the system parameters and programmed items in the SRAM, in case the base copier's main switch is turned off.

Switches

| Item | Description |
|------|--|
| SW1 | Switches the SRAM backup battery on/off. |

5.2.3 SG3 BOARD



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Boards

The SG3 board allows up to three simultaneous communications when used in combination with the FCU and optional G3 boards. The NCU is on the same board as the common SG-3 board. This makes the total board structure smaller. But, the specifications of the SG3 board do not change.

Fax Option
Type 3350
D361

NCCP (New Communication Control Processor)

- Controls the SG3 board.
- CPU (RU30)
- DPRAM (Dual Port RAM): Handshaking with the FCU is done through this block.
- DMA controller
- JBIG
- DSP V34 modem (RL5T892): Includes the DTMF Receiver function
- DCR for MH, MR, MMR, and JBIG compression and decompression

FROM

- 1Mbyte flash ROM for SG3 software storage and modem software storage

SDRAM

- 4Mbyte DRAM shared between ECM buffer, line buffer, and working memory

AFE (Analog Front End)

- Analog processing

CODEC (COder-DECoder)

- A/D & D/A conversions for modem

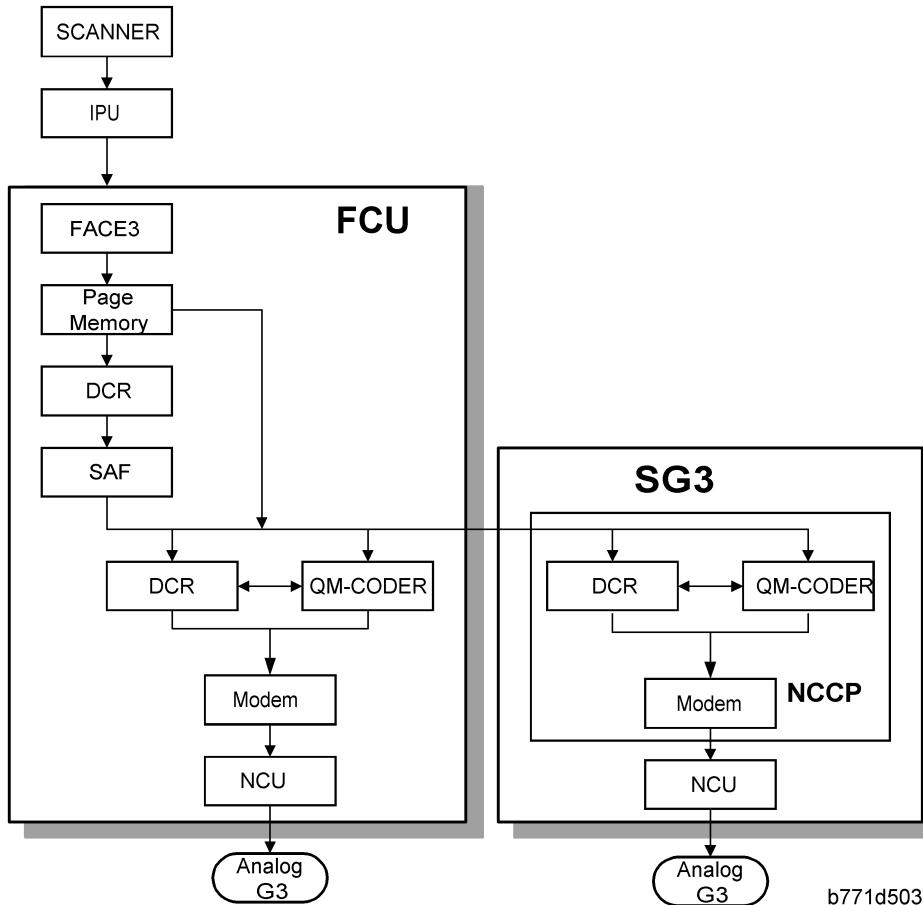
REG

- Generates +3.3 V from the +5V from the FCU

Video Data Path

5.3 VIDEO DATA PATH

5.3.1 TRANSMISSION



Memory Transmission and Parallel Memory Transmission

The base copier's scanner scans the original at the selected resolution in inch format. The IPU processes the data and transfers it to the FCU.

Note

- When scanning a fax original, the IPU uses the MTF, independent dot erase and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then, the FCU converts the data to mm format, and compresses the data in MMR or raw format to store it in the SAF memory. If image rotation will be done, the image is rotated in page memory before compression.

At the time of transmission, the FCU decompresses the stored data, then re-compresses and/or reduces the data if necessary for transmission. The NCU transmits the data to the

line.

Immediate Transmission

The base copier's scanner scans the original at the resolution agreed with the receiving terminal. The IPU video processes the data and transfers it to the FCU.

 **Note**

- When scanning a fax original, the IPU uses the MTF, independent dot erase and thresholding parameter settings programmed in the fax unit's scanner bit switches, not the copier's SP modes.

Then the FCU stores the data in page memory, and compresses the data for transmission.

The NCU transmits the data to the line.

JBIG Transmission

Memory transmission: If the receiver has JBIG compression, the data goes from the DCR to the QM-Coder. Then the NCU transmits the data to the line. When an optional G3 unit (SG3) is installed and PSTN2 is selected as the line type, JBIG compression is available, but only for the PSTN-2 line.

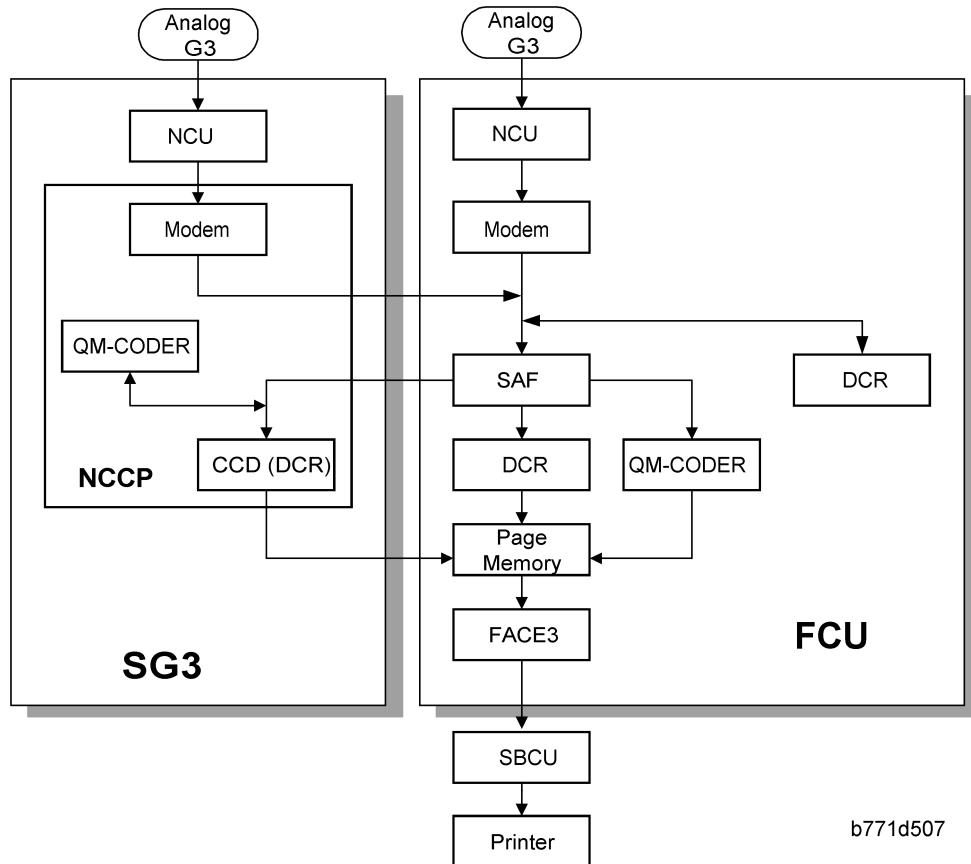
Immediate transmission: If the receiver has JBIG compression, the data goes from the page memory to the QM-Coder. Then the NCU transmits the data to the line. When an optional G3 unit (SG3) is installed and PSTN2 is selected as the line type, JBIG compression is available, but only for the PSTN-2 line.

Adjustments

- Priority for the line used for G3 transmissions (PSTN 1/PSTN 2 or 3): System switch 16 bit 1

Video Data Path

5.3.2 RECEPTION



First, the FCU stores the incoming data from either an analog line to the SAF memory. (The data goes to the FACE3 at the same time, and is checked for error lines/frames.)

The FCU then decompresses the data and transfers it to page memory. If image rotation will be done, the image is rotated in the page memory. The data is transferred to the IPU.

If the optional G3 unit is installed, the line that the message comes in on depends on the telephone number dialled by the other party (the optional G3 unit has a different telephone number from the main fax board).

JBIG Reception

When data compressed with JBIG comes in on PSTN-1 (the standard analog line), the data is sent to the QM-CODER for decompression. Then the data is stored in the page memory, and transferred to the IPU.

When data compressed with JBIG comes in on PSTN-2 (optional extra analog line), the data is sent to the QM-CODER on the SG3 board for decompression.

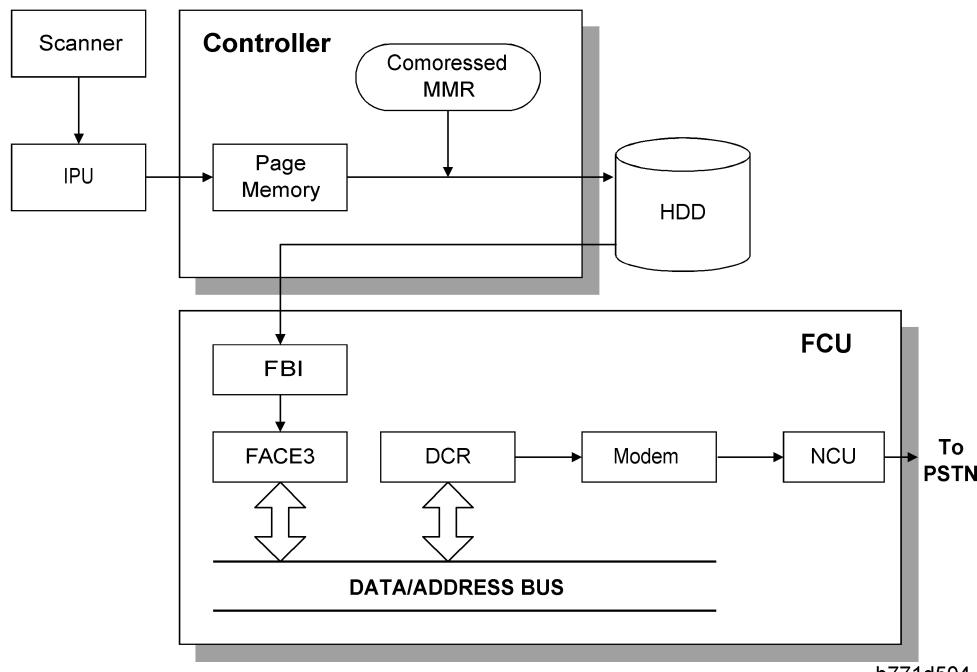
5.4 FAX COMMUNICATION FEATURES

5.4.1 MULTI-PORT

When the optional extra G3 Interface Unit is installed, communication can take place at the same time through the two or three lines at once.

| Option | Available Line Type | Available protocol Combinations |
|----------------------------------|---------------------|---------------------------------|
| Standard only | PSTN | G3 |
| Extra G3 Interface Unit (single) | PSTN + PSTN | G3 + G3 |
| Extra G3 Interface Unit (double) | PSTN + PSTN +PSTN | G3 + G3 +G3 |

5.4.2 DOCUMENT SERVER



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The base copier's scanner scans the original at the selected resolution. The IPU video processes the data and transfers it to the controller board.

Then the controller stores the data in the page memory for the copier function, and

Fax Communication Features

compresses the data in MMR (by software) to store it in the HDD. If image rotation will be done, the image is rotated in the page memory before compression.

For transmission, the stored image data is transferred to the FCU. The FCU decompresses the image data, then recompresses and/or reduces the data if necessary for transmission.

The NCU transmits the data to the line.

The documents can be stored in the HDD (Document Server) from the fax application. The stored documents in the document sever can be used for the fax transmission in many times. More than one document and the scanned document can be combined into one file and then the file can be transmitted.

- When using the document server, the SAF memory is not used.
- The document is compressed with MMR and stored.
- Up to 9,000 pages can be stored (1 file: Up to 1,000 pages) from the fax application.
- Only stored documents from the fax application can be transmitted.
- Scanned documents are given a name automatically, such as "FAX001". But it is possible to change the file name, user name and password.
- Up to 30 files can be selected at once.

 **Note**

- The compression method of the fax application is different from the copy application. The storing time is longer than the copier storing.
- When selecting "Print 1st page", the stored document will be reduced to A4 size.

5.4.3 INTERNET MAIL COMMUNICATION

Mail Transmission

T.37 simple and full modes

This machine supports T.37 full mode. (ITU-RFC232). The difference between T.37 simple mode and full mode is as follows.

| Function | T.37 Simple Mode | T.37 Full Mode |
|----------------------------|------------------------|--|
| Resolution | 200 x 100 200 x 200 | 200 x100 200 x 200 200 x 400 400 x 400 (if available) |
| RX Paper Width | A4 | A4, B4, A3 |
| RX Data Compression Method | MH | MH (default), MR, MMR, |

Fax Communication Features

| Function | T.37 Simple Mode | T.37 Full Mode |
|----------|------------------------------|---|
| Signals | Image data transmission only | Image data transmission, exchange of capability information between the two terminals, and acknowledgement of receipt of fax messages |

Fax Option
Type 3350
D361

Data Formats

The scanned data is converted into a TIFF-F formatted file.

The fields of the e-mail and their contents are as follows:

| Field | Content |
|---------------------------|--|
| From | Mail address of the sender |
| Reply To | Destination requested for reply |
| To | Mail address of the destination |
| Bcc | Backup mail address |
| Subject | From CSI or RTI (Fax Message No. xxxx) |
| Content Type | Multipart/mixed Attached files: image/tiff |
| Content Transfer Encoding | Base 64, 7-bit, 8-bit, Quoted Printable |
| Message Body | MIME-converted TIFF-F (MIME standards specify how files are attached to e-mail messages) |

Direct SMTP Transmission

Internet Fax documents can be sent directly to their destinations without going through the SMTP server. (Internet Faxes normally transmit via the SMTP server.)

For example:

| | |
|----------------------|-----------------|
| e-mail address: | gts@ricoh.co.jp |
| SMTP server address: | gts.abcd.com |

Fax Communication Features

In this case, this feature destination e-mail address (gts@ricoh.co.jp) is read as the SMTP server address "gts.abcd.com", and the transmissions bypass the SMTP server.

Selectable Options

These options are available for selection:

- With the default settings, the scan resolution can be either standard or detail. Inch-mm conversion before TX depends on IFAX SW01 Bit 7. Detail resolution will be used if Super Fine resolution is selected, unless Fine resolution is enabled with IFAX SW01.
- The requirements for originals (document size, scan width, and memory capacity) are the same as for G3 fax memory TX.
- The default compression is TIFF-F format.
- IFAX SW00: Acceptable paper widths for sending
- IFAX SW09: Maximum number of attempts to the same destination

Secure Internet Transmission

SMTP Authentication:

- User Tools> System Settings> File Transfer> SMTP Authentication

POP Before SMTP:

- User Tools> System Settings> File Transfer> POP Before SMTP

Mail Reception

Three Types

This machine supports three types of e-mail reception:

- POP3 (Post Office Protocol Ver. 3.)
- IMAP4 (Internet Messaging Access Protocol)
- SMTP (Simple Mail Transfer Protocol)



- For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – Mail Reception

POP3/IMAP4 Mail Reception Procedure

The machine automatically picks up e-mail from the server at an interval which is adjustable in the range 2 to 1440 min. in 1-minute steps:

- User Tools> System Settings> File Transfer> E-mail Reception Interval

SMTP Reception

1. The IFAX must be registered as an SMTP server in the MX record of the DNS server, and the address of the received mail must specify the IFAX.
2. To enable SMTP reception: User Tools> System Settings> File Transfer> Reception Protocol

Fax Communication Features

- Even if the MX record on the DNS server includes the IFAX, mail cannot be received with SMTP until SMTP reception is enabled:
- However, if SMTP reception is selected and the machine is not registered in the MX record of the DNS server, then either IMAP4 or POP3 is used, depending on the setting: User Tools> System Settings> File Transfer> Reception Protocol

Fax Option
Type 3350
D361

Mail Delivery Conditions: Transferring Mail Received With SMTP

1. The machine must be set up for SMTP mail delivery:
 - User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings
2. If the user wishes to limit this feature so that the machine will only deliver mail from designated senders, the machine's "Auth. E-mail RX" feature must be set (User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings).
3. If the "SMTP RX File Delivery Setting" is set to 0 to prohibit SMTP receiving, and if there is mail designated for delivery, then the machine responds with an error. (User Tools> Facsimile Features> E-mail Settings> SMTP RX File Delivery Settings)
4. If the quick dial, speed dial, or group dial entry is incorrect, the mail transmission is lost, and the IFAX issues an error to the SMTP server and outputs an error report.

Auth. E-mail RX

In order to limit access to mail delivery with IFAX, the addresses of senders must be limited using the Access Limit Entry. Only one entry can be registered.

1. Access Limit Entry

For example, to limit access to @IFAX.ricoh.co.jp:

| | |
|----------------------|--------------------------------------|
| gts@IFAX.ricoh.co.jp | Matches and is delivered. |
| gts@IFAX.abcde.co.jp | Does not match and is not delivered. |
| IFAX@ricoh.co.jp | Does not match and is not delivered. |

2. Conditions

- The length of the Access Limit Entry is limited to 127 characters.
- If the Access Limit Entry address and the mail address of the incoming mail do not match, the incoming mail is discarded and not delivered, and the SMTP server responds with an error. However, in this case an error report is not output.
- If the Access Limit Entry address is not registered, and if the incoming mail specifies a delivery destination, then the mail is delivered unconditionally.

Fax Communication Features

Handling Mail Reception Errors

Abnormal files

When an error of this type occurs, the machine stops receiving and commands the server to erase the message. Then the machine prints an error report and sends information about the error by e-mail to the sender address (specified in the “From” or “Reply-to” field of the message). If there is an incomplete received message in the machine memory, it will be erased.

The machine prints an error message when it fails to send the receive error notification after a certain number of attempts.

The following types of files are judged to be abnormal if one or more of the following are detected:

1. Unsupported MIME headers.

Supported types of MIME header

| Header | Supported Types |
|---------------------------|---|
| Content-Type | Multipart/mixed, text/plain, message/rfc822 Image/tiff |
| Charset | US-ASCII, ISO 8859 X. Other types cannot be handled, and some garbage may appear in the data. |
| Content-Transfer-Encoding | Base 64, 7-bit, 8-bit, Quoted Printable |

2. MIME decoding errors
3. File format not recognized as TIFF-F format
4. Resolution, document size, or compression type cannot be accepted

Remaining SAF capacity error

The machine calls the server but does not receive e-mail if the remaining SAF capacity is less than a certain value (the value depends on IFAX Switch 08. The e-mail will be received when the SAF capacity increases (for example, after substitute reception files have been printed). The error handling method for this type of error is the same as for “Abnormal files”. If the capacity of the SAF memory drops to zero during reception, the machine operates in the same way as when receiving an abnormal file (refer to “Abnormal files” above).

Secure Internet Reception

To enable password encryption and higher level security: User Tools> System Settings>

Fax Communication Features

File Transfer> POP3/IMAP4 Settings> Encryption (set to “On”)

Fax Option
Type 3350
D361

Transfer Request: Request By Mail

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – Transfer Request

The fields of the e-mail and their contents are as follows:

| Field | Content |
|---------------------------|--|
| From | E-mail address of the requesting terminal |
| To | Destination address (Transfer Station address) |
| Bcc | Backup mail address |
| Subject | From TSI (Fax Message No. xxxx) |
| Content-Type | Multipart/mixed Text/Plain (for a text part), image/tiff (for attached files) |
| Content-Transfer-Encoding | Base 64, 7-Bit, 8-bit, Quoted Printable |
| Mail body (text part) | RELAY-ID:- xxxx (xxxx: 4 digits for an ID code) RELAY: #01#*X#**01.... |
| Message body | MIME-converted TIFF-F. |

E-Mail Options (Sub TX Mode)

The following features are available as options for mail sending: entering a subject, designating the level of importance, confirming reception of the mail.

Subject and Level of Importance

You can enter a subject message with: Sub TX Mode> E-mail Options

The Subject entry for the mail being sent is limited to 64 characters. The subject can also be prefixed with an “Urgent” or “High” notation.

- How the Subject Differs According to Mail Type -

| Mail Type | Item 1 | Item 2 | Item 3 |
|---------------|--------|-----------------|-----------------|
| Subject Entry | --- | Entry Condition | Fax Message No. |

Fax Communication Features

| Mail Type | Item 1 | Item 2 | | Item 3 |
|---|--------|---|--|--|
| No Subject Entry | | 1. "CSI" ("RTI") | | + File No. |
| | | 2. "RTI" | CSI not registered | |
| | | 3. "CSI" | RTI not registered | |
| | | 4. None | CSI, RTI not registered | |
| Confirmation of Reception | From | 1. "CSI" ("RTI") | | Normal: Return Receipt (dispatched). You can select "displayed" with IFAX SW02 Bits 2 and 3. |
| | | 2. "RTI" | CSI not registered | |
| | | 3. "CSI" | RTI not registered | Error: Return Receipt (processed/error) |
| | | 4. None | CSI, RTI not registered | |
| Mail delivery, memory transfer, SMTP receiving and delivery | From | RTI or CSI of the station designated for delivery | Mail delivery | Fax Message No. + File Number |
| | | RTI or CSI of sender | Mail sending from G3 memory | |
| | | Mail address of sender | Memory sending | |
| | | Mail address of sender | SMTP receiving and delivery (Off Ramp Gateway) | |
| Mail error notification | -- | Error Message No. xxxx From CSI (RTI) | | |

Items 1, 2, and 3 in the table above are in the Subject.

- Subjects Displayed on the PC -

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E-mail Messages

After entering the subject, you can enter a message with: Sub TX Mode> E-mail Options

An e-mail message (up to 5 lines) can be pre-registered with: User Tools> System

Settings> File Transfer> Program/Change/Delete E-mail Message

- Limitations on Entries -

| Item | Maximum |
|-----------------|---------------|
| Number of Lines | 5 lines |
| Line Length | 80 characters |
| Name Length | 20 characters |

Message Disposition Notification (MDN)

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – E-mail Options

The network system administrator can confirm whether a sent mail has been received correctly or not. This confirmation is done in four steps.

1. Send request for confirmation of mail reception. To enable or disable this request (known as MDN): Sub TX Mode> E-mail Options
2. Mail reception (receive confirmation request)
3. Send confirmation of mail reception
4. Receive confirmation of mail reception

The other party's machine will not respond to the request unless the two conditions below are met:

- The other party's machine must be set up to respond to the confirmation request.
- The other party's machine must support MDN (Message Disposition Notification).

- Setting up the Receiving Party -

The receiving party will respond to the confirmation request if:

1. The "Disposition Notification To" field is in the received mail header (automatically inserted in the 4th line in the upper table on the previous page, if MDN is enabled), and
2. Sending the disposition notification must be enabled (User Parameter Setting SW21 (15 [H] Bit 1 for this model)). The content of the response is as follows:

Fax Communication Features

| | |
|----------------------|--|
| Normal reception: | “Return Receipt (dispatched)” in the Subject line |
| IFAX SW02 (Bit 2, 3) | “Return Receipt (displayed)” in the Subject line |
| Error: | “Return Receipt (processed/error)” in the Subject line |

Handling Reports

- Sending a Request for a Return Receipt by Mail -

After the mail sender transmits a request for a return receipt, the mail sender's journal is annotated with two hyphens (--) in the Result column and a “Q” in the Mode column.

- Mail Receipt (Request for Receipt Confirmation) and Sending Mail Receipt Response -

After the mail receiver sends a response to the request for a return receipt, the mail receiver's journal is annotated with two hyphens (--) in the Result column and an “A” in the Mode column.

- Receiving the Return Receipt Mail -

- After the mail sender receives a return receipt, the information in the mail sender's journal about the receipt request is replaced, i.e. the journal is annotated with “OK” in the Result column.
- When the return receipt reports an error, the journal is annotated with an “E” in the Result column.
- The arrival of the return receipt is not recorded in the journal as a separate communication. Its arrival is only reported by the presence of “OK” or “E” in the Result column.
- If the mail address used by the sender specifies a mailing list (i.e., a Group destination; the machine sends the mail to more than one location. See “How to set up Mail Delivery”), the Result column of the Journal is updated every time a return receipt is received. For example, if the mailing list was to 5 destinations, the Result column indicates the result of the communication with the 5th destination only. The results of the communications to the first 4 destinations are not shown.

Exceptions:

If one of the communications had an error, the Result column will indicate E, even if subsequent communications were OK.

If two of the communications had an error, the Journal will indicate the destination for the first error only.

- Report Sample -

Fax Communication Features

| DATE | TIME | ADDRESS | RESULT | MODE | TIME | PAGE |
|--------|-------|------------------------------|--------|----------|-------|------|
| MAY. 5 | 10:15 | fuser_01@dom1g. ricoh. co. | | Mail SM | 0'09" | 2 |
| | 10:16 | fuser_01@dom1g. ricoh. co. | | Mail SMQ | 0'05" | 1 |
| | 10:17 | s_tadashi@dom1g. ricoh. co. | | Mail SMQ | 0'09" | 2 |
| | 10:19 | m_masataka@dom1g. ricoh. co. | OK | Mail SMA | 0'05" | 1 |
| | | | -- | | | |

Fax Option
Type 3350
D361

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5.5 IP-FAX

5.5.1 WHAT IS IP-FAX?

For details: Core Technology Manual – Facsimile Processes – Faxing from a PC – Internet/LAN Fax Boards – IP-FAX

5.5.2 T.38 PACKET FORMAT

TCP is selected by default for this machine, but you can change this to UDP with IPFAX SW 00 Bit 1.

UDP Related Switches

| IP-Fax Switch 01 | | | | | |
|------------------|---------------------------|-------|-------|-------|---|
| No. | Function | | | | Comments |
| 0-3 | Select IP FAX Delay Level | | | | Raise the level by selecting a higher setting if too many transmission errors are occurring on the network. |
| | Bit 3 | Bit 2 | Bit 1 | Bit 0 | Level |
| | 0 | 0 | 0 | 0 | 0 |
| | 0 | 0 | 0 | 1 | 1 |
| | 0 | 0 | 1 | 0 | 2 |
| | 0 | 0 | 1 | 1 | 3 Level 1~2: 3 Redundant packets Level 3: 4 Redundant packets |

5.5.3 SETTINGS

User parameter switch 34 (22[H]), bit 0

IP-Fax Gate Keeper usage, 0: No, 1: Yes

IP Fax Switches: Various IP-FAX settings (see the bit switch table)

6. SPECIFICATIONS

6.1 GENERAL SPECIFICATIONS

| | |
|--------------------|---|
| Type: | Desktop type transceiver |
| Circuit: | PSTN (max. 3ch.) PBX |
| Connection: | Direct couple |
| Original Size: | <p>Book (Face down)</p> <ul style="list-style-type: none"> ▪ Maximum Length: 432 mm [17 ins] ▪ Maximum Width: 297 mm [11.7 ins] <p>ARDF (Face up)</p> <p>Single-sided document</p> <ul style="list-style-type: none"> ▪ Length: 128 - 1200 mm [5.0 - 47.2 ins] ▪ Width: 105 - 297 mm [4.1 - 11.7 inch] <p>Double-sided document</p> <ul style="list-style-type: none"> ▪ Length: 128 - 432 mm [5.0 - 17 inch] ▪ Width: 105 - 297 mm [4.1 - 11.7 inch] |
| Scanning Method: | Flat bed, with CCD |
| Resolution: | <p>G3</p> <ul style="list-style-type: none"> ▪ 8 x 3.85 lines/mm (Standard) ▪ 8 x 7.7 lines/mm (Detail) ▪ 8 x 15.4 line/mm (Fine) Note1 ▪ 16 x 15.4 line/mm (Super Fine) See Note. ▪ 200 x 100 dpi (Standard) ▪ 200 x 200 dpi (Detail) ▪ 400 x 400 dpi (Super Fine) Note - Optional Expansion Memory required. |
| Transmission Time: | G3: 3 s at 28800 bps; Measured with G3 ECM using memory for an ITU-T #1 test document (Slerexe letter) at standard |

General Specifications

| | |
|-------------------|---|
| | resolution |
| Data Compression: | MH, MR, MMR JBIG |
| Protocol: | Group 3 with ECM |
| Modulation: | V.34, V.33, V.17 (TCM), V.29 (QAM), V.27ter (PHM), V.8, V.21 (FM) |
| Data Rate: | G3: 33600/31200/28800/26400/24000/21600/ 19200/16800/14400/12000/9600/7200/4800/2400 bps Automatic fallback |
| I/O Rate: | With ECM: 0 ms/line Without ECM: 2.5, 5, 10, 20, or 40 ms/line |
| Memory Capacity: | ECM: 128 KB SAF <ul style="list-style-type: none"> ▪ Standard: 4 MB ▪ With optional Expansion Memory: 28 MB (4 MB+ 24 MB) Page Memory <ul style="list-style-type: none"> ▪ Standard: 4 MB (Print: 2 MB + Scanner: 2 MB) ▪ With optional Expansion Memory: 12 MB (4 MB + 8 MB) (Print 8 MB + Scanner: 4 MB) |

6.2 CAPABILITIES OF PROGRAMMABLE ITEMS

The following table shows how the capabilities of each programmable item will change after the optional Fax Function Upgrade Unit is installed.

| Item | Standard |
|--|----------|
| Quick Dial | 2000 |
| Groups | 100 |
| Destination per Group | 500 |
| Destinations dialed from the ten-key pad overall | 500 |
| Programs | 100 |
| Auto Document | 6 |
| Communication records for Journal stored in the memory | 200 |
| Specific Senders | 30 |

The following table shows how the capabilities of the document memory will change after the optional Fax Function Upgrade Unit and the Expansion Memory are installed.

| | Without the Expansion Memory | With the Expansion Memory |
|--|------------------------------|---------------------------|
| Memory Transmission files | 400 | 400 |
| Maximum number of pages for memory transmission | 1000 | 1000 |
| Memory capacity for memory transmission (see the Note below) | 320 | 2240 |

 **Note**

- Measured using an ITU-T #1 test document (Slerexe letter) at standard resolution, with auto image density mode, and in Text mode.

IFax Specifications

6.3 IFAX SPECIFICATIONS

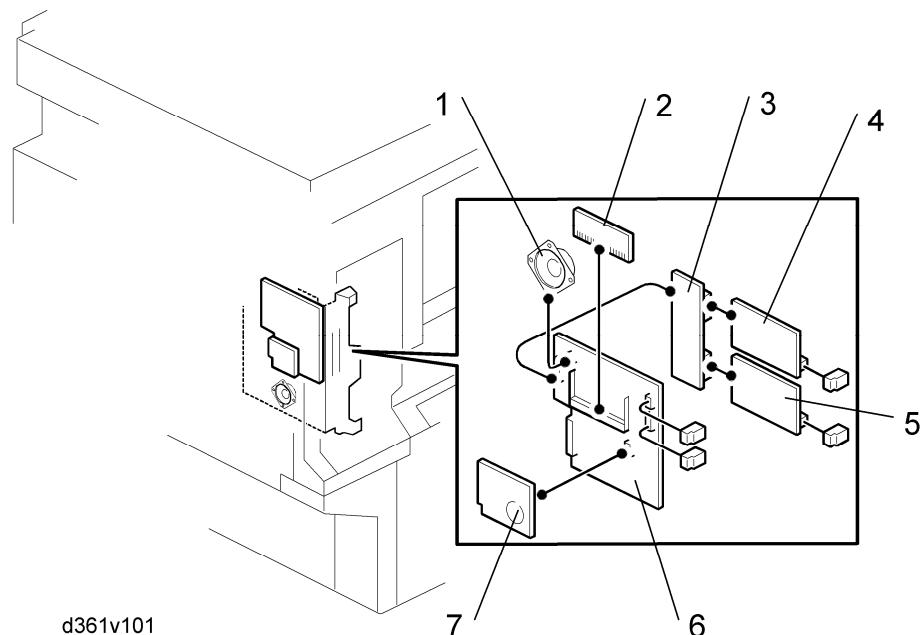
| | |
|---|--|
| Connectivity Local area network Ethernet 100base-Tx/10base-T IEEE1394 (IP over 1394) IEEE802.11b (wireless LAN) | Protocol Transmission: SMTP, TCP/IP Reception: POP3, SMTP, IMAP4, TCP/IP |
| Resolution Main scan: 400 dpi, 200 dpi Sub scan: 400 dpi, 200 dpi, 100 dpi Note: To use 400 dpi, IFAX SW01 Bit 4 must be set to "1". | Data rate 100 Mbps(100base-Tx) 10 Mbps (10base-T) |
| Transmission Time 1 s (through a LAN to the server) Conditions: <ul style="list-style-type: none">▪ ITU-T #1 test document (Slerexe Letter)▪ MTF correction: OFF▪ TTI: None▪ Resolution: 200 x 100 dpi▪ Communication speed: 10 Mbps▪ Correspondent device: E-mail server▪ Line conditions: No terminal access | Authentication method SMTP-AUTH POP before SMTP A-POP |
| Document Size Maximum message width is A4/LT. Note: To use B4 and A3 width, IFAX SW00 Bit 1 (B4) and/or Bit 2 (A3) must be set to "1". | Remark The machine must be set up as an e-mail client before installation. Any client PCs connected to the machine through a LAN must also be e-mail clients, or some features will not work (e.g. Autorouting). |
| E-mail File Format Single/multi-part MIME conversion Image: TIFF-F (MH, MR, MMR) | |

6.4 IP-FAX SPECIFICATIONS

| | |
|------------------------|--|
| Network: | LAN: Ethernet/10base-T, 100base-TX IEEE1394 (IP over 1394), IEEE802.11b (wireless LAN) |
| Scan line density: | 8 x 3.85 lines/mm, 200x100dpi (standard character), 8 x 7.7lines/mm, 200x200dpi (detail character), 8 x 15.4lines/mm (fine character: optional expansion memory required), 16 x 15.4lines/mm, 400x400dpi (super fine character: optional expansion memory required) |
| Original size: | Maximum A3 or 11"x 17" (DLT) |
| Maximum scanning size: | Standard: A3, 297mm x 432mm Irregular: 297mm x 1200mm |
| Transmission protocol: | Recommended: T.38 Annex protocol, TCP, UDP/IP communication |
| Compatible machines: | IP-Fax compatible machines |
| IP-Fax transmission: | Specify IP address and send fax to an IP-Fax compatible fax through a network. Also capable of sending fax from a G3 fax connected to the public telephone lines via a VoIP gateway. |
| IP-Fax reception: | Receive a fax sent from an IP-Fax compatible fax through a network. Also capable of receiving fax from a G3 fax connected the public telephone lines via a VoIP gateway. |

Fax Unit Configuration

6.5 FAX UNIT CONFIGURATION



| Component | Code | No. | Remarks |
|-------------------|------|-----|---------------------------------|
| FCU | D361 | 6 | |
| MBU | | 7 | Included with fax unit |
| Speaker | | 1 | |
| CCU I/F Board | D361 | 3 | |
| G3 Board | | 4 | Included with optional G3 unit. |
| G3 Board | D361 | 5 | Included with optional G3 unit. |
| Expansion Memory | G578 | 2 | Common with R-C4/4.5 |
| Handset Type 1018 | B433 | | USA only. Common with R-C4/4.5 |

ARDF DF3030
D366

ARDF DF3030 D366

TABLE OF CONTENTS

| | |
|--|-----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 COVERS AND TRAY | 1 |
| 1.1.1 REAR COVER | 1 |
| 1.1.2 FRONT COVER AND ORIGINAL TRAY..... | 1 |
| 1.2 DOCUMENT FEED COMPONENTS | 2 |
| 1.2.1 ORIGINAL FEED UNIT | 2 |
| 1.2.2 PICK-UP ROLLER | 2 |
| 1.2.3 FEED BELT | 3 |
| 1.2.4 SEPARATION ROLLER..... | 4 |
| 1.3 ELECTRICAL COMPONENTS | 5 |
| 1.3.1 ARDF DRIVE BOARD AND DF POSITION SENSOR | 5 |
| 1.3.2 ORIGINAL LENGTH SENSORS AND TRAILING EDGE SENSOR.... | 5 |
| 1.3.3 ORIGINAL SET SENSOR..... | 6 |
| 1.3.4 ORIGINAL SIZE SENSORS AND SKEW CORRECTION SENSOR ... | 6 |
| 1.3.5 STAMP SOLENOID AND ORIGINAL EXIT SENSOR | 7 |
| 1.4 ORIGINAL FEED DRIVE | 8 |
| 1.4.1 FEED MOTOR | 8 |
| 1.4.2 PICK-UP SOLENOID | 8 |
| 1.4.3 INVERTER SOLENOID | 9 |
| 1.4.4 FEED CLUTCH..... | 10 |
| 1.4.5 TRANSPORT MOTOR..... | 11 |
| 2. DETAILED DESCRIPTIONS..... | 12 |
| 2.1 COMPONENT LAYOUT | 12 |
| 2.1.1 MECHANICAL COMPONENT LAYOUT | 12 |
| 2.1.2 ELECTRICAL COMPONENT LAYOUT | 13 |
| 2.1.3 DRIVE LAYOUT..... | 16 |
| 2.2 BASIC OPERATION | 17 |
| 2.2.1 ORIGINAL SET AND SIZE DETECTION..... | 17 |
| 2.2.2 MIXED ORIGINAL SIZE MODE..... | 18 |
| 2.2.3 PICK-UP AND SEPARATION..... | 20 |

| | |
|--|-----------|
| 2.2.4 SKEW CORRECTION | 21 |
| 2.2.5 ORIGINAL TRANSPORT AND EXIT | 22 |
| 2.2.6 CONDITIONS FOR JAM DETECTION | 23 |
| 3. SERVICE TABLES..... | 25 |
| 3.1 DIP SWITCHES | 25 |

Read This First

Safety and Symbols

Replacement Procedure Safety

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

: See or Refer to

: Screws

: Connector

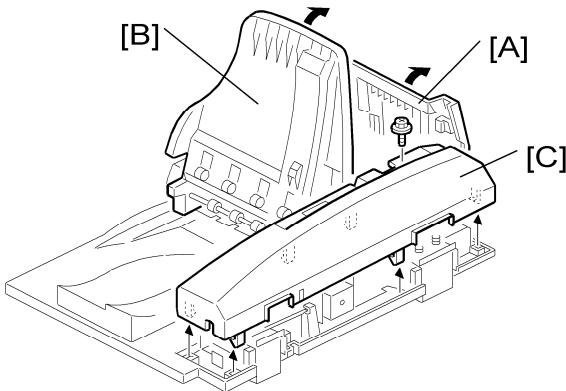
: Clip ring

: E-ring

1. REPLACEMENT AND ADJUSTMENT

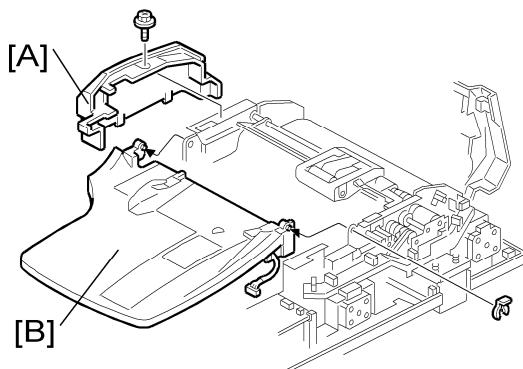
1.1 COVERS AND TRAY

1.1.1 REAR COVER



1. Open the left cover [A].
2. Open the original tray [B].
3. Rear cover [C] (x 1, hook x 6)

1.1.2 FRONT COVER AND ORIGINAL TRAY

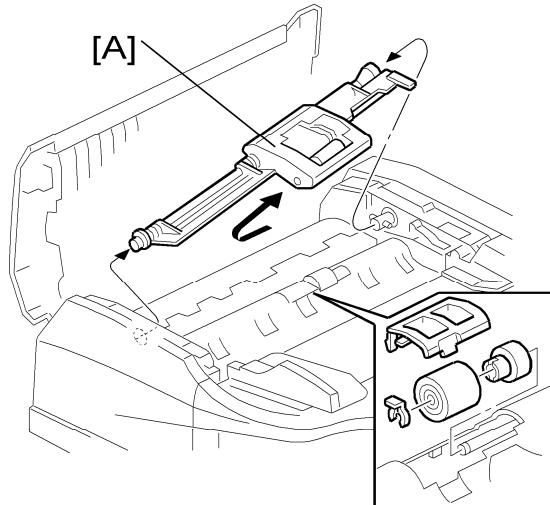


1. Open the left cover.
2. Rear cover ("Rear Cover")
3. Front cover [A] (x 1)
 - Keep the original tray open when you remove the front cover.
4. Original tray [B] (x 1, x 1)

Document Feed Components

1.2 DOCUMENT FEED COMPONENTS

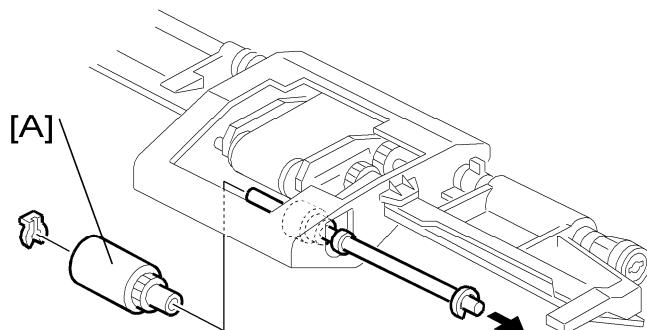
1.2.1 ORIGINAL FEED UNIT



1. Open the left cover.

2. Original feed unit [A].

1.2.2 PICK-UP ROLLER

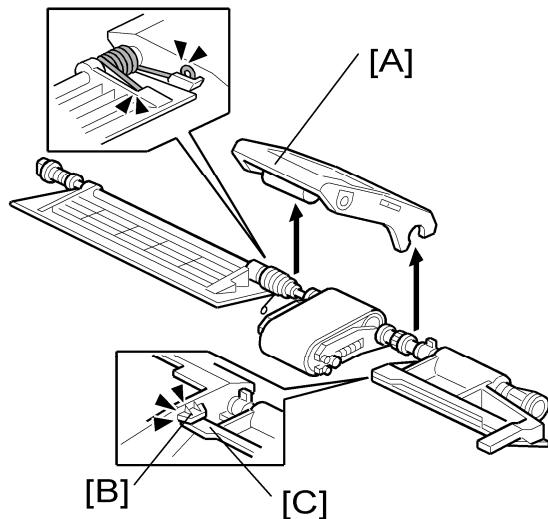


1. Open the left cover.

2. Original feed unit (参照 "Original Feed Unit")

3. Pick-up roller [A] (× 1)

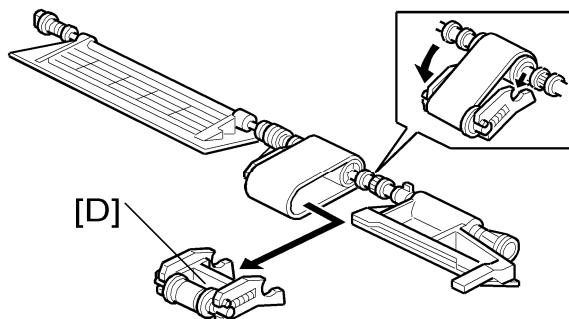
1.2.3 FEED BELT



1. Open the left cover.
2. Original feed unit (Refer to "Original Feed Unit")
3. Feed belt cover [A] (spring x 1)

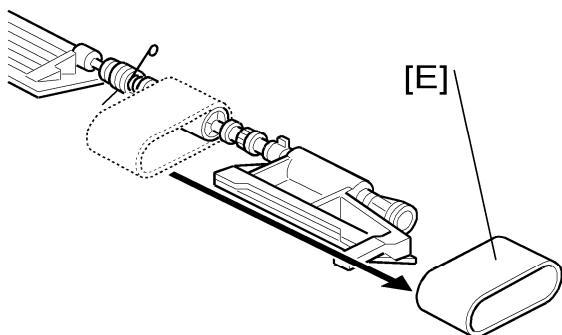
Note

- When reassembling the feed belt cover, make sure that the projection [B] of the feed belt cover is on the guide plate rear [C].



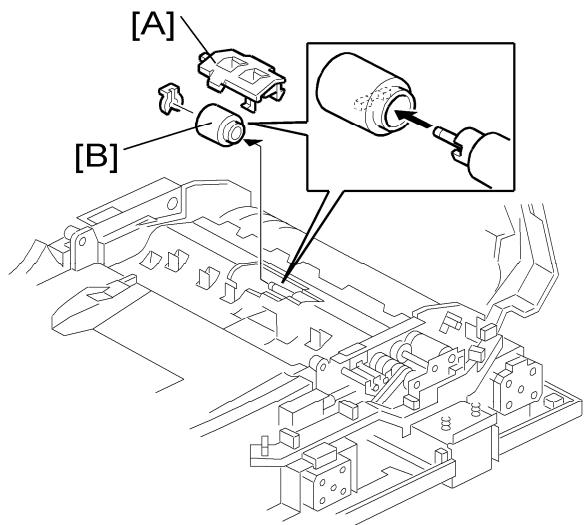
4. Belt tension unit [D]

Document Feed Components



5. Feed belt [E]

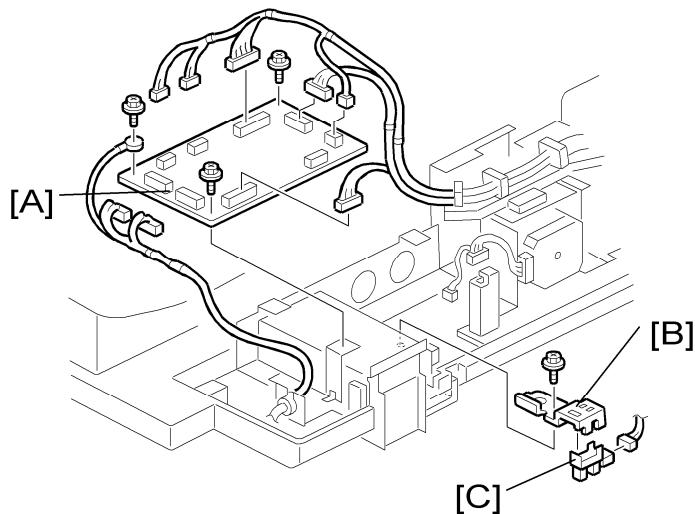
1.2.4 SEPARATION ROLLER



1. Open the left cover.
2. Separation roller cover [A].
3. Separation roller [B] (x 1)

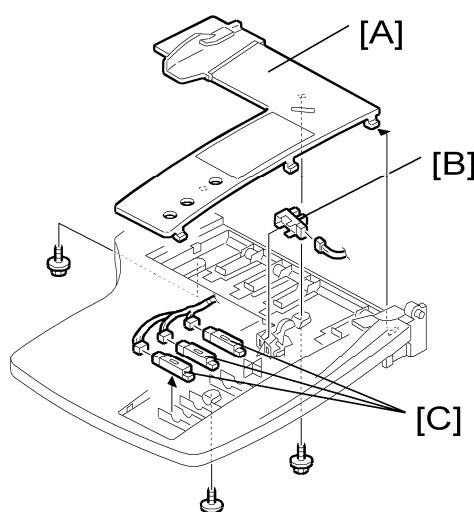
1.3 ELECTRICAL COMPONENTS

1.3.1 ARDF DRIVE BOARD AND DF POSITION SENSOR



1. Rear cover (see "Rear Cover")
2. ARDF drive board [A] (x 3, all s)
3. DF position sensor with bracket [B] (x 1, x 1)
4. DF position sensor [C] (hook x 2)

1.3.2 ORIGINAL LENGTH SENSORS AND TRAILING EDGE SENSOR

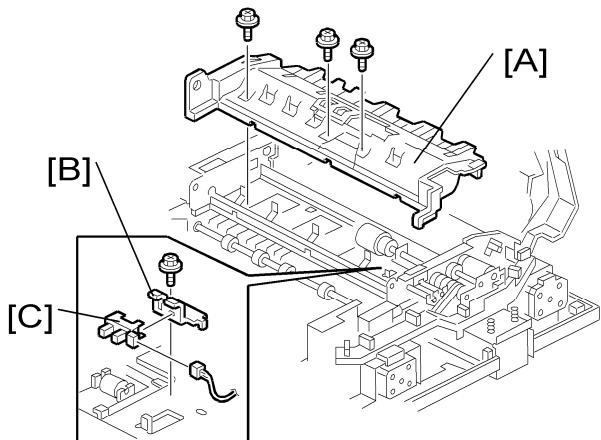


1. Original Tray (see "Front Cover and Original Tray")
2. Tray cover [A] (x 3)

Electrical Components

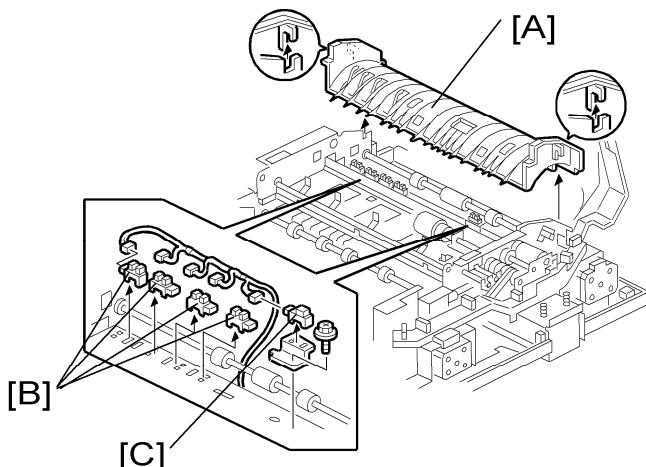
3. Original trailing edge sensor [B] (hook x 1)
4. Original length sensors [C] (hook x 1 each)

1.3.3 ORIGINAL SET SENSOR



1. Open the left cover.
2. Original feed unit (see the "Original Feed Unit")
3. Original Tray (see the "Original Tray")
4. Original feed-in guide plate [A] (hook x 3).
5. Original set sensor bracket [B] (hook x 1)
6. Original set sensor [C]

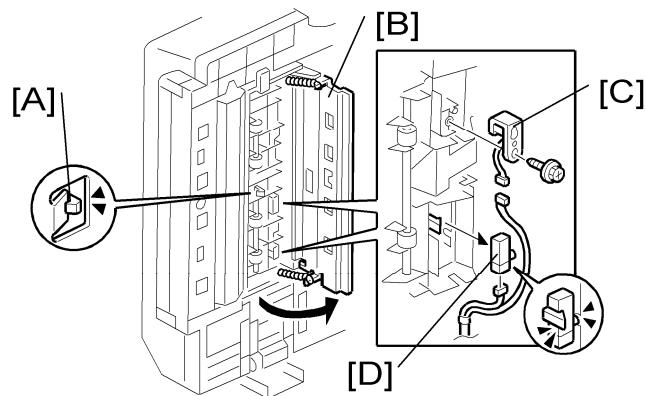
1.3.4 ORIGINAL SIZE SENSORS AND SKEW CORRECTION SENSOR



1. Original feed-in guide plate (see "Original Set Sensor")
2. Original turn guide plate [A] (hook x 1).
3. Original width sensors [B] (hook x 1 each) and skew correction sensor [C] with bracket

 x 1,  x 1)

1.3.5 STAMP SOLENOID AND ORIGINAL EXIT SENSOR

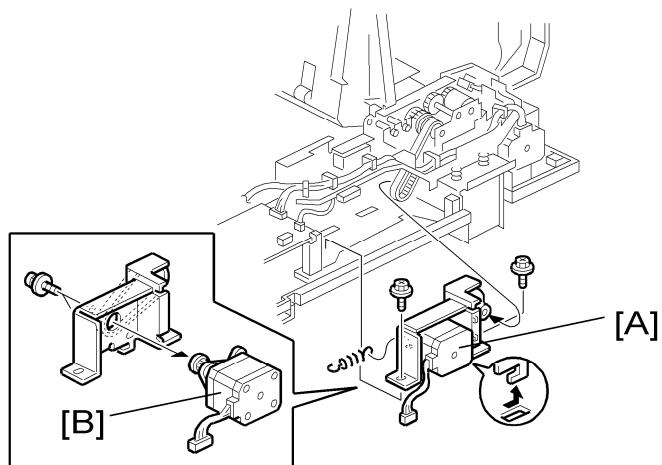
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D366

1. Open the ARDF.
2. Remove the left edge of the platen sheet.
3. Release the hook [A].
4. Open the original exit guide plate [B]
5. Stamp solenoid [C] ( x 1,  x 1)
6. Original exit sensor [D] ( x 1, hook x 1)

Original Feed Drive

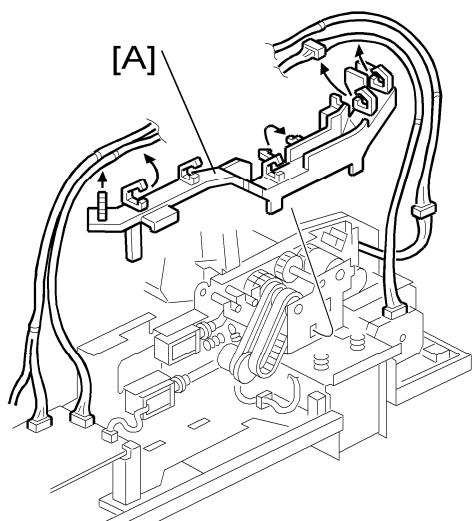
1.4 ORIGINAL FEED DRIVE

1.4.1 FEED MOTOR

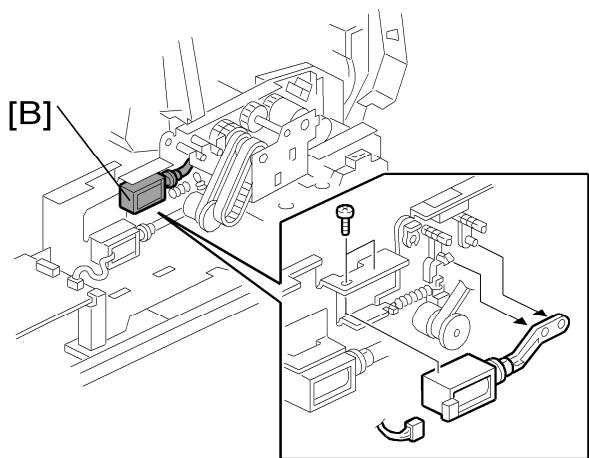


1. Rear cover (see "Rear Cover")
2. Feed motor with bracket [A] (x 2, x 1, spring x 1)
3. Feed motor [B] (x 2)

1.4.2 PICK-UP SOLENOID

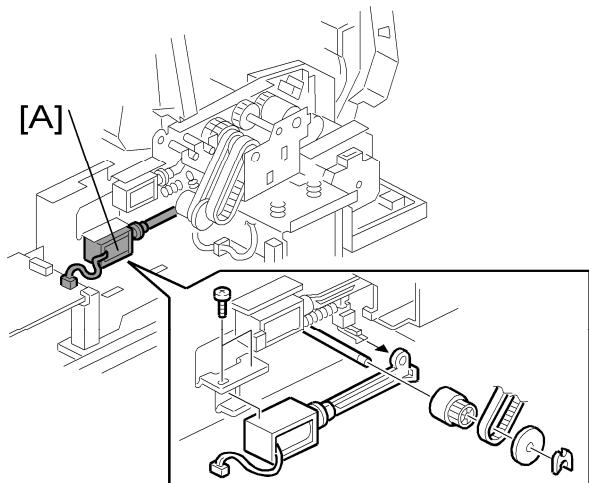


1. Rear cover (see "Rear Cover")
2. Harness guide [A] (all s)



3. Pick-up solenoid [B] (x 2, x 1)

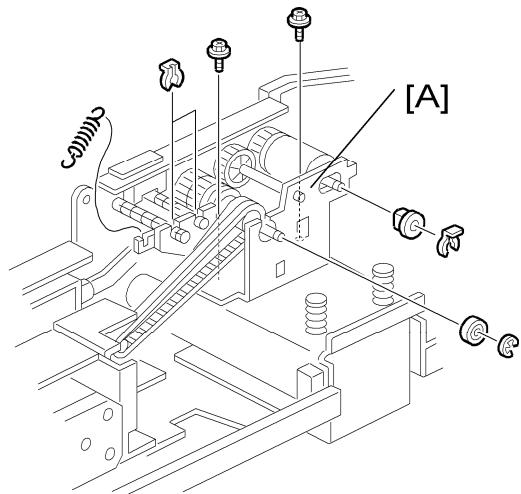
1.4.3 INVERTER SOLENOID



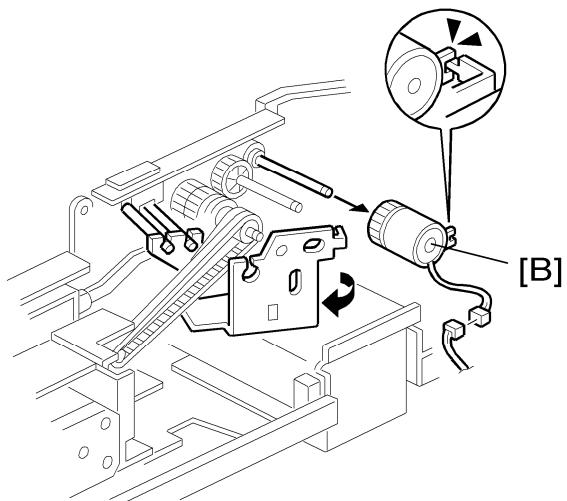
1. Rear cover (see "Rear Cover")
2. Harness guide (see "Pick-up Solenoid")
3. Inverter solenoid [A] (x 2, x 1, x 1, gear cover x 1)

Original Feed Drive

1.4.4 FEED CLUTCH

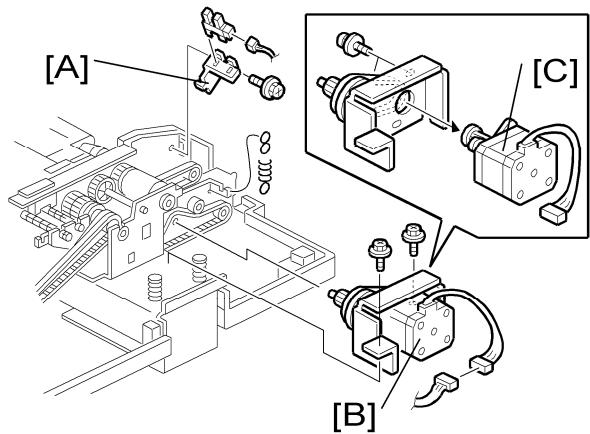


1. Rear cover (see "Rear Cover")
2. Harness guide (see "Pick-up Solenoid")
3. Bracket [A] (x 2, x 3, x 1, bushing x 1, spring x 1)



4. Slide the bracket.
5. Feed clutch [B] (x 1)

1.4.5 TRANSPORT MOTOR

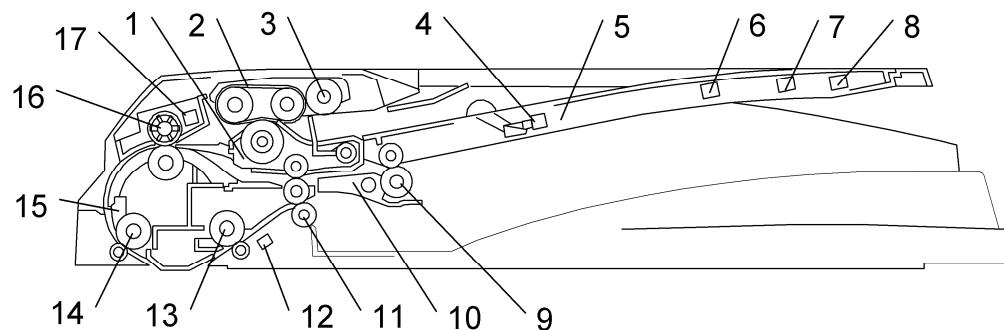


1. Rear cover (see "Rear Cover")
2. Harness guide (see "Pick-up Solenoid")
3. Left cover sensor with bracket [A] (x 1, x 1)
4. Transport motor with bracket [B] (x 2, x 1, spring x 1)
5. Transport motor [C] (x 2)

2. DETAILED DESCRIPTIONS

2.1 COMPONENT LAYOUT

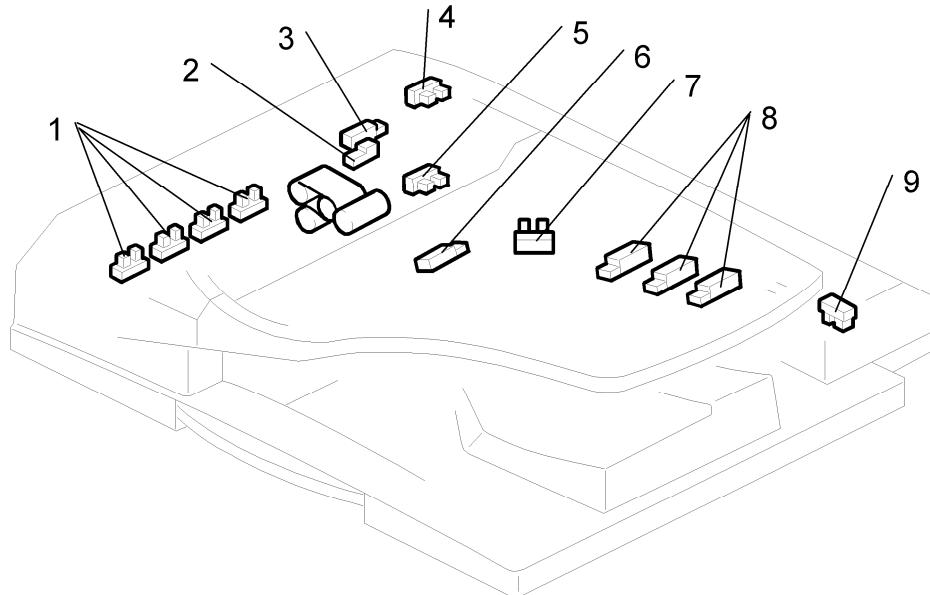
2.1.1 MECHANICAL COMPONENT LAYOUT



| | |
|--|--|
| 1. Separation Roller 2. Paper Feed Belt 3. Pick-up Roller 4. Original Trailing Edge Sensor 5. Original Tray 6. Original Length Sensor 1 7. Original Length Sensor 2 8. Original Length Sensor 3 9. Inverter Roller | 10. Junction Gate 11. Exit Roller 12. Original Exit Sensor 13. Transport Roller 14. Registration Roller 15. Registration Sensor 16. Skew Correction Roller 17. Skew Correction Sensor |
|--|--|

2.1.2 ELECTRICAL COMPONENT LAYOUT

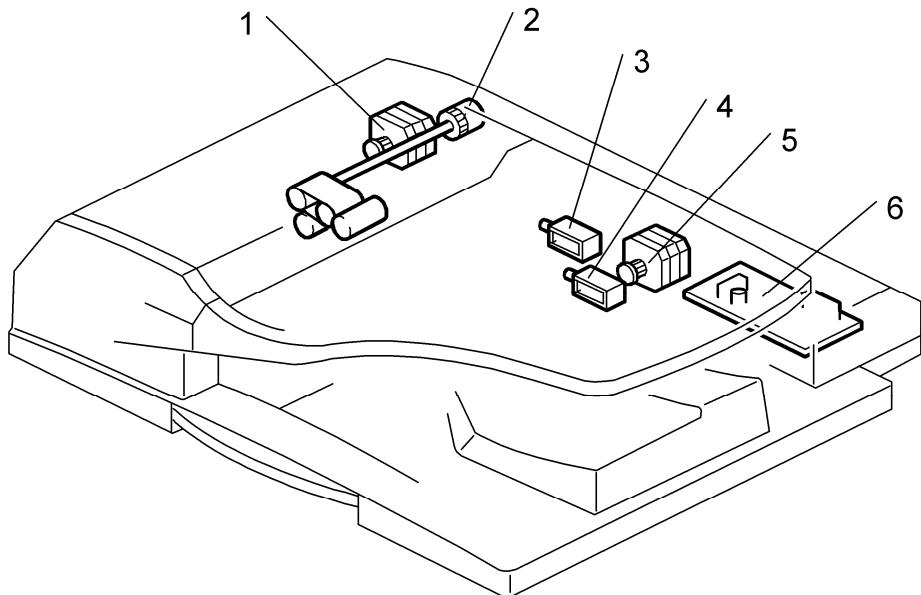
Sensors



1. Original Width Sensor
2. Skew Correction Sensor
3. Registration Sensor
4. Cover Sensor
5. Original Set Sensor
6. Exit Sensor
7. Original Sensor
8. Original Length Sensor
9. DF Position Sensor

Component Layout

Drive Components



1. Transport Motor

2. Feed Clutch

3. Pick-up Solenoid

4. Inverter Solenoid

5. Feed Motor

6. Main Board

Electrical Component Descriptions

| Symbol | Name | Function | Index No. |
|----------------|-----------------|--|-----------|
| Motors | | | |
| M1 | Feed | Drives the feed belt, separation, pick-up, and reverse table rollers. | 5 |
| M2 | Transport | Drives the transport and exit rollers | 1 |
| Sensors | | | |
| S9 | DF Position | Detects whether the DF is lifted or not. | 9 |
| S5 | Skew Correction | Detects the leading edge of the original to turn off the DF feed and transport motors. | 2 |
| S8 | Registration | Detects the original exposure timing, and checks for original misfeeds. | 3 |
| S10 | Cover Sensor | Detects whether the feed-in cover is opened or not. | 4 |

Component Layout

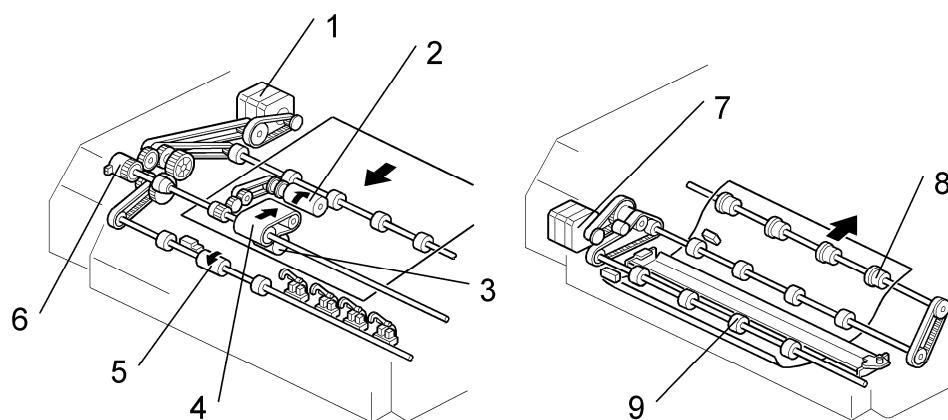
| | | | |
|--------------------------|----------------------------|---|---|
| S1 | Original Width Sensor - S | Detects the original width - S. | 1 |
| S2 | Original Width Sensor - M | Detects the original width - M. | 1 |
| S3 | Original Width Sensor - L | Detects the original width - L. | 1 |
| S4 | Original Width Sensor - LL | Detects the original width - LL. | 1 |
| S14 | Original Length - S | Detects the original length - S. | 8 |
| S13 | Original Length - M | Detects the original length - M. | 8 |
| S12 | Original Length - L | Detects the original length - L. | 8 |
| S7 | Original Set | Detects if an original is on the feed table. | 5 |
| S6 | Original Exit | Detects the leading edge of the original to turn on the junction gate solenoid and checks for original misfeeds. Detects the trailing edge of the original to turn off the transport and feed motor and junction gate solenoid. In single-sided mode, used to detect original misfeeds. | 6 |
| S11 | Original | Detects the trailing edge of the last original to stop copy paper feed and to turn off the transport motor, and checks for original misfeeds. | 7 |
| Solenoids | | | |
| SOL1 | Pick-up | Controls the up-down movement of the original table. | 3 |
| SOL2 | Stamp | Energizes the stamper to mark the original. | |
| SOL3 | Junction Gate | Opens and closes the junction gate. | 4 |
| Magnetic Clutches | | | |
| MC1 | Feed | Drives the feed belt, separation, pick-up, and skew correction rollers | 5 |
| | | | |

ARDF DF3030
D366

Component Layout

| PCBs | | | |
|------|------|---|---|
| PCB1 | Main | Interfaces the sensor signals with the copier, and transfers the magnetic clutch, solenoid and motor drive signals from the copier. | 6 |
| | | | |

2.1.3 DRIVE LAYOUT

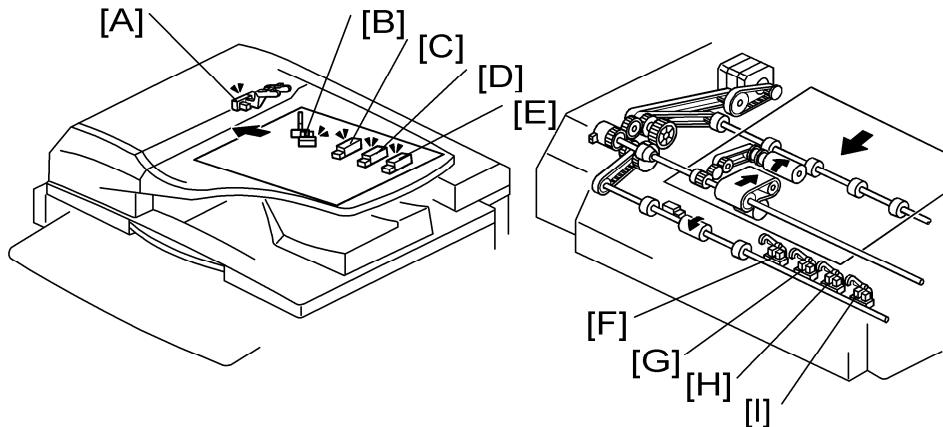


1. Feed Motor
2. Pick-up Roller
3. Separation Roller
4. Feed Belt
5. Skew Correction Roller
6. Feed Clutch
7. Transport Motor
8. Exit Roller
9. Registration Roller

- Feed Motor: Drives the feed belt, separation, pick-up, and skew correction rollers.
- Transport Motor: Drives the registration and exit rollers.

2.2 BASIC OPERATION

2.2.1 ORIGINAL SET AND SIZE DETECTION



The original set sensor [A] detects if the original is set or not. The original sensor [B] detects if the original is on the original tray or not (this lets the machine know as early as possible, whether there is another original on the tray).

The original size detection mechanism consists of the four original width sensors ([F]: Width Sensor S, [G]: Width Sensor M, [H]: Width Sensor L, [I]: Width Sensor LL) and three original length sensors ([C]: Length Sensor S, [D]: Length Sensor M, [E]: Length Sensor L). Based on the combined output of the length sensors and the width sensors, the machine can detect the size of the original. This integrated detection mechanism is detailed in the table below.

| Size | Width Sensor | | | | Length Sensor | | | Area | |
|---------------------|--------------|----|----|----|---------------|----|----|----------------|----------------|
| | S | M | L | LL | S | M | L | LT | A/B |
| A3/SEF (297 x 420) | ON | ON | ON | ON | ON | ON | ON | O | O |
| B4/SEF (257 x 364) | ON | ON | - | - | ON | ON | ON | - | O |
| A4/SEF (210 x 297) | ON | - | - | - | ON | ON | - | O | O |
| A4/LEF (297 x 210) | ON | ON | ON | ON | - | - | - | O | O |
| B5/SEF (182 x 257) | - | - | - | - | ON | - | - | - | O |
| B5/LEF (257 x 182) | ON | ON | - | - | - | - | - | - | O |
| A5/SEF (148 x 210) | - | - | - | - | - | - | - | - | O |
| A5/LEF (210 x 148) | ON | - | - | - | - | - | - | - | O |
| 11" x 17"/SEF (DLT) | ON | ON | ON | - | ON | ON | ON | O ¹ | O ⁵ |

Basic Operation

| | | | | | | | | | |
|----------------------------|----|----|----|---|----|----|----|----------------|----------------|
| 11" x 15"/SEF | ON | ON | ON | - | ON | ON | ON | ● ¹ | - |
| 10" x 14"/SEF | ON | ON | - | - | ON | ON | ON | O | - |
| 8.5" x 14"/SEF (LG) | ON | - | - | - | ON | ON | ON | O ² | - |
| 8.5" x 13"/SEF (F4) | ON | - | - | - | ON | ON | ON | ● ² | O |
| 8.25" x 13"/SEF | ON | | | | ON | ON | ON | - | - |
| 8" x 13"/SEF (F) | ON | - | - | - | ON | ON | ON | - | - |
| 8.5" x 11"/SEF (LT) | ON | - | - | - | ON | - | - | O ³ | O ⁶ |
| 8.5" x 11"/LEF (LT) | ON | ON | ON | - | - | - | - | O ⁴ | O ⁷ |
| 7.25" x 10.5"/SEF (US EXE) | ON | - | - | - | ON | - | - | O | - |
| 10.5" x 7.25"/SEF (US EXE) | ON | ON | ON | - | - | - | - | ● ⁴ | - |
| 10" x 8"/SEF | ON | - | - | - | ON | - | - | ● ³ | - |
| 5.5" x 8.5"/SEF (HLT) | - | - | - | - | - | - | - | O | - |
| 5.5" x 8.5"/LEF (HLT) | ON | - | - | - | - | - | - | O | - |
| 267 mm x 390 mm | ON | ON | ON | - | ON | ON | ON | - | ● ⁵ |
| 195 mm x 267 mm | ON | - | - | - | ON | - | - | - | ● ⁶ |
| 267 mm x 195 mm | ON | ON | ON | - | - | - | - | - | ● ⁷ |

Symbol

O: Yes (Default), ●: Yes (Can select this with SP mode), ON: Paper present, LT: North America, A/B: Europe, Asia

Note

- For "O/●" mark, which has superscripted number, it is possible to change the original detection size with SP6-016. For example, instead of LT (O³), the machine can be set up to detect 10" x 8" (●³).
- The F size can be selected with SP5-126. The default is 8.5" x 13"
- The machine cannot detect more than one size of original in the same job.

2.2.2 MIXED ORIGINAL SIZE MODE

This section explains what happens when the user selects mixed original size mode. Because this ARDF is a sheet-through document feeder, the method for original document width detection is the same as when the originals are the same size, but the document length detection method is different. Therefore, the scanning speed is slightly slower.

Document length detection

From when the skew correction sensor switches on until it switches off, the CPU counts the transport motor pulses. The number of pulses determines the length of the original.

Feed-in cycle

When the original size for the copy modes listed below cannot be determined, the image cannot be correctly scaled (reduced or enlarged) or processed until the original's length has been accurately detected. The length must be determined before the image is scanned.

| |
|---------------------|
| Auto Reduce/Enlarge |
| Centering |
| Erase Center/Border |
| Booklet |
| Image Repeat |

The originals follow this path:

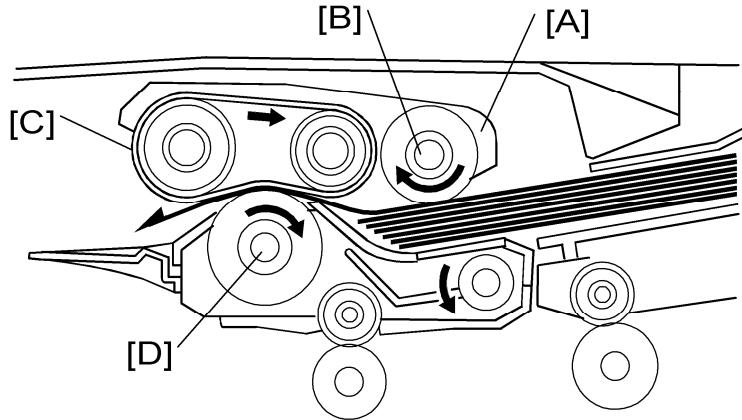
1. Length detection → Scanning glass → Inverter table
2. Inverter table → Scanning glass → Inverter table (restores the original order)
3. Inverter table → Scanning glass (image scanned) → Exit tray

Normal feed-in

In a copy mode other than those listed above, when the reduction/enlargement ratio has been determined, the originals are scanned normally. In order to store the scanned images, a large area of memory (the detected original width x 432 mm length) is prepared. Next, only the portion of the image up to the detected original length is read from memory and printed.

Basic Operation

2.2.3 PICK-UP AND SEPARATION



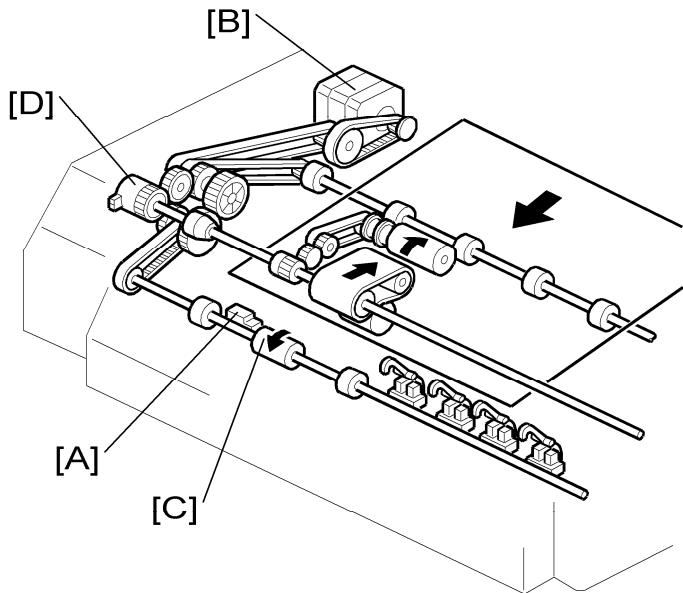
The original is set with the image facing up. The original pushes actuator and the original set sensor is activated.

After pressing the start button, the feed clutch is activated and the original feed unit [A] moves down. At the same time, the pick-up solenoid is activated and the original table lifts until the original comes in contact with the pick-up roller [B]. The pick-up roller then feeds the top sheet of paper.

After being fed from feed belt [C], the topmost sheet is separated from the stack by the separation roller [D] and sent to the skew correction roller.

The mechanism is an FRR system, consisting of the original feed belt [C] and separation roller [D].

2.2.4 SKEW CORRECTION

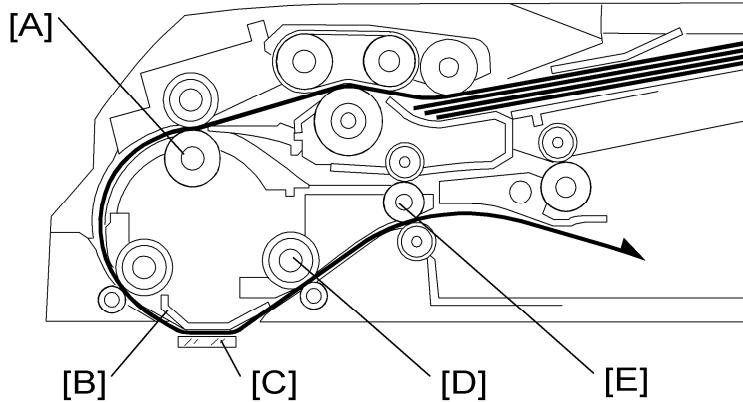


When an original is fed into the feeder, the feed motor [B] rotates forwards. At this time, the feed belt turns but the skew correction roller [C] does not. Because of this, when the leading edge of the paper gets to the skew correction roller, skew in the original is removed. A short time after the leading edge of the original turns on the skew correction sensor [A], the feed motor [B] turns off for 40 ms and rotates in reverse. At this time, the skew correction roller [C] and the feed belt both turn, and original feed continues. The original is fed by the skew correction roller after the feed clutch [D] has turned off.

Basic Operation

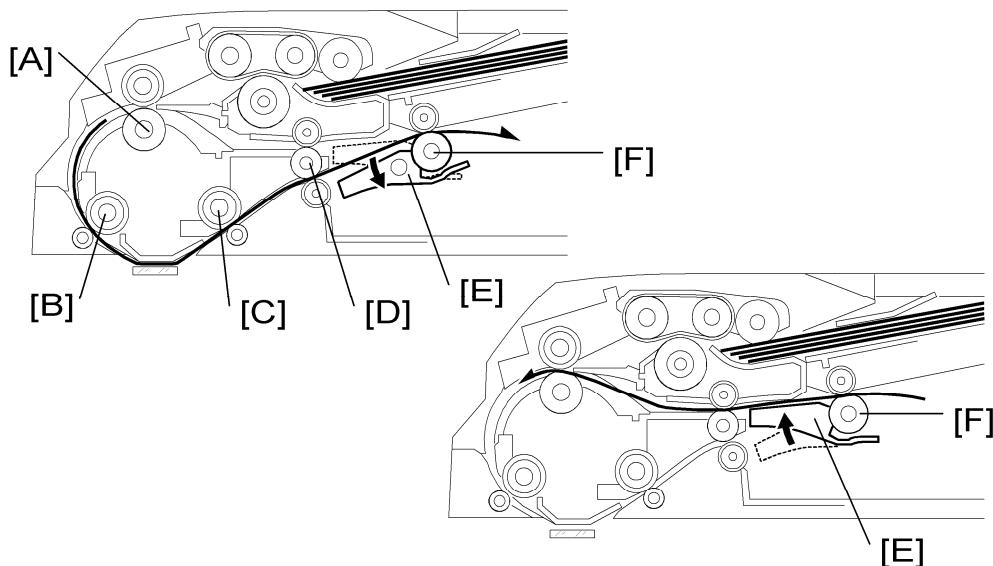
2.2.5 ORIGINAL TRANSPORT AND EXIT

Single-Sided Originals



The feed motor feeds the separated original to the skew correction roller [A] at maximum speed. After skew correction, the feed and transport motors feed the original through the scanning area at a lower speed (the scanning area contains the original exposure guide [B] and DF exposure glass [C]). After scanning, the original is fed out by the transport roller [D] and exit roller [E].

Double-Sided Originals

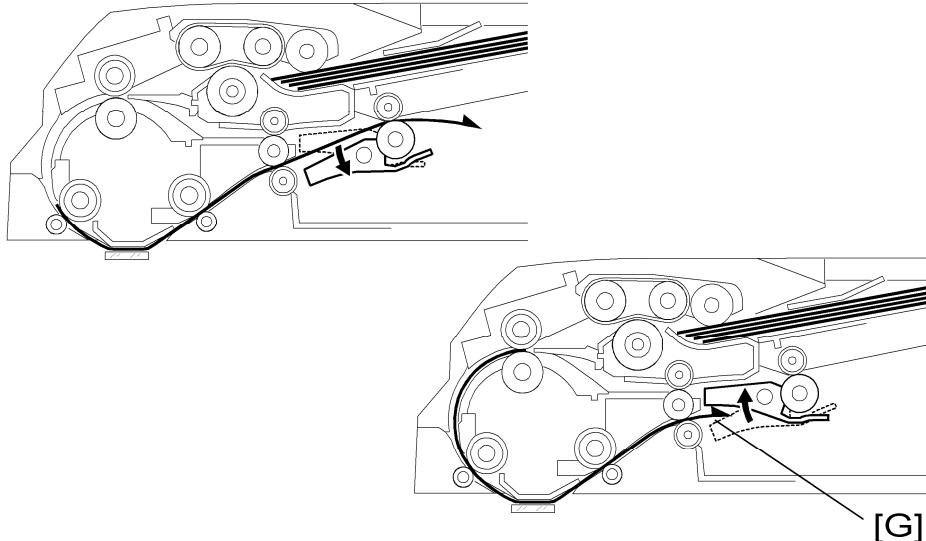


After skew correction, the feed and transport motors drive the skew correction roller [A], registration roller [B], transport roller [C] and the exit roller [D]. The front side of the original is then scanned.

When the original exit sensor detects the leading edge of the original, the junction gate solenoid is activated and the junction gate [E] opens. The original is then transported

towards the inverter table.

Soon after the trailing edge of the original passes the exit sensor, the junction gate solenoid switches off and the junction gate [E] is closed. When the original has been fed onto the inverter table, the feed motor switches on in reverse. The original is then fed by the inverter roller [F], and then by the skew correction roller [A] and registration roller [B] to the scanning area (where the reverse side will be scanned).



The original is then sent to the inverter table again to be turned over. This is done so that the duplex copies will be properly stacked front side down in the exit tray [G] in the correct order.

Original Sensor

During one-to-one copying, copy paper is fed to the skew correction roller in advance (while the original is still being scanned), to increase the copy speed. The original sensor monitors the stack of originals in the feeder, and detects when the trailing edge of the last page has been fed in. The main CPU then stops the copier from feeding an unwanted extra sheet of copy paper.

2.2.6 CONDITIONS FOR JAM DETECTION

| Jam Mode | Detection Timing |
|----------|--|
| Initial | When turning on the machine, the skew correction sensor, registration sensor or exit sensor detects an original. |
| | When the cover is closed or DF is down, the skew correction sensor, registration sensor or exit sensor detects an original. |
| | When the cover is opened or DF is lifted up, the skew correction sensor, registration sensor or exit sensor detects an original. |

Basic Operation

| | |
|--------------------------|--|
| Sensor stays on too long | The skew correction sensor does not turn off even if the original was fed by the maximum length of the original + 150 mm after the skew correction sensor turned on. |
| | The registration sensor does not turn off even if the original was fed by its length x 1.5 after the registration sensor turned on. |
| | The exit sensor does not turn off even if the original was fed by its length x 1.5 after the exit sensor turned on. |
| Sensor does not come on | The skew correction sensor does not turn on even if the original was fed by transport path length x 1.5. |
| | The registration sensor does not turn on even if the original was fed by transport path length x 1.5 after the skew correction sensor turned on. |
| | The exit sensor does not turn on even if the original was fed by transport path length x 1.5 after the skew correction sensor turned on. |

3. SERVICE TABLES

3.1 DIP SWITCHES

| DIP-SW | | | | Function |
|--------|---|---|---|---|
| 1 | 2 | 3 | 4 | |
| 0 | 0 | 0 | 0 | Normal operating mode (Default) |
| 0 | 0 | 0 | 1 | Free run: With original: One-sided mode: 100% speed |
| 0 | 0 | 1 | 0 | Free run: With original: Two-sided mode: 100% speed |
| 0 | 0 | 1 | 1 | Free run: No original: One-sided mode: 100% speed |
| 0 | 1 | 0 | 0 | Free run: No original: Two-sided mode: 100% speed |
| 0 | 1 | 0 | 1 | Free run: With original: One-sided mode: 32% speed |
| 0 | 1 | 1 | 0 | Free run: With original: Two-sided mode: 32% speed |
| 0 | 1 | 1 | 1 | Free run: With original: One-sided mode: 70% speed |
| 1 | 0 | 0 | 0 | Free run: With original: Two-sided mode: 70% speed |
| 1 | 0 | 0 | 1 | Free run: With original: One-sided mode: 200% speed |
| 1 | 0 | 1 | 0 | Free run: With original: Two-sided mode: 200% speed |
| 1 | 0 | 1 | 1 | Transport Motor On |
| 1 | 1 | 0 | 0 | Feed Motor On |
| 1 | 1 | 0 | 1 | Transport Motor On with random mode |
| 1 | 1 | 1 | 0 | Feed Motor On with random mode |
| 1 | 1 | 1 | 1 | |

1-BIN TRAY BN3030

D367

1-BIN TRAY BN3030 D367

TABLE OF CONTENTS

| | |
|---|----------|
| 1. OVERALL INFORMATION | 1 |
| 1.1 SPECIFICATIONS..... | 1 |
| 1.2 MECHANICAL COMPONENT LAYOUT..... | 2 |
| 1.3 ELECTRICAL COMPONENT LAYOUT | 3 |
| 1.4 ELECTRICAL COMPONENT DESCRIPTION..... | 3 |
| 2. DETAILED SECTION DESCRIPTIONS | 4 |
| 2.1 BASIC OPERATION..... | 4 |
| 3. REPLACEMENT AND ADJUSTMENT | 5 |
| 3.1 PAPER SENSOR REMOVAL..... | 5 |

1. OVERALL INFORMATION

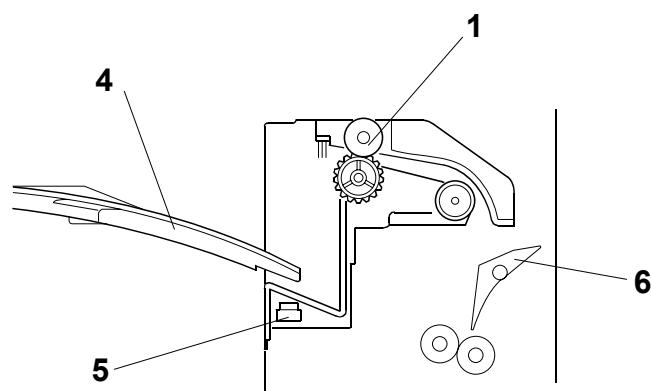
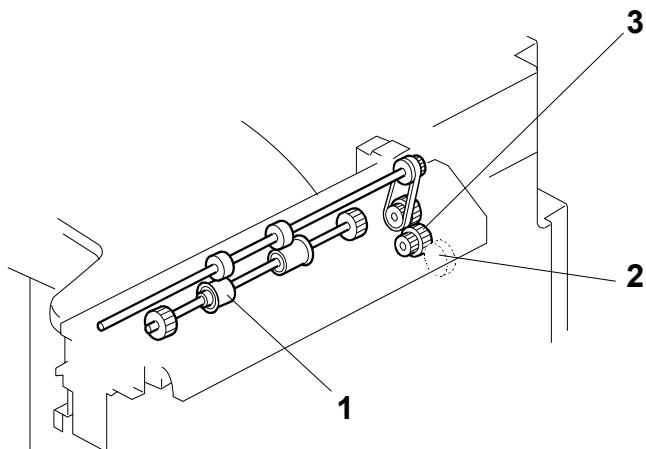
1.1 SPECIFICATIONS

| | |
|--------------------|--|
| Paper Size: | Standard Size: A5 Lengthwise to A3 HLT Lengthwise to DLT |
| | Non-standard Size: Paper Width: 90 ~ 297 mm Paper Length: 148 ~ 432 mm |
| Paper Weight: | 60 ~ 105 g/m ² , 16 ~ 28 lbs. |
| Tray Capacity: | 125 sheets (80 g/m ² , 20 lbs.) |
| Power Source: | 5 VDC, 24 VDC (from the copier) |
| Power Consumption: | 17 W |
| Weight: | 1.1 kg |
| Size (W x D x H): | 530 mm x 410 mm x 120 mm |

1-Bin Tray
BN3030
D367

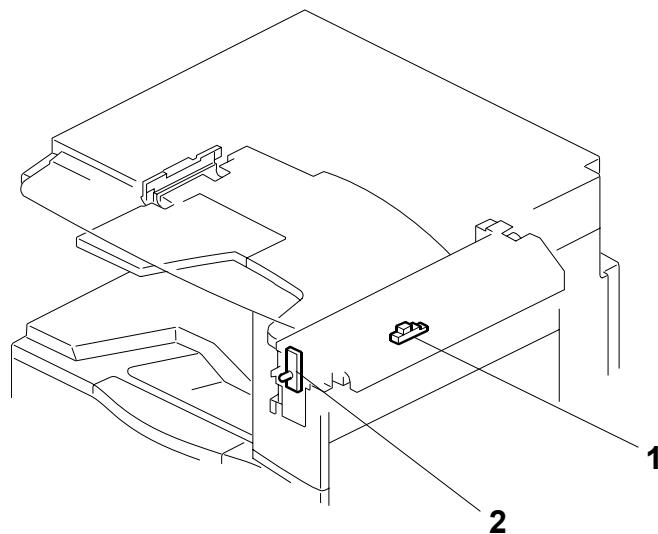
MECHANICAL COMPONENT LAYOUT

1.2 MECHANICAL COMPONENT LAYOUT



1. Exit Rollers
2. Junction Gate Gear
3. Drive Gear
4. Paper Tray
5. Paper Sensor
6. Junction Gate (Interchange Unit)

1.3 ELECTRICAL COMPONENT LAYOUT



1. Paper Sensor
2. 1-bin Sorter Exit Tray LED
(located in the copier)

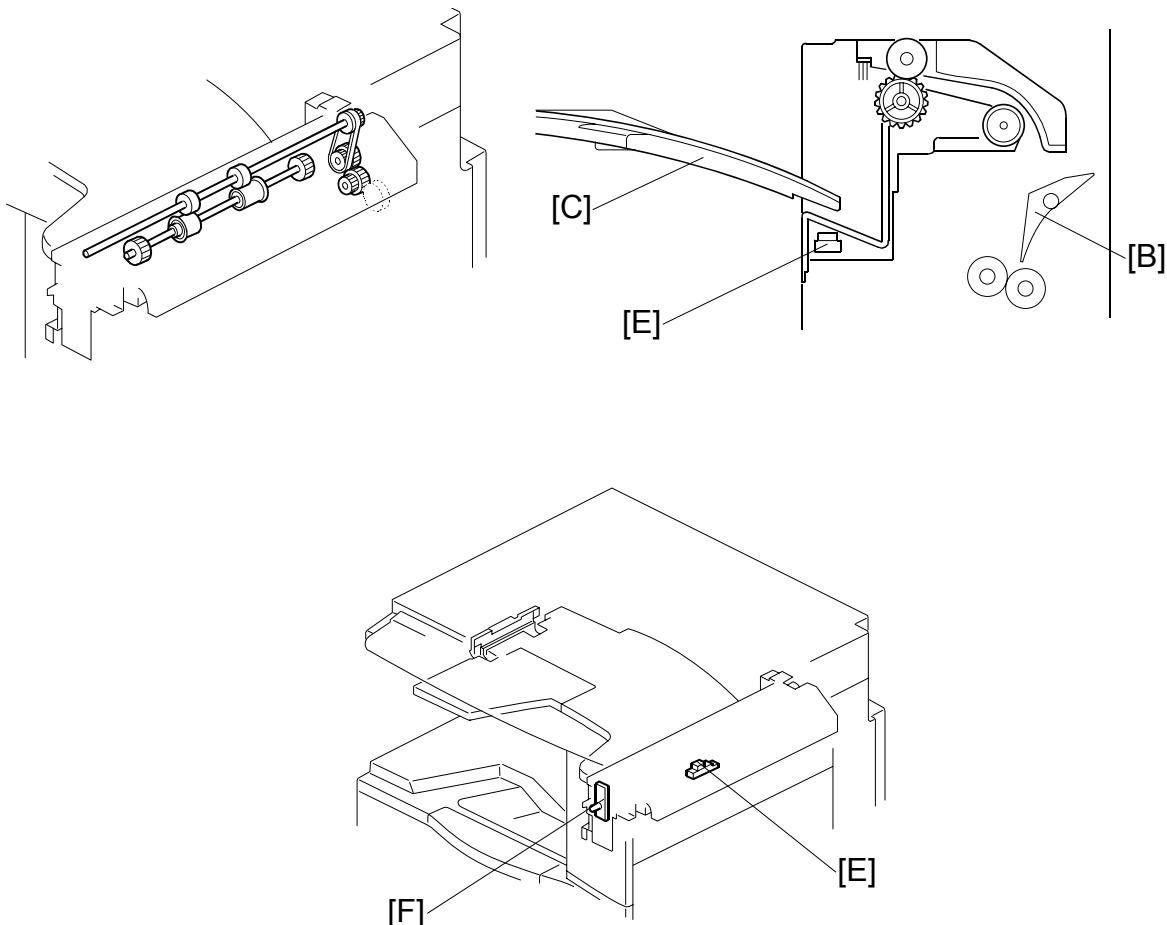
1.4 ELECTRICAL COMPONENT DESCRIPTION

| Symbol | Name | Function | Index No. |
|----------------|-----------------|--|-----------|
| Sensors | | | |
| S1 | Paper | Detects when there is paper on the tray. | 1 |
| | | | |
| LEDs | | | |
| LED1 | 1 Bin Exit Tray | Indicates when there is paper in the tray. This sensor is located in the copier. | 2 |
| | | | |

1-Bin Tray
BN3030
D367

2. DETAILED SECTION DESCRIPTIONS

2.1 BASIC OPERATION



At the appropriate time after the leading edge of the first sheet of copy paper reaches the copier's registration roller, the junction gate solenoid [B] in the interchange unit turns on to switch the junction gate to direct the paper to the tray [C].

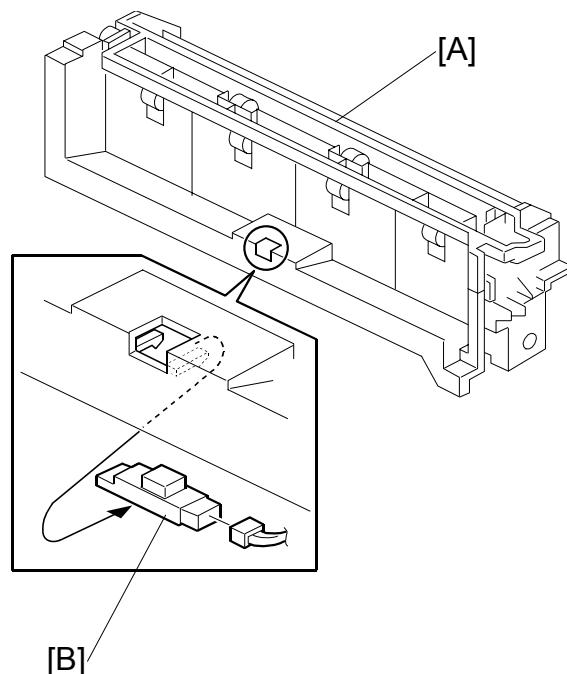
The junction gate solenoid turns off at the appropriate time after the paper is directed to the tray. The main motor in the copier stops after the final sheet passes through the paper sensor [E].

The paper sensor [E] turns on when there is paper in the tray, and the paper indicator [F] turns on.

The tray can be opened for easier jam removal by swinging the tray to the left.

3. REPLACEMENT AND ADJUSTMENT

3.1 PAPER SENSOR REMOVAL



1. Remove the 1-bin tray.
2. Remove the 1-bin sorter unit [A].
3. Remove the paper sensor [B] (1 connector).

1-Bin Tray
BN3030
D367

BRIDGE UNIT BU3020

D368

BRIDGE UNIT BU3020 D368

TABLE OF CONTENTS

| | |
|---|----------|
| 1. OVERALL MACHINE INFORMATION..... | 1 |
| 1.1 SPECIFICATIONS..... | 1 |
| 1.2 MECHANICAL COMPONENT LAYOUT..... | 2 |
| 1.3 ELECTRICAL COMPONENT LAYOUT | 3 |
| 1.4 ELECTRICAL COMPONENT DESCRIPTION..... | 4 |
| 1.5 DRIVE LAYOUT | 5 |
| 2. DETAILED DESCRIPTION | 6 |
| 2.1 JUNCTION GATE MECHANISM..... | 6 |
| 3. REPLACEMENT AND ADJUSTMENT | 7 |
| 3.1 BRIDGE UNIT DRIVE MOTOR REPLACEMENT | 7 |
| 3.2 TRAY EXIT SENSOR REPLACEMENT | 8 |
| 3.3 RELAY SENSOR REPLACEMENT | 8 |

1. OVERALL MACHINE INFORMATION

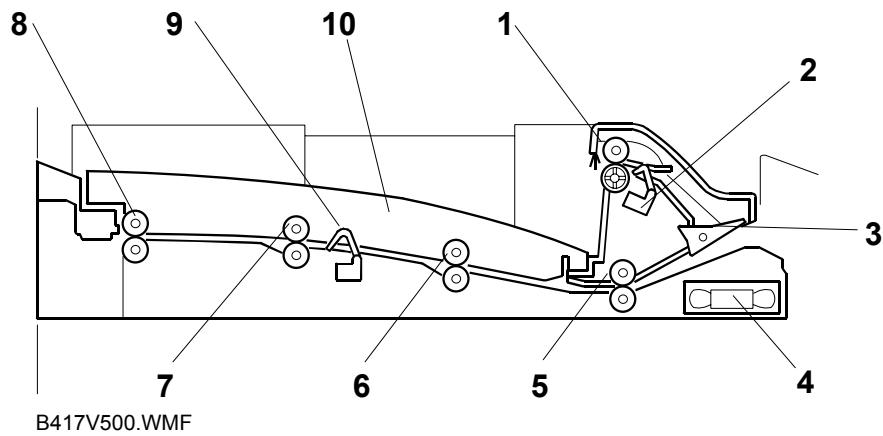
1.1 SPECIFICATIONS

| | |
|-------------------------|--|
| Paper Size: | Standard sizes A6 lengthwise to A3 HLT to DLT Non-standard sizes Width: 100 to 305 mm Length: 148 to 432 mm |
| Paper Weight: | 52 g/m ² ~ 135 g/m ² , 16 lb ~ 42 lb |
| Power Source: | DC24 V, 5 V (from the copier/printer) |
| Dimensions (W x D x H): | 413 x 435 x 126 mm |
| Weight | 3.0 kg (6.6 lbs) |

Bridge Unit
BU3020
D368

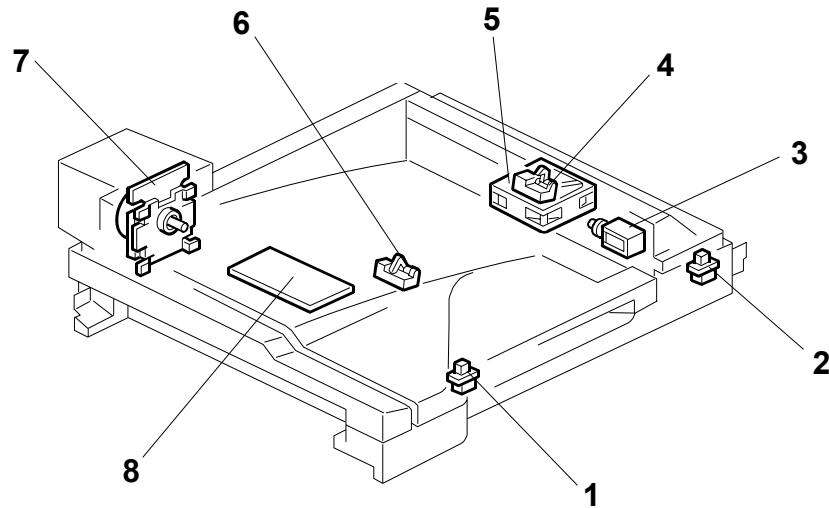
MECHANICAL COMPONENT LAYOUT

1.2 MECHANICAL COMPONENT LAYOUT



- | | |
|-------------------------|-------------------------|
| 1. Upper Exit Roller | 6. 2nd Transport Roller |
| 2. Tray Exit Sensor | 7. 3rd Transport Roller |
| 3. Junction Gate | 8. Left Exit Roller |
| 4. Cooling Fan | 9. Relay Sensor |
| 5. 1st Transport Roller | 10. Paper Tray |

1.3 ELECTRICAL COMPONENT LAYOUT



- | | |
|---------------------------|------------------------------|
| 1. Left Guide Switch | 5. Cooling Fan Motor |
| 2. Right Guide Switch | 6. Relay Sensor |
| 3. Junction Gate Solenoid | 7. Bridge Unit Drive Motor |
| 4. Tray Exit Sensor | 8. Bridge Unit Control Board |

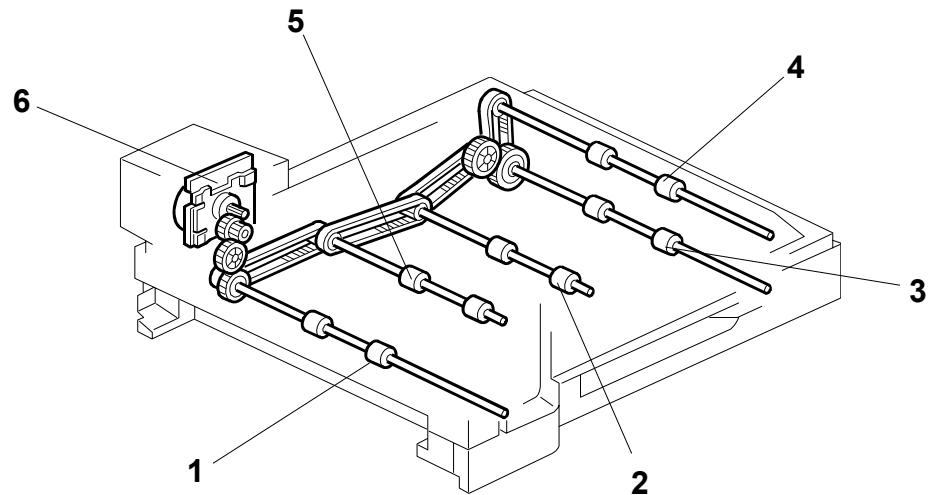
Bridge Unit
BU3020
D368

ELECTRICAL COMPONENT DESCRIPTION

1.4 ELECTRICAL COMPONENT DESCRIPTION

| Symbol | Name | Function | Index No. |
|------------------|---------------------------|---|-----------|
| Motors | | | |
| M1 | Cooling Fan | Cools the transport unit. | 5 |
| M2 | Bridge Unit Drive | Drives the bridge unit. | 7 |
| | | | |
| Sensors | | | |
| S1 | Tray Exit | Checks for misfeeds. | 4 |
| S2 | Relay | Checks for misfeeds. | 6 |
| | | | |
| Switches | | | |
| SW2 | Right Guide | Detects when the right guide is opened. | 2 |
| SW3 | Left Guide | Detects when the left guide is opened. | 1 |
| | | | |
| Solenoids | | | |
| SOL1 | Junction Gate | Moves the junction gate to direct the paper to the upper tray (on top of the bridge unit) or to the finisher. | 3 |
| | | | |
| PCBs | | | |
| PCB1 | Bridge Unit Control Board | Controls the bridge unit. | 8 |

1.5 DRIVE LAYOUT

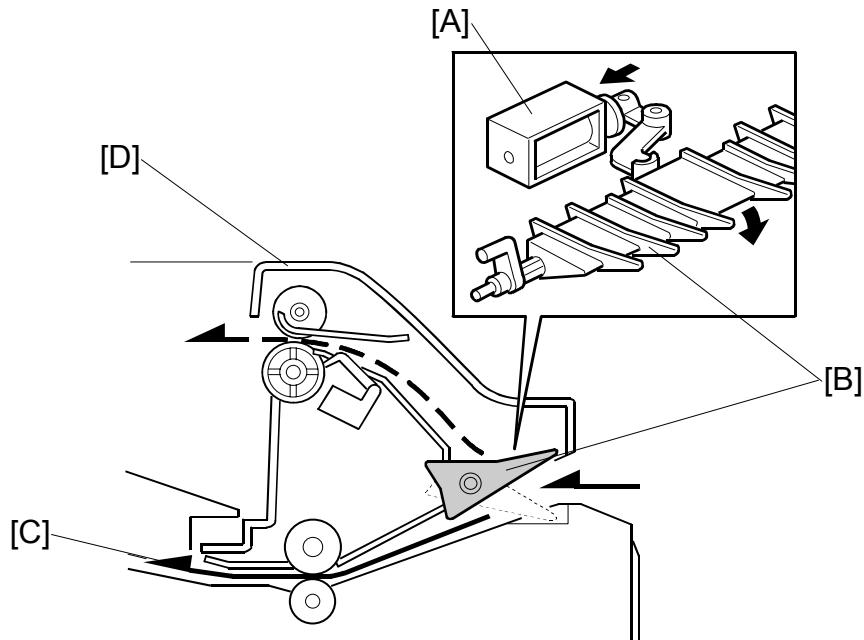


1. Left Exit Roller
2. 2nd Transport Roller
3. 1st Transport Roller
4. Upper Exit Roller
5. 3rd Transport Roller
6. Bridge Unit Drive Motor

Bridge Unit
BU3020
D368

2. DETAILED DESCRIPTION

2.1 JUNCTION GATE MECHANISM



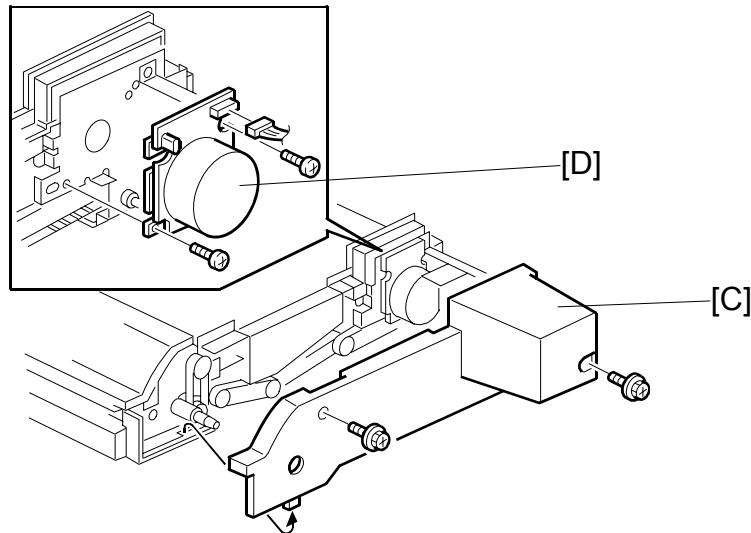
The junction gate [B] directs any paper reaching the bridge unit to either the upper tray (on top of the bridge unit) or to the finisher, depending on which has been selected.

If the junction gate solenoid [A] has been activated, the junction gate [B] points downward and directs the paper to the upper tray [D] (dotted line path in illustration). When the solenoid is off, the junction gate points upward and the paper is fed out to the finisher [C] by the transport and exit rollers (solid line).

3. REPLACEMENT AND ADJUSTMENT

NOTE: When taking apart the bridge unit, first take the unit out of the copier.

3.1 BRIDGE UNIT DRIVE MOTOR REPLACEMENT

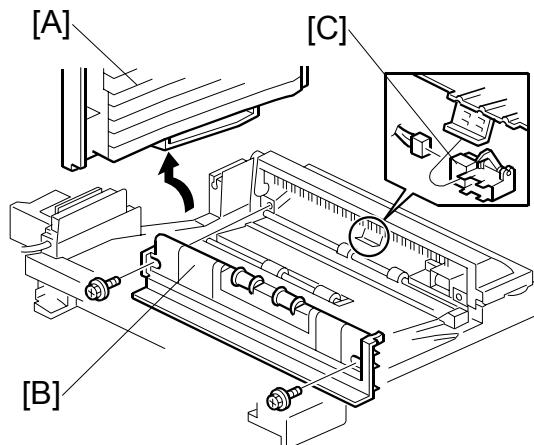


1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Remove the rear cover [C] (2 screws).
3. Remove the bridge unit drive motor [D] (2 screws, 1 connector).

Bridge Unit
BU3020
D368

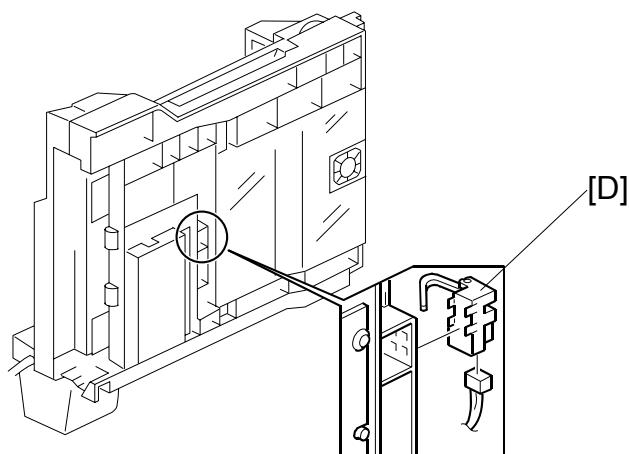
TRAY EXIT SENSOR REPLACEMENT

3.2 TRAY EXIT SENSOR REPLACEMENT



1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Remove the rear cover (2 screws). See Bridge Unit Drive Motor Replacement.
3. Remove the paper tray [A].
4. Remove the exit guide [B] (2 screws).
5. Remove the tray exit sensor [C] (1 connector).

3.3 RELAY SENSOR REPLACEMENT



1. Remove the bridge unit from the copier. (See the Installation Procedure in the base copier manual.)
2. Stand the bridge unit up as shown in the illustration and remove the sensor [D].

DUPLEX UNIT AD3000

D369

DUPLEX UNIT AD3000 D369

TABLE OF CONTENTS

| | |
|---|-----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 UNIT AND COVER | 1 |
| 1.1.1 DUPLEX UNIT | 1 |
| 1.1.2 BY-PASS TRAY | 2 |
| 1.1.3 RIGHT DOOR COVER | 4 |
| 1.2 ELECTRICAL COMPONENT | 5 |
| 1.2.1 DUPLEX ENTRANCE SENSOR | 5 |
| 1.2.2 DUPLEX EXIT SENSOR | 6 |
| 1.2.3 DUPLEX TRANSPORT MOTOR | 7 |
| 1.3 BY-PASS UNIT | 9 |
| 1.3.1 PAPER END SENSOR (BYPASS) | 9 |
| 1.3.2 BY-PASS FEED ROLLER | 9 |
| 1.3.3 SEPARATION PAD | 10 |
| 2. DETAILED SECTION DESCRIPTIONS | 12 |
| 2.1 COMPONENT LAYOUT | 12 |
| 2.1.1 MECHANICAL COMPONENT | 12 |
| 2.1.2 DUPLEX DRIVE | 13 |
| 2.2 OVERVIEW | 14 |
| 2.2.1 INVERTER MECHANISM | 14 |
| 2.2.2 DUPLEX OPERATION | 15 |

Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer and peripheral power cords are unplugged.
2. The power source should be near the printer and easily accessible.
3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the Start key is pressed before the copier completes the warm-up period (the Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.
7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Always replace the ozone filters with the specified ones at the specified intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with

local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

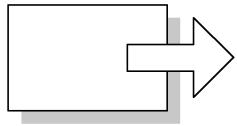
⚠ CAUTION

- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

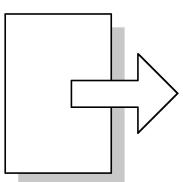
CONVENTIONS AND TRADEMARKS

CONVENTIONS

| Symbol | What it means |
|--------|-------------------------|
| | Core Tech Manual |
| | Screw |
| | Connector |
| | E-ring |
| | C-ring |
| | Clamp |
| FFC | Flexible Film Connector |



Short Edge Feed (SEF)



Long Edge Feed (LEF)

The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.

WARNINGS, CAUTIONS, NOTES

In this manual, the following important symbols and notations are used.

⚠ WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

⚠ CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property

★ Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

↓ Note

- This information provides tips and advice about how to best service the machine.

TRADEMARKS

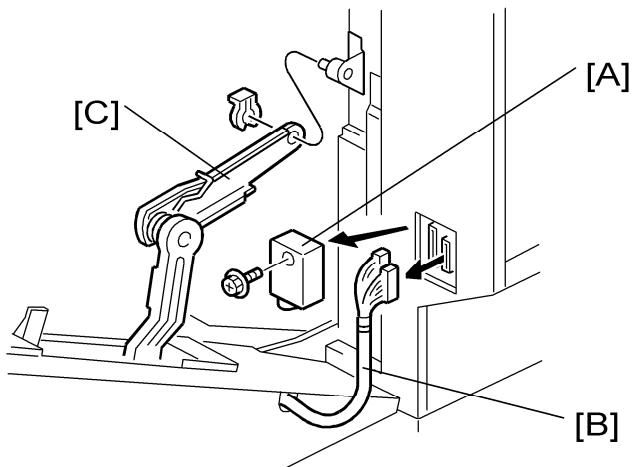
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1. REPLACEMENT AND ADJUSTMENT

1.1 UNIT AND COVER

1.1.1 DUPLEX UNIT

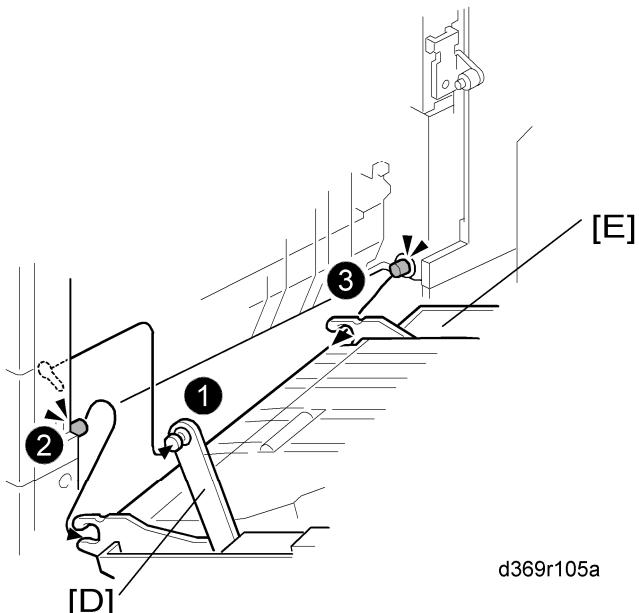
1. Open the right door and right door of the optional paper tray unit or LCT..



d369i106b

2. Connector cover [A] (x 1).
3. Disconnect the cable [B].
4. Release the rear link [C] (x 1).

Duplex Unit
AD3000
D369



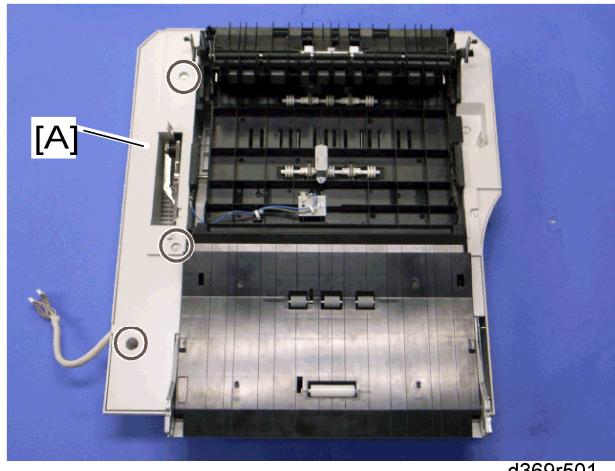
d369r105a

5. Release the front link [D] and remove the duplex unit [E].

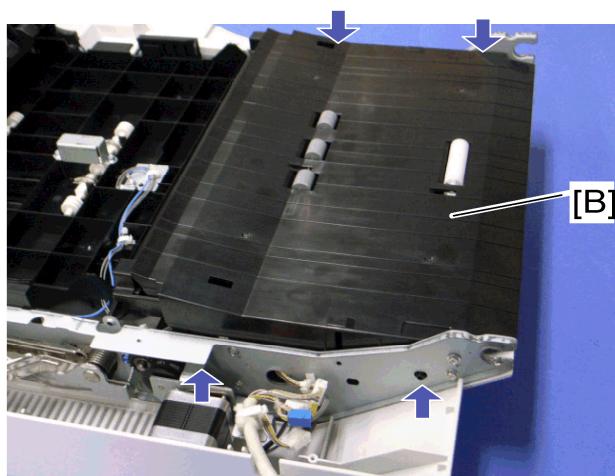
Unit and Cover

1.1.2 BY-PASS TRAY

1. Duplex unit (☞ Duplex Unit)

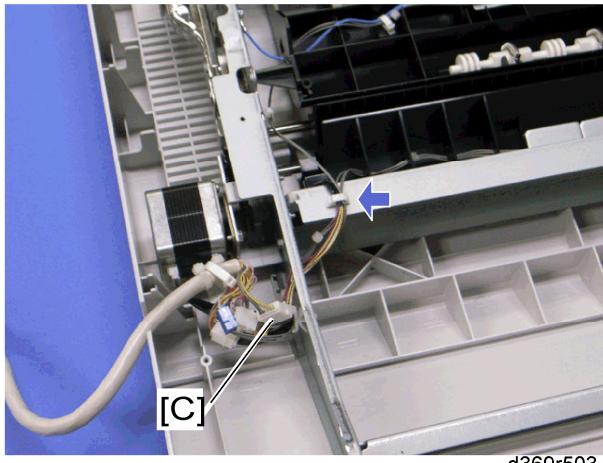


2. Inner rear cover [A] (☞ x 3)

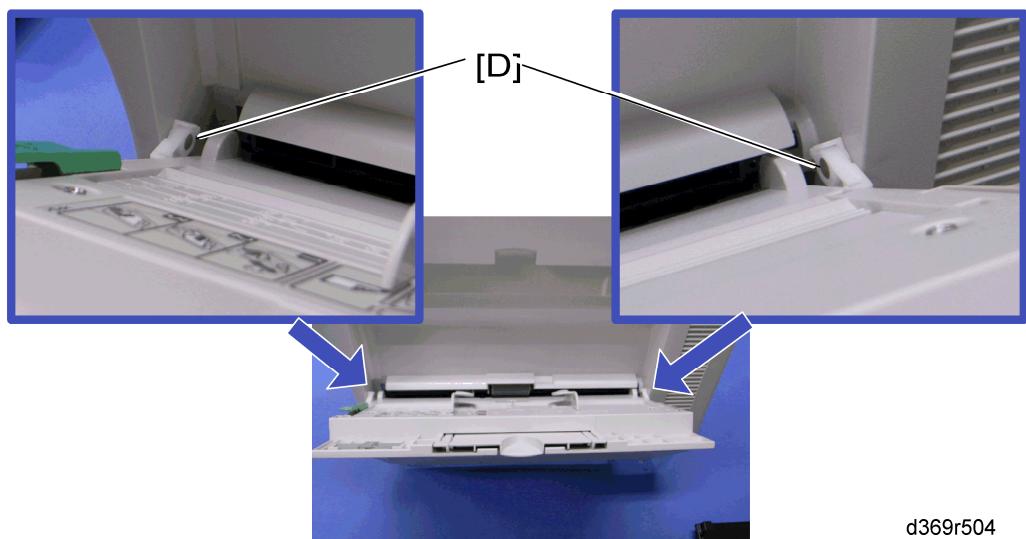


3. Paper guide unit [B] (tabs x 4)

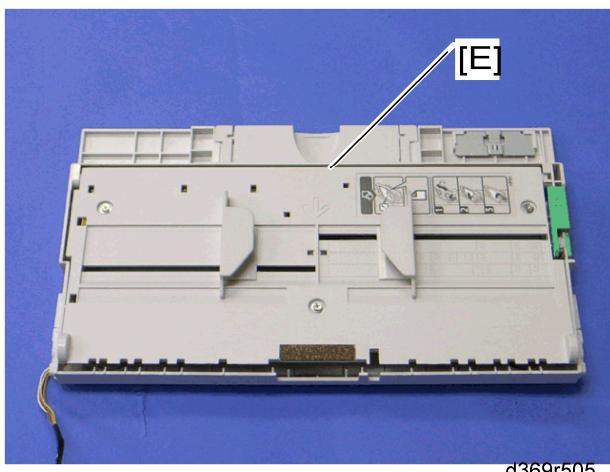
Unit and Cover



4. Disconnect the by-pass tray cable [C] ($\text{L}^{\text{e}}\text{t}$ x 1).



5. Remove the front and rear pins [D] ($\text{L}^{\text{e}}\text{t}$ x 1 each).

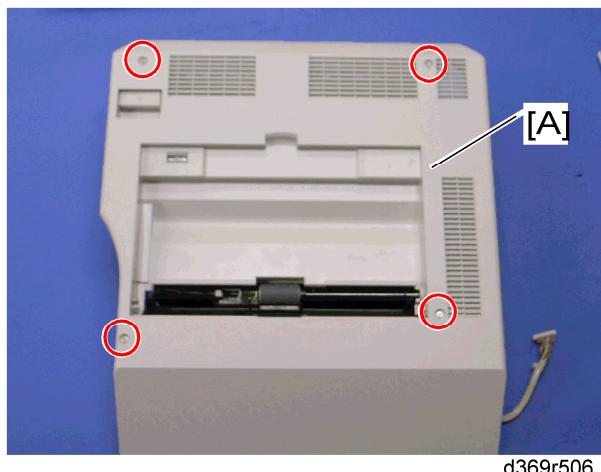


Unit and Cover

6. By-pass tray [E]

1.1.3 RIGHT DOOR COVER

1. Duplex unit (☞ Duplex Unit)
2. By-pass tray (☞ By-pass Tray)

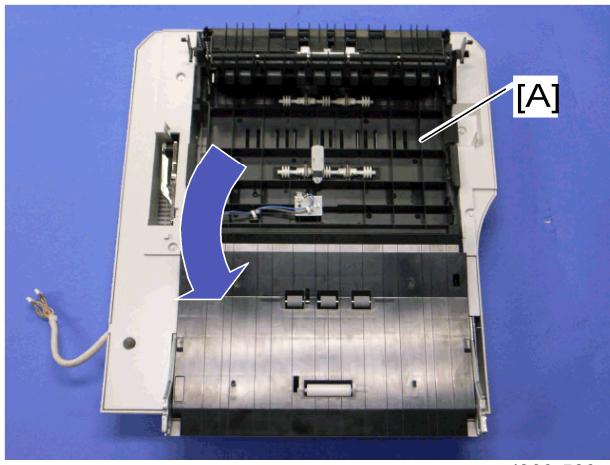


3. Right door cover (☞ x 4)

1.2 ELECTRICAL COMPONENT

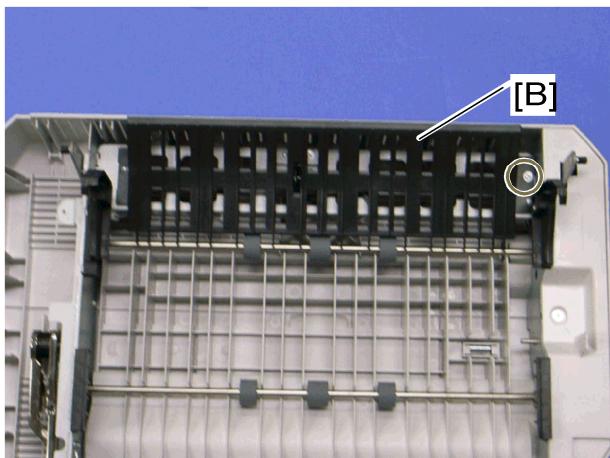
1.2.1 DUPLEX ENTRANCE SENSOR

1. Duplex unit (☞ Duplex Unit)



d369r509

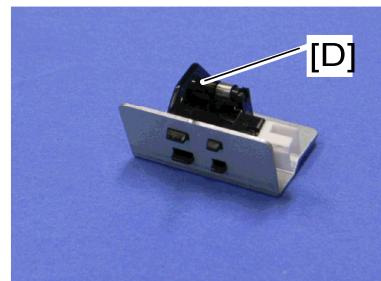
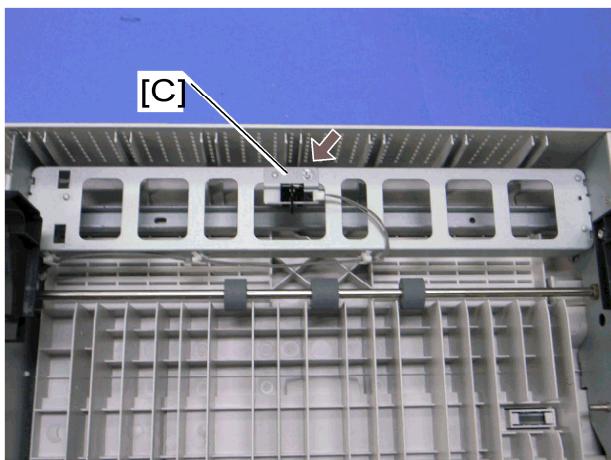
2. Open the duplex inner guide unit [A].



d369r510

3. Duplex outer guide [B] (☞ x 1)

Electrical Component

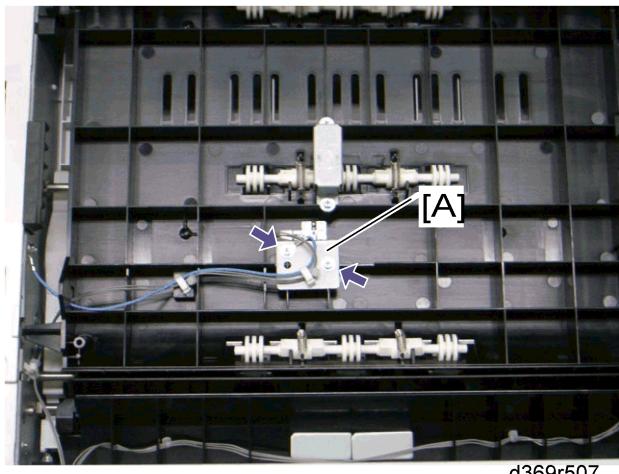


d369r511

4. Duplex entrance sensor bracket [C] (x 1, x 1)
5. Duplex entrance sensor [D] (hooks)

1.2.2 DUPLEX EXIT SENSOR

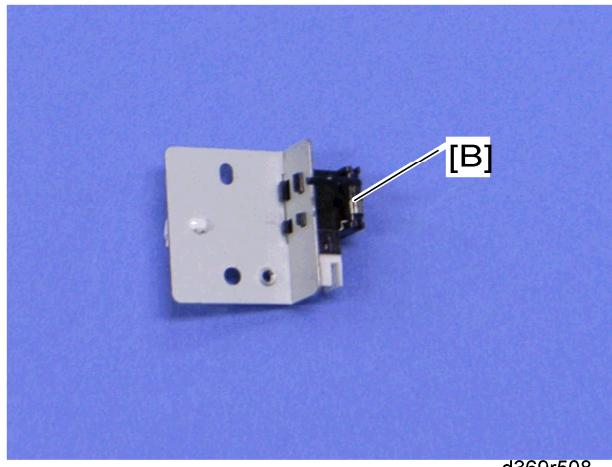
1. Duplex unit (
2. Paper guide unit (



d369r507

3. Duplex exit sensor bracket [A] (x 2)

Electrical Component

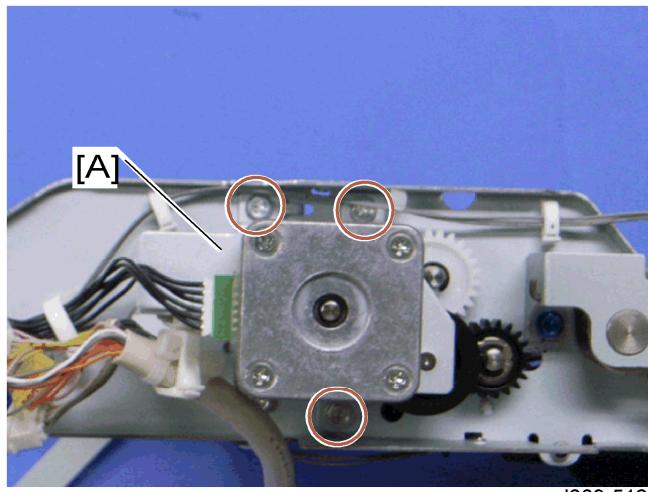


d369r508

4. Duplex exit sensor [B] (hooks)

1.2.3 DUPLEX TRANSPORT MOTOR

1. Duplex unit (☞ Duplex Unit)
2. Right door cover (☞ Right Door Cover)

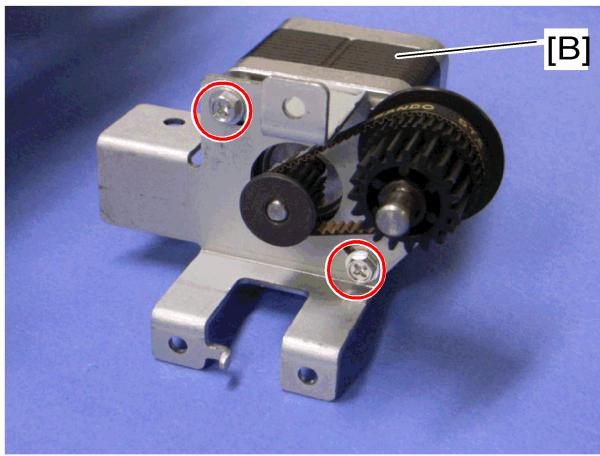


Duplex Unit
AD3000
D369

d369r512

3. Duplex transport motor bracket [A] (☞ x 3, ☞ x 1, ☞ x 1)

Electrical Component

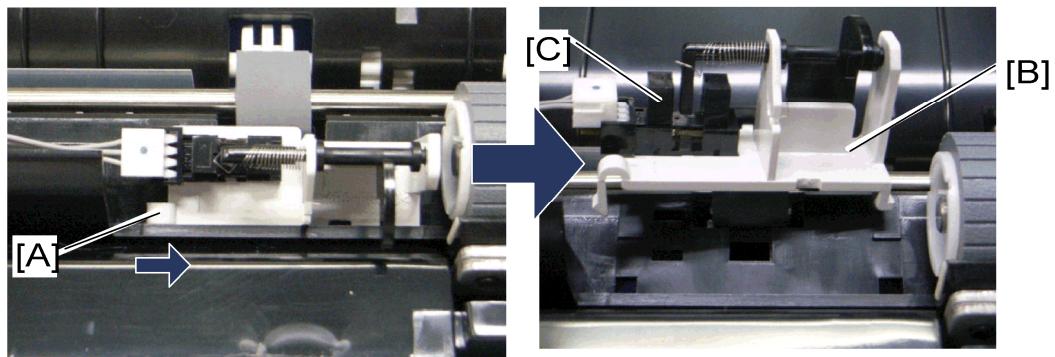


4. Duplex transport motor [B] ($\frac{1}{8}$ x 2)

1.3 BY-PASS UNIT

1.3.1 PAPER END SENSOR (BYPASS)

1. Duplex unit (☞ Duplex Unit)
2. By-pass Tray (☞ By-pass Tray)
3. Right door cover (☞ Right Door Cover)



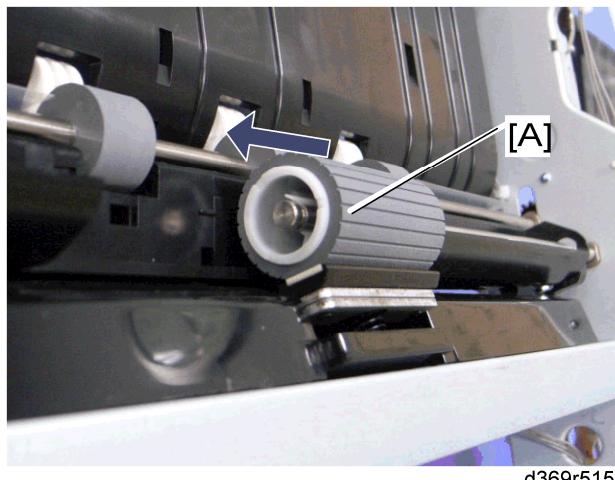
d369r514

4. Release the hook [A].
5. Sensor base [B] (☞ x 1)
6. Paper end sensor (bypass) [C] (hooks)

1.3.2 BY-PASS FEED ROLLER

1. Duplex unit (☞ Duplex Unit)
2. By-pass Tray (☞ By-pass Tray)
3. Right door cover (☞ Right Door Cover)
4. Sensor base (☞Paper End Sensor (Bypass))

Duplex Unit
AD3000
D369



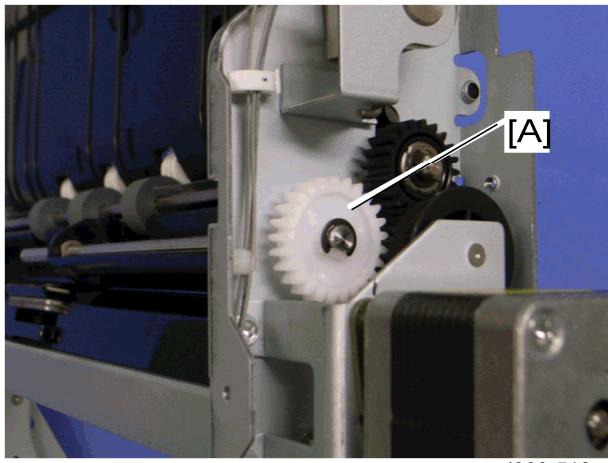
d369r515

By-pass Unit

5. By-pass feed roller [A] (hook)

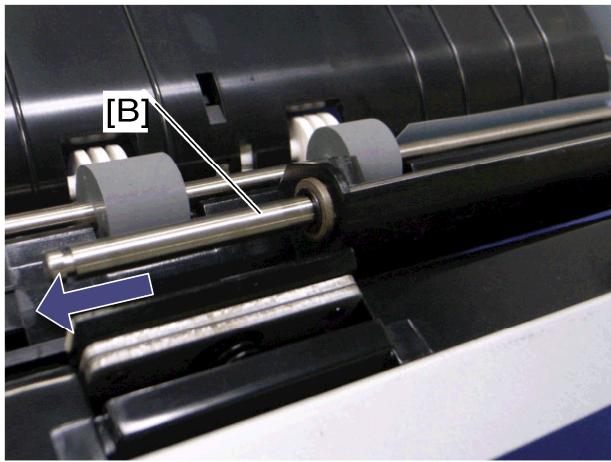
1.3.3 SEPARATION PAD

1. Duplex unit (Duplex Unit)
2. By-pass Tray (By-pass Tray)
3. Right door cover (Right Door Cover)
4. By-pass feed roller (By-pass Feed Roller)
5. By-pass transport motor bracket (By-pass Transport Motor)



d369r516

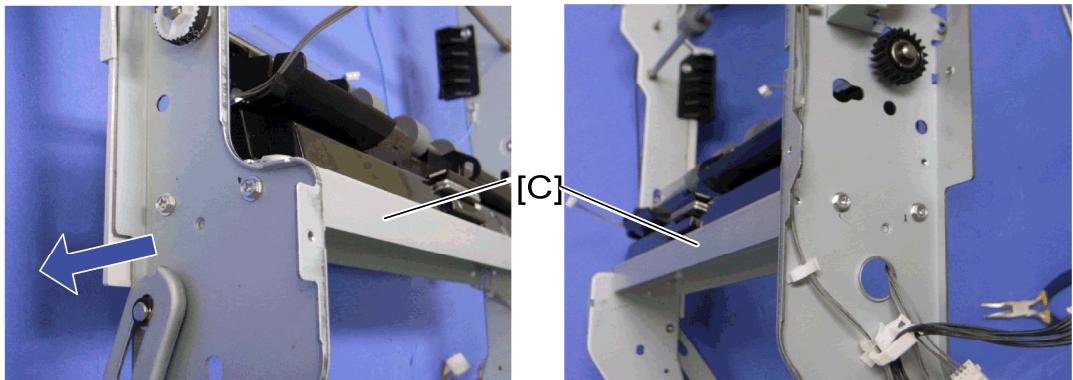
6. By-pass feed gear [A] (C x 1, bushing x 1)



d369r517

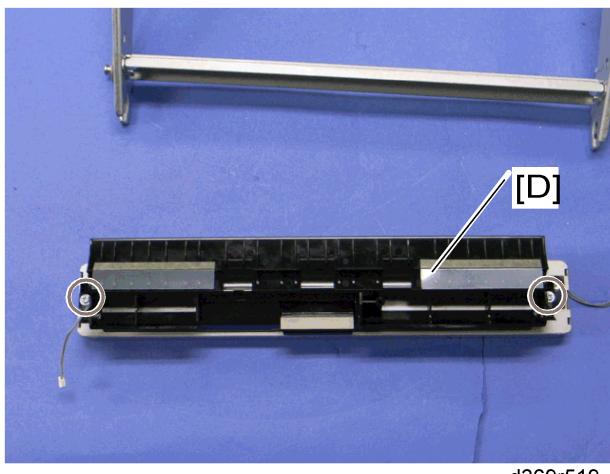
7. By-pass feed shaft [B] (C x 1, bushing x 1)

By-pass Unit



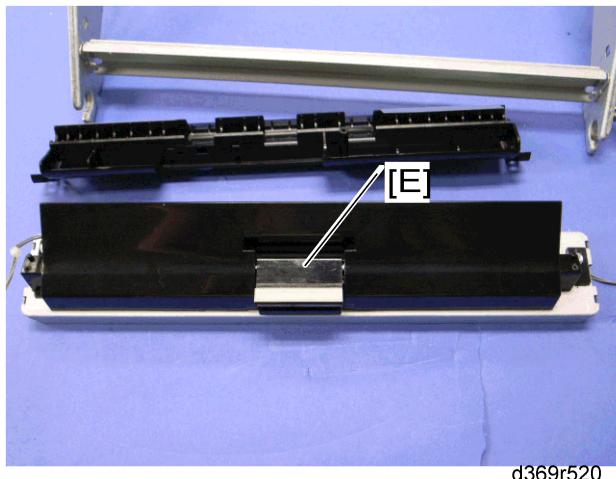
d369r518

8. By-pass tray bar [C] (x 4, x 1, x 1)



d369r519

9. Paper guide [D] (x 2)



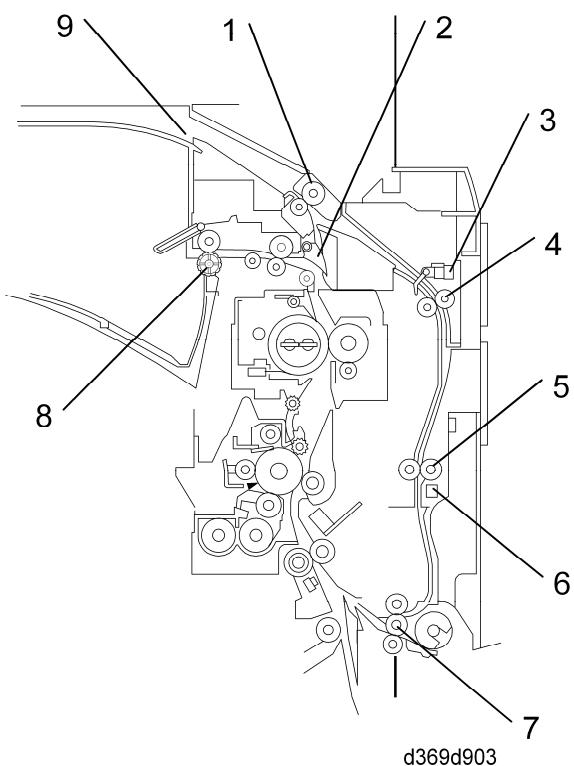
Duplex Unit
AD3000
D369

1. Separation pad [E] (hook x 2, spring x 1)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

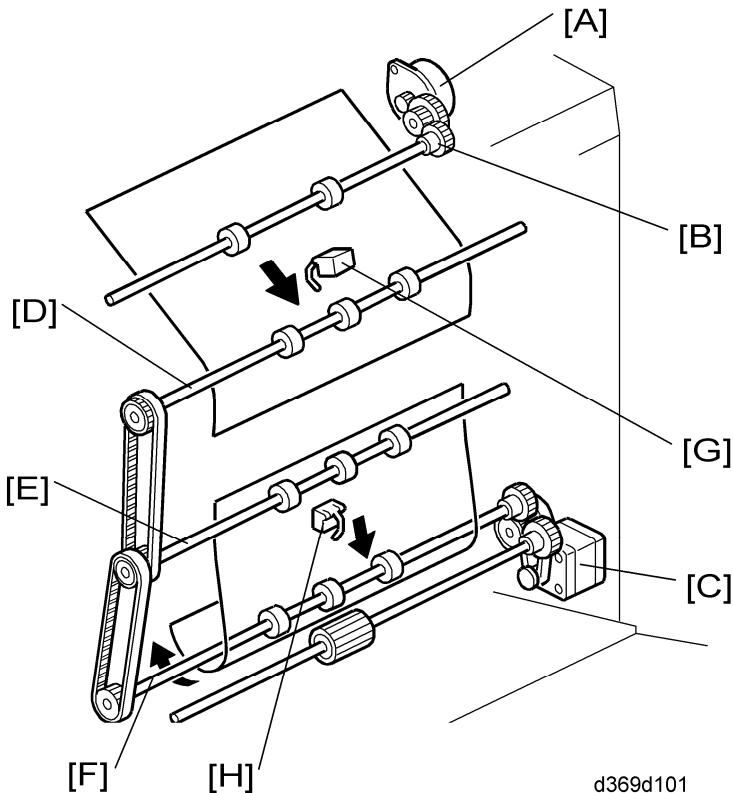
2.1.1 MECHANICAL COMPONENT



| | |
|--------------------------------|------------------------------|
| 1. Paper exit/ inverter roller | 6. Duplex exit sensor |
| 2. Junction gate | 7. Duplex transport roller 3 |
| 3. Duplex entrance sensor | 8. Standard tray |
| 4. Duplex transport roller 1 | 9. Inverter tray |
| 5. Duplex transport roller 2 | |

- To print on the second side, the paper exit/ inverter roller inverts the paper from the fusing unit and feeds it to the duplex unit.
- The duplex unit feeds the inverted paper back to the paper feed section.
- When both sides have been printed, the duplex inverter unit feeds the paper out to the standard tray.

2.1.2 DUPLEX DRIVE



d369d101

The interchange motor [A] drives the following:

- Paper exit/ inverter roller [B]

The duplex/bypass motor [C] drives the following:

- Duplex transport roller 1 [D]
- Duplex transport roller 2 [E]
- Duplex transport roller 3 [F]

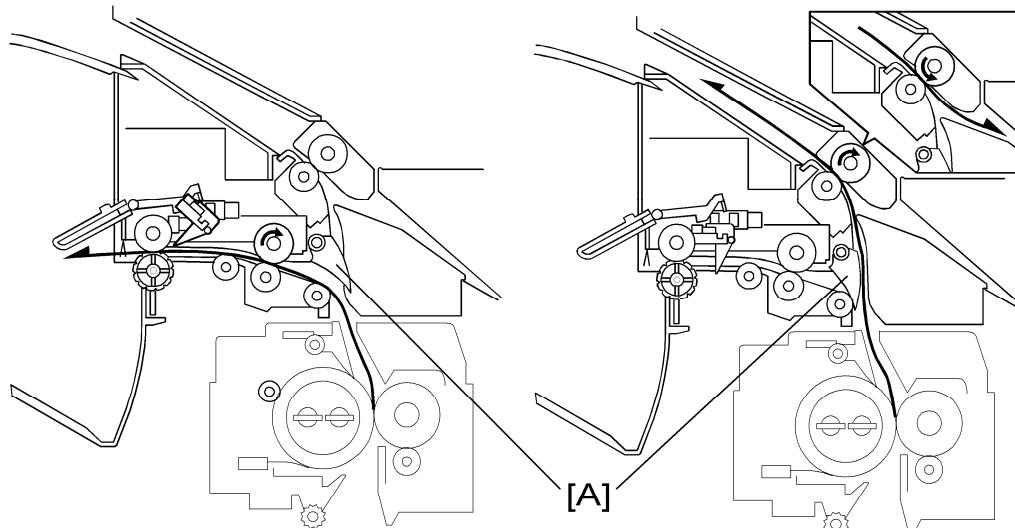
The duplex entrance sensor [G] and duplex exit sensor [H] control the interleave movement and detect paper jams.

Duplex Unit
AD3000
D369

Overview

2.2 OVERVIEW

2.2.1 INVERTER MECHANISM



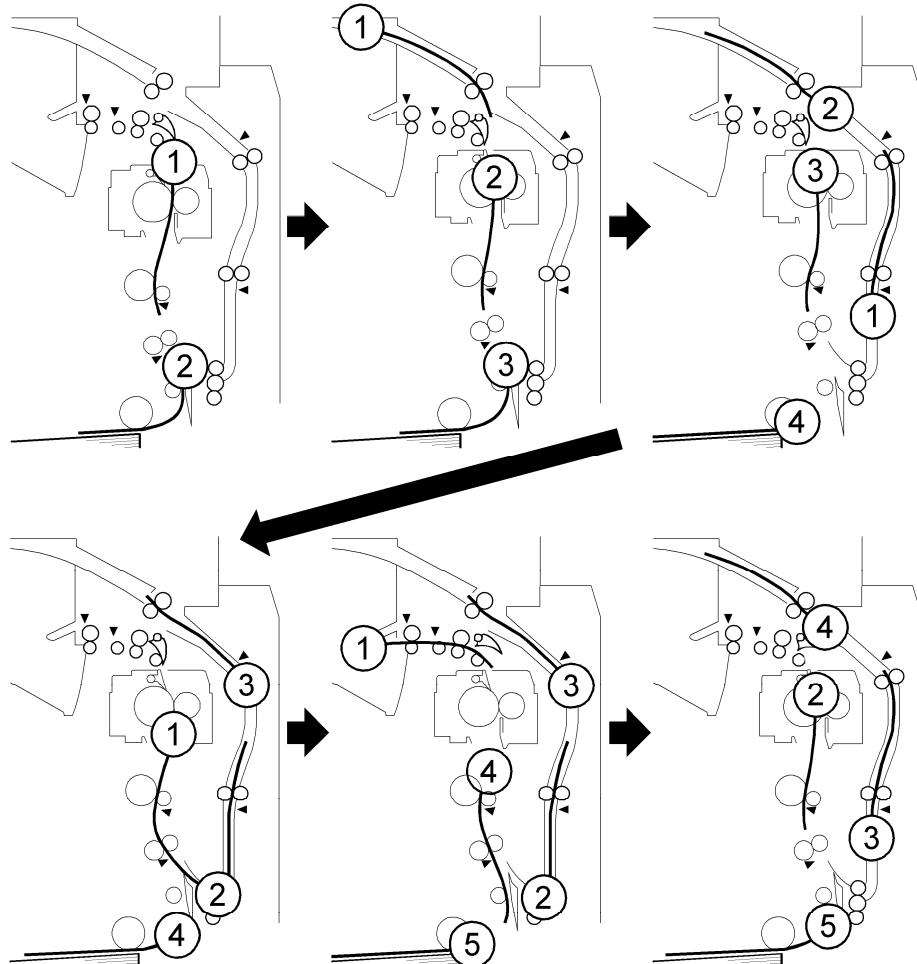
d369d138-9

This machine uses the above switch back system for duplex printing. The drawing above right shows the paper feed for duplex printing.

The junction gate solenoid, which is in the interchange unit, opens or closes the junction gate [A]. If the duplex mode is selected, the junction gate closes the exit path and opens the duplex inverter path.

2.2.2 DUPLEX OPERATION

Up to A4/LT (8½" x 11") LEF

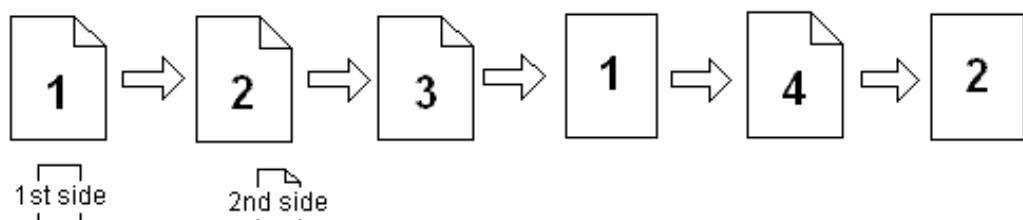


d369d162

Duplex Unit
AD3000
D369

There are three sheets of paper in the paper feed path at the same time. The interleave method is used.

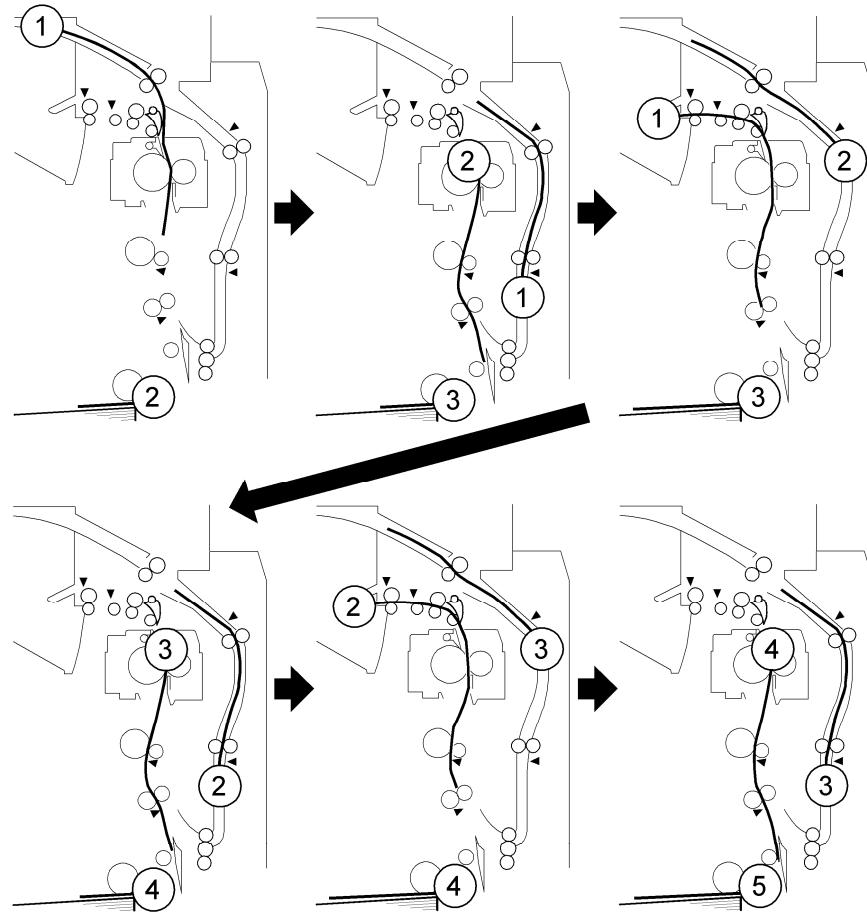
The drawing above shows the paper movement with the interleave method for three sheets of paper. The printing is done as follows:



b230d921

Overview

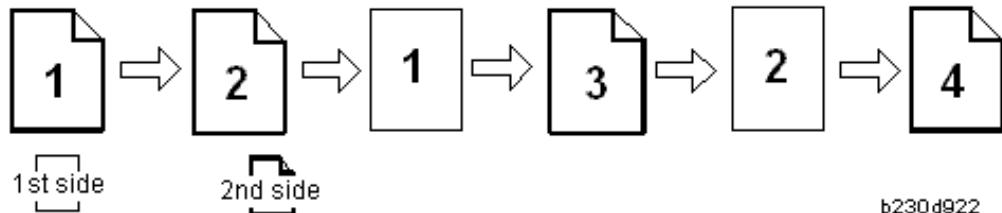
From A4/LT (8½" x 11") LEF to 400mm length



d369d162a

There are two sheets of paper in the paper feed path at the same time. The interleave method is used. For sheets longer than 400 mm, there is no interleaving.

The drawing above shows the paper movement with the interleave method for two sheets of paper. The printing is done as follows:



b230d922

BYPASS TRAY BY3000

D370

BYPASS TRAY BY3000 D370

TABLE OF CONTENTS

| | |
|--|----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 TRAY | 1 |
| 1.1.1 BY-PASS TRAY UNIT | 1 |
| 1.1.2 BY-PASS TRAY | 1 |
| 1.2 ELECTRICAL COMPONENTS | 3 |
| 1.2.1 PAPER SIZE SENSOR (BYPASS) | 3 |
| 1.2.2 PAPER END SENSOR (BYPASS) | 4 |
| 1.2.3 BY-PASS TRAY MOTOR..... | 5 |
| 1.3 FEED | 6 |
| 1.3.1 BY-PASS FEED ROLLER..... | 6 |
| 1.3.2 SEPARATION PAD | 6 |
| 2. DETAILED SECTION DESCRIPTIONS..... | 8 |
| 2.1 COMPONENT LAYOUT | 8 |
| 2.1.1 COMPONENT LAYOUT | 8 |
| 2.2 OVERVIEW..... | 9 |
| 2.2.1 BASIC OPERATION | 9 |
| 2.2.2 BY-PASS PAPER SIZE DETECTION..... | 9 |

Read This First

Safety and Symbols

REPLACEMENT PROCEDURE SAFETY

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

: See or Refer to

: Screws

: Connector

: Clip ring

: E-ring

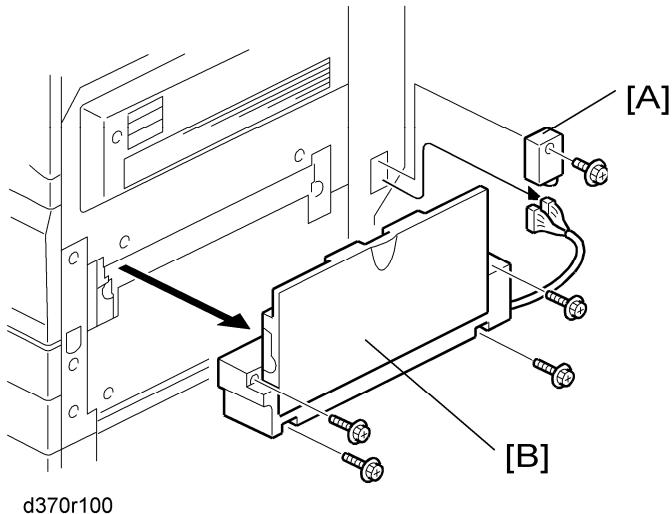
: Clamp

1. REPLACEMENT AND ADJUSTMENT

1.1 TRAY

1.1.1 BY-PASS TRAY UNIT

Basic Model



1. Connector cover [A] (x 1)
2. By-pass tray unit [B] (x 4, x 2)

Duplex Model

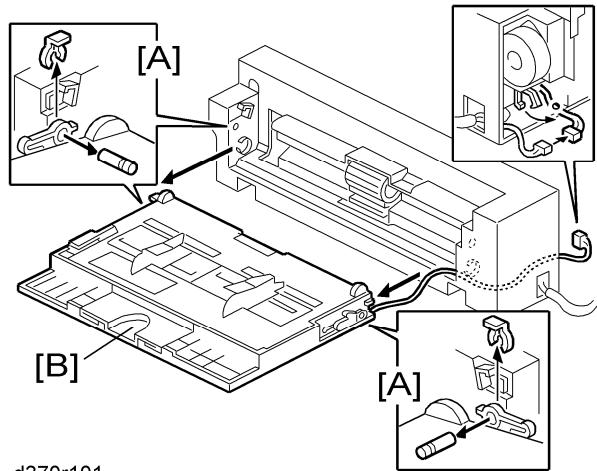
1. Remove the connector cover (x 1).
2. Disconnect the cable.
3. Release the front and rear link (x 1).
4. Remove the duplex unit.
5. Remove the inner rear cover (x 2).
6. Remove the paper guide unit
7. Disconnect the by-pass tray cable (x 1).
8. Remove the front and rear pins (x 1 each).
9. By-pass tray unit

Bypass Tray
BY3000
D370

1.1.2 BY-PASS TRAY

1. By-pass tray unit (By-pass Tray Unit)

Tray



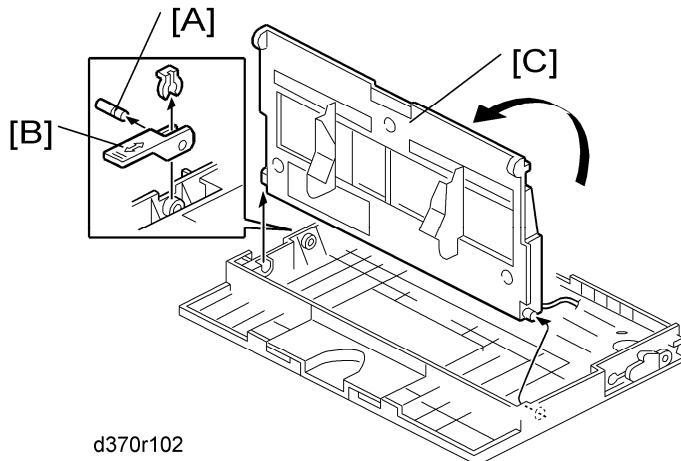
d370r101

2. Remove the pins [A] (\varnothing x 1 each).
3. By-pass tray [B] (\square x 1)

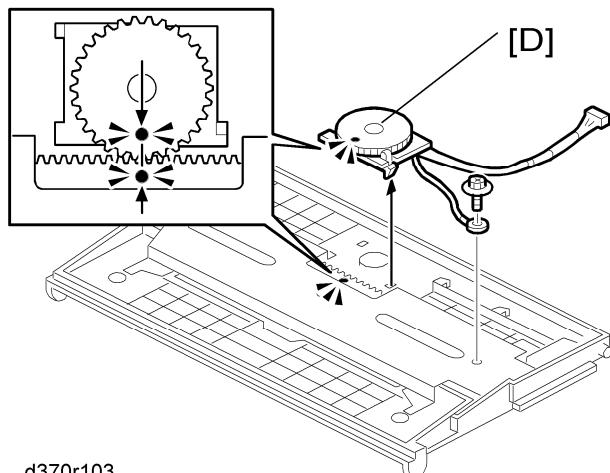
1.2 ELECTRICAL COMPONENTS

1.2.1 PAPER SIZE SENSOR (BYPASS)

1. By-pass tray unit (☞ By-pass Tray Unit)
2. By-pass tray (☞ Paper Tray)



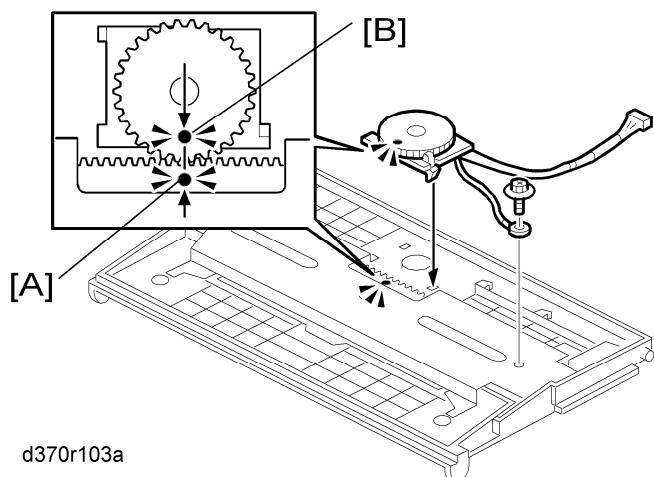
3. Pin [A] (Ø x 1)
4. Pin cover [B]
5. By-pass tray top cover [C]



6. Paper size sensor (bypass) [D] (hook, Ø x 1, ground cable x 1)

Electrical Components

When reinstalling this switch



1. Adjust the projection [A] of the left side fence bar (it must be centered).
2. Install the by-pass paper size detection switch so that the hole [B] in this switch faces the projection [A] of the left side fence bar.
3. Reassemble the copier.
4. Plug in and turn on the main power switch.
5. Check this switch operation with SP5803-030 (By-pass paper size < Input Check).

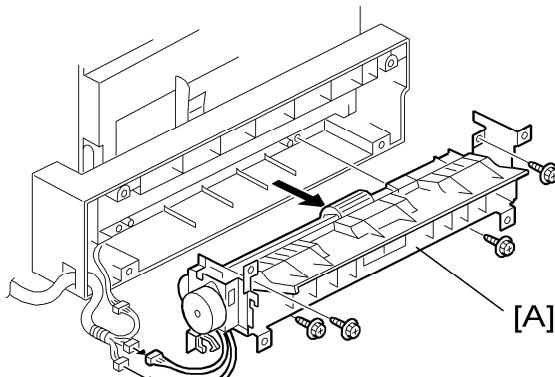
Display on the LCD

| Paper Size | Display | Paper Size | Display |
|------------|----------|------------|----------|
| A3 SEF | 10010000 | B5 SEF | 11100000 |
| B4 SEF | 11010000 | B6 SEF | 00110000 |
| A4 SEF | 11000000 | A6 SEF | 10110000 |

1.2.2 PAPER END SENSOR (BYPASS)

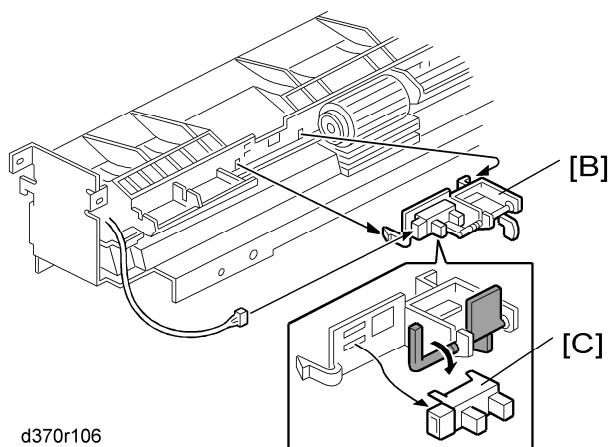
1. By-pass tray unit (☞ By-pass Tray Unit)

Electrical Components



d370r104

2. By-pass feed unit [A] (x 4, x 1, x 2)



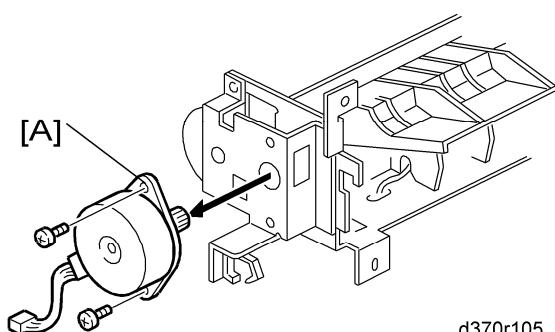
d370r106

3. Sensor base [B] (x 1, hooks)
4. Paper end sensor (bypass) [C] (hooks)

1.2.3 BY-PASS TRAY MOTOR

1. By-pass tray unit (By-pass Tray Unit)
2. By-pass feed unit (Paper End Sensor (Bypass))

Bypass Tray
BY3000
D370



d370r105

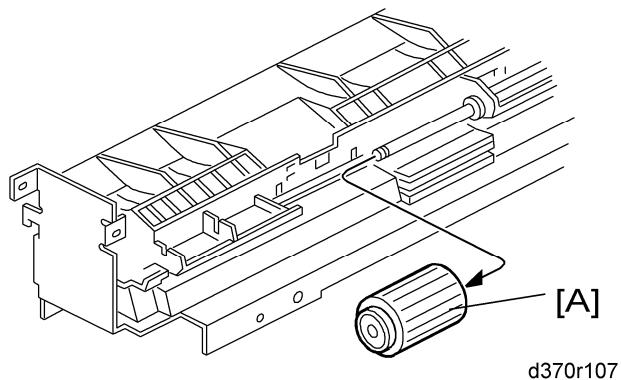
3. By-pass tray motor [A] (x 2)

Feed

1.3 FEED

1.3.1 BY-PASS FEED ROLLER

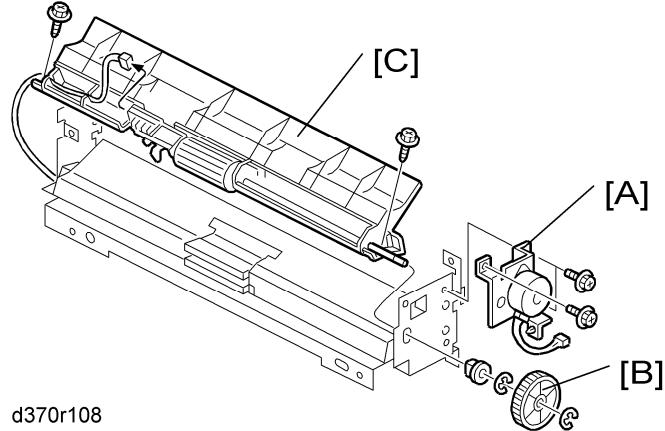
1. By-pass tray unit (☞ By-pass Tray Unit)
2. By-pass paper feed unit (☞ Paper End Sensor (Bypass))
3. Sensor base (☞ Paper End Sensor (Bypass))



4. By-pass feed roller [A]

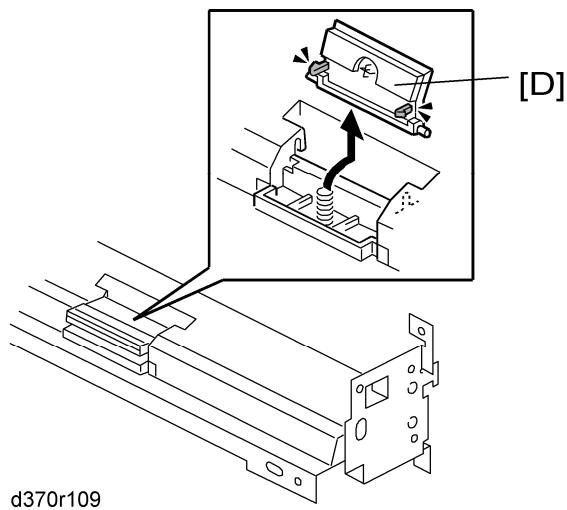
1.3.2 SEPARATION PAD

1. By-pass tray unit (☞ By-pass Tray Unit)
2. By-pass paper feed unit (☞ Paper End Sensor (Bypass))



3. By-pass tray motor bracket [A] (☞ x 3)
4. Gear [B] (☞ x 2, bushing x 1)
5. Paper guide unit [C] (☞ x 2, ☞ x 1)

Feed



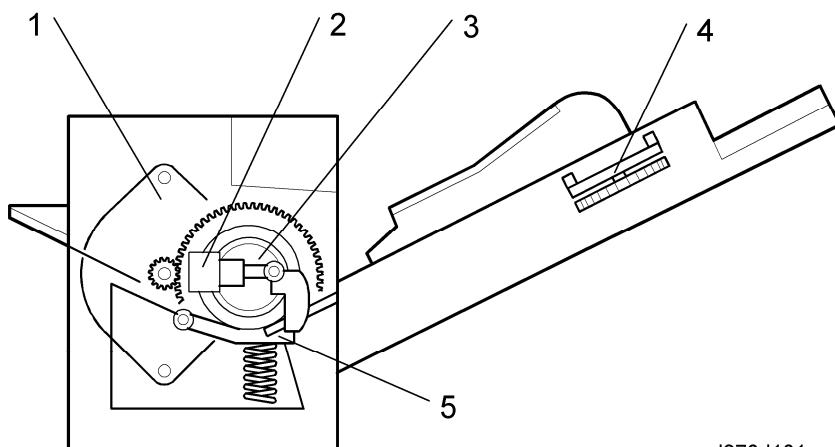
6. Separation pad [D] (spring x 1)

Bypass Tray
BY3000
D370

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

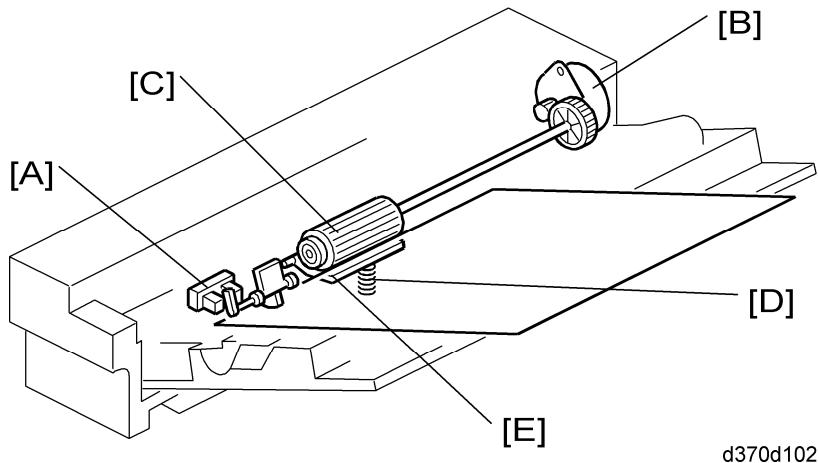
2.1.1 COMPONENT LAYOUT



| Component | Description |
|-------------------------------|--|
| 1. By-pass Tray Motor | Drives the paper feed roller. |
| 2. Paper End Sensor (Bypass) | Informs the copier/printer when the by-pass tray runs out of paper. |
| 3. By-pass Feed Roller | Feeds paper from the by-pass tray. |
| 4. Paper Size Sensor (Bypass) | Detects the paper width. |
| 5. Separation Pad | Separates a sheet of paper from the paper stack on the by-pass tray. |

2.2 OVERVIEW

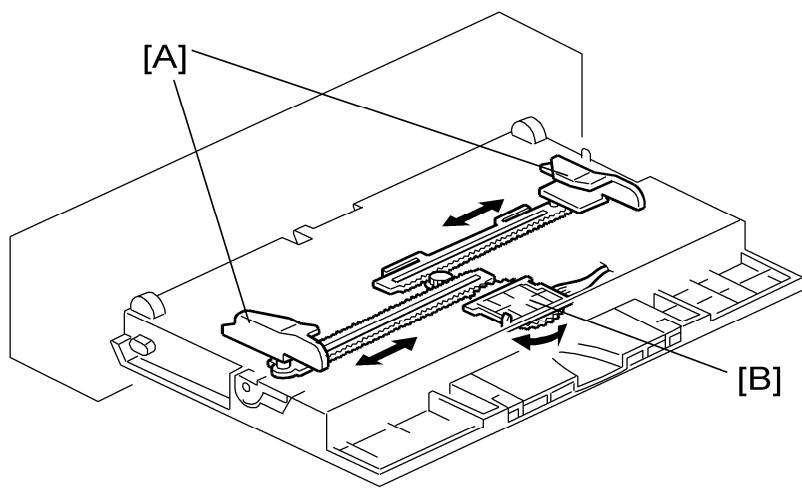
2.2.1 BASIC OPERATION



When the paper end sensor [A] detects paper and the machine gets a by-pass printing job, the by-pass tray motor [B] starts to rotate the by-pass feed roller [C] via the gear.

The by-pass tray has the separation pad system. The spring [D] under the separation pad [E] pushes the paper against the feed roller. As a result, the by-pass feed roller [C] and separation pad [E] feed the top sheet of paper stack on the by-pass tray.

2.2.2 BY-PASS PAPER SIZE DETECTION



Bypass Tray
BY3000
D370

There are two paper side plates [A] on the by-pass tray. These connect with the paper size sensor [B] through a rack-and-pinion mechanism.

Overview

The pattern for each paper width is unique. Therefore, the copier/printer determines which paper has been placed in the bypass tray by the signal output from the board. However, the copier cannot determine the paper length from the by-pass tray hardware.

Display on the LCD

| Paper Size | Display | Paper Size | Display |
|-------------------|----------------|-------------------|----------------|
| A3 SEF | 10010000 | B5 SEF | 11100000 |
| B4 SEF | 11010000 | B6 SEF | 00110000 |
| A4 SEF | 11000000 | A6 SEF | 10110000 |

INTERCHANGE UNIT TYPE 3350

D371

INTERCHANGE UNIT TYPE 3350

D371

TABLE OF CONTENTS

| | |
|--|----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 ELECTRICAL COMPONENT..... | 1 |
| 1.1.1 INTERCHANGE MOTOR..... | 1 |
| 1.1.2 JUNCTION GATE JAM SENSOR..... | 2 |
| 2. DETAILED SECTION DESCRIPTIONS..... | 3 |
| 2.1 COMPONENT LAYOUT | 3 |
| 2.1.1 MECHANICAL COMPONENT LAYOUT | 3 |
| 2.1.2 DRIVE LAYOUT..... | 4 |
| 2.2 JUNCTION GATE MECHANISM | 5 |

Read This First

Safety and Symbols

REPLACEMENT PROCEDURE SAFETY

CAUTION

- Turn off the main power switch and unplug the machine before beginning any of the replacement procedures in this manual.

Symbols Used in this Manual

This manual uses the following symbols.

: See or Refer to

: Screws

: Connector

: Clip ring

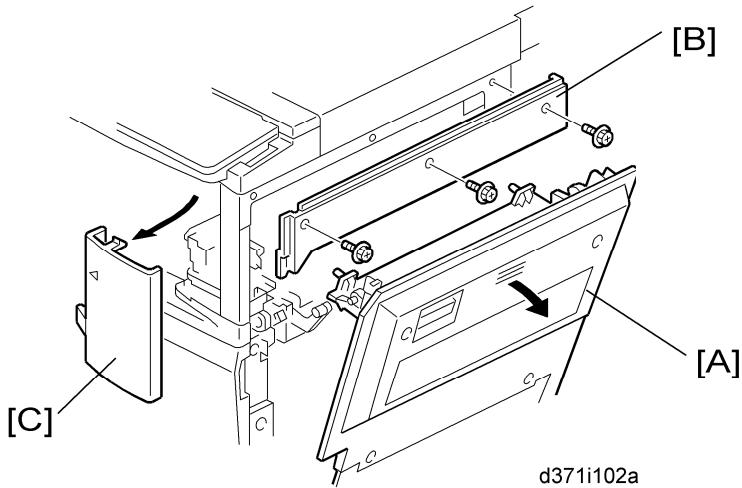
: E-ring

: Clamp

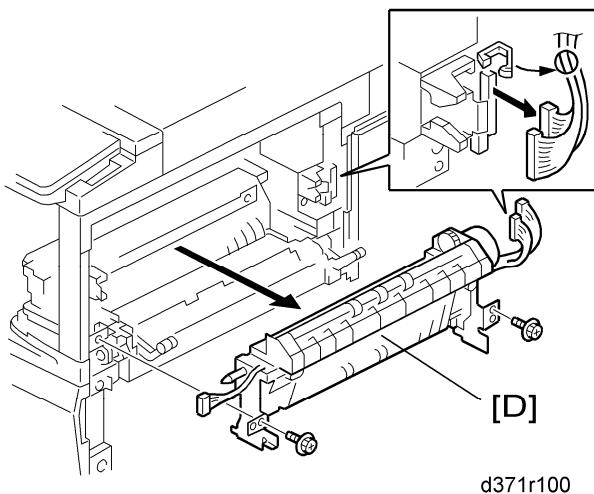
1. REPLACEMENT AND ADJUSTMENT

1.1 ELECTRICAL COMPONENT

1.1.1 INTERCHANGE MOTOR



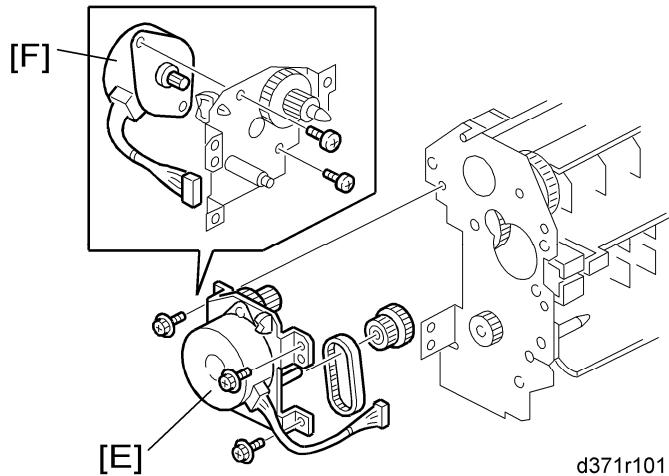
1. Open the right cover [A] or right door if the duplex unit is installed.
2. Right upper cover [B] (\wedge x 3)
3. Front right cover [C] (hook)



4. Interchange unit [D] (\wedge x 2, \square x 2 or 3 (if 1-bin unit is installed))

Interchange
Unit Type
3350
D371

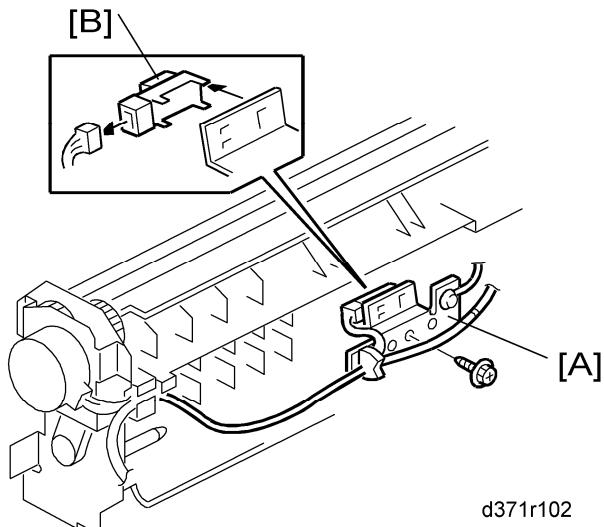
Electrical Component



5. Interchange motor bracket [E] (\wedge x 3, gear x 1, timing belt x 1)
6. Interchange motor [F] (\wedge x 2)

1.1.2 JUNCTION GATE JAM SENSOR

1. Interchange unit (\rightarrow Interchange Motor)

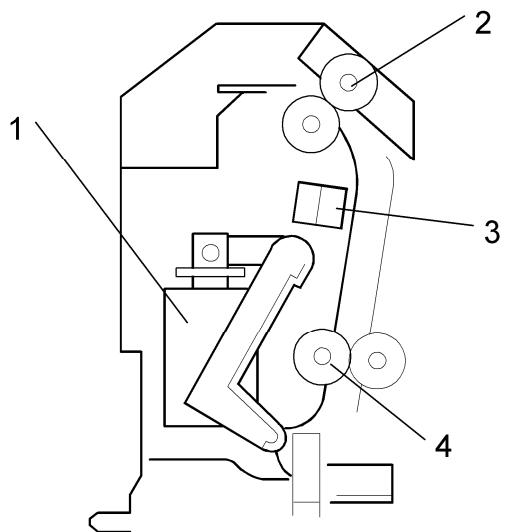


2. Sensor bracket [A] (\wedge x 1)
3. Junction gate jam sensor [B] (\square x 1, hooks)

2. DETAILED SECTION DESCRIPTIONS

2.1 COMPONENT LAYOUT

2.1.1 MECHANICAL COMPONENT LAYOUT



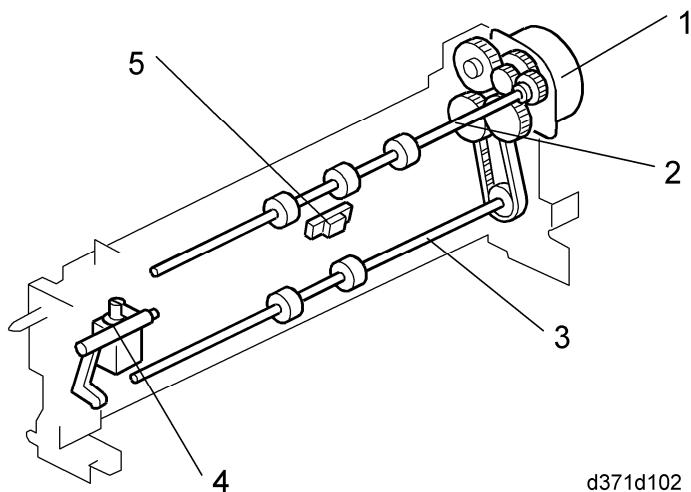
d371d101

Interchange
Unit Type
3350
D371

- | | |
|--------------------------------|-----------------------------|
| 1. Junction Gate Solenoid | 3. Junction Gate Jam Sensor |
| 2. Paper Exit/ Inverter Roller | 4. Paper Transport Roller |

Component Layout

2.1.2 DRIVE LAYOUT

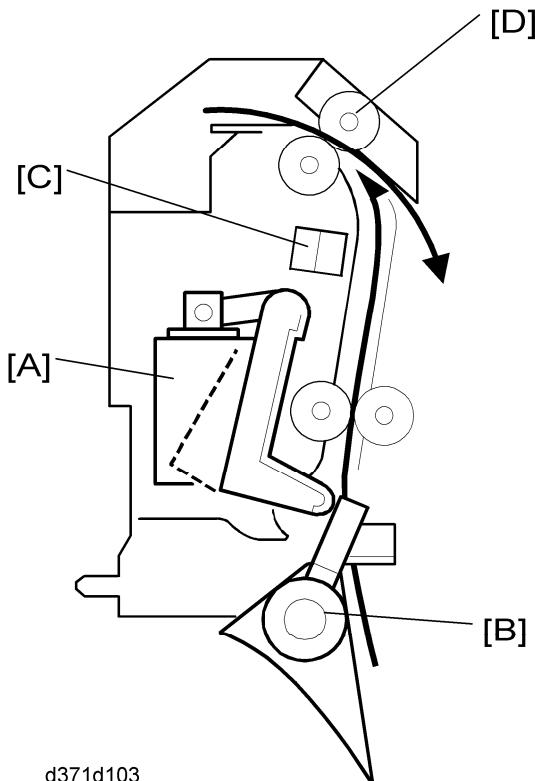


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| | |
|--------------------------------|-----------------------------|
| 1. Interchange Motor | 4. Junction Gate Solenoid |
| 2. Paper Exit/ Inverter Roller | 5. Junction Gate Jam Sensor |
| 3. Paper Transport Roller | |

The interchange motor drives the paper exit/inverter roller and paper transport roller through the gears and timing belt. This motor exits paper to the 1-bin tray if it is installed and 1-bin tray is selected as an output location. However, this motor also transports paper to the duplex path if the duplex unit is installed and the machine gets a duplex job.

2.2 JUNCTION GATE MECHANISM



d371d103

Depending on the selected mode, the copies are directed to the output tray/ bridge unit path or 1-bin tray/duplex path by the exit junction gate [A]. These are controlled by the junction gate solenoid [B].

| | |
|-------------|-----------|
| Interchange | Unit Type |
| 3350 | D371 |

- **To the Exit Tray or Bridge Unit**

The exit junction gate solenoid stays off and the paper is directed to the copier exit unit.

- **To the 1-bin Tray**

The junction gate solenoid turns on. The paper is directed to the 1-bin tray.

- **To the Duplex Unit**

The junction gate solenoid turns on. When the junction gate jam sensor [C] detects a trailing edge of a sheet of paper, the machine stops the paper exit/inverter roller [D] and then drives its roller reversely. As a result, a sheet of paper is transported to the duplex path.

500-SHEET FINISHER SR3050

D372

500-SHEET FINISHER SR3050 D372

TABLE OF CONTENTS

| | |
|---|-----------|
| 1. REPLACEMENT AND ADJUSTMENT | 1 |
| 1.1 COMMON PROCEDURES | 1 |
| 1.1.1 DISCONNECTING, REMOVING THE FINISHER..... | 1 |
| 1.1.2 FRONT COVER..... | 2 |
| 1.1.3 REAR COVER | 2 |
| 1.1.4 TRANSPORT UNIT | 3 |
| 1.2 SENSORS | 6 |
| 1.2.1 ENTRANCE SENSOR | 6 |
| 1.2.2 PAPER SENSOR..... | 6 |
| 1.3 MOTORS | 8 |
| 1.3.1 TRAY LIFT MOTOR..... | 8 |
| 1.3.2 TRANSPORT MOTOR..... | 8 |
| 1.3.3 POSITIONING ROLLER ARM MOTOR | 9 |
| 1.3.4 STAPLER MOVEMENT MOTOR..... | 10 |
| 1.3.5 FRONT FENCE MOTOR | 11 |
| 1.3.6 FEED-OUT BELT MOTOR, REAR FENCE MOTOR | 11 |
| 1.4 BOARDS | 13 |
| 1.4.1 MAIN BOARD | 13 |
| 1.5 OTHERS | 14 |
| 1.5.1 STAPLER..... | 14 |
| 1.5.2 POSITIONING ROLLER | 14 |
| 2. DETAILED SECTION DESCRIPTIONS..... | 16 |
| 2.1 OVERVIEW..... | 16 |
| 2.1.1 IMPORTANT PARTS | 16 |
| 2.1.2 EXTERNAL DIMENSIONS | 17 |
| 2.1.3 GENERAL OPERATION..... | 17 |
| 2.1.4 INITIALIZATION: WHAT HAPPENS AT POWER ON..... | 19 |
| 2.2 PAPER TRANSPORT | 21 |
| 2.2.1 OVERVIEW..... | 21 |
| 2.2.2 TRANSPORT ROLLERS | 22 |

| | |
|---|-----------|
| 2.2.3 POSITIONING ROLLER | 23 |
| 2.2.4 POSITIONING ROLLER INITIALIZATION | 25 |
| 2.3 JOGGING (PAPER ALIGNMENT) | 26 |
| 2.3.1 OVERVIEW..... | 26 |
| 2.3.2 SIDE FENCE OPERATION | 27 |
| 2.3.3 SIDE FENCE INITIALIZATION | 30 |
| 2.3.4 SIDE FENCE MOTOR ERRORS..... | 30 |
| 2.3.5 SIDE FENCE OPERATION ADJUSTMENT | 31 |
| 2.4 STAPLING | 33 |
| 2.4.1 OVERVIEW..... | 33 |
| 2.4.2 STAPLER MOVEMENT MOTOR INITIALIZATION | 35 |
| 2.4.3 STAPLER ERRORS | 36 |
| 2.5 PAPER OUTPUT | 37 |
| 2.5.1 OVERVIEW..... | 37 |
| 2.5.2 FEED-OUT..... | 40 |
| 2.5.3 FEED-OUT BELT INITIALIZATION | 41 |
| 2.5.4 FEED-OUT BELT ERRORS | 41 |
| 2.5.5 FEED-OUT EXTENSION..... | 42 |
| 2.6 TRAY OPERATION | 44 |
| 2.6.1 OVERVIEW..... | 44 |
| 2.6.2 TRAY LIFT CONTROL..... | 45 |
| 2.6.3 TRAY INITIALIZATION | 48 |
| 2.6.4 TRAY LIFT ERRORS..... | 49 |
| 2.7 ELECTRICAL COMPONENTS | 51 |
| 2.7.1 COMPONENT LAYOUT | 51 |
| 2.7.2 SUMMARY OF ELECTRICAL COMPONENTS | 52 |
| 2.7.3 TIMING CHARTS..... | 55 |
| 2.7.4 ERROR LIST | 56 |
| 3. SPECIFICATIONS..... | 62 |
| 3.1 SPECIFICATIONS | 62 |

Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the printer and peripherals, make sure that the printer and peripheral power cords are unplugged.
2. The power source should be near the printer and easily accessible.
3. Note that some components of the printer and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the Start key is pressed before the copier completes the warm-up period (the Start key starts blinking red and green alternatively), keep hands away from the mechanical and the electrical components as the copier starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the printer is operating. Be careful to avoid touching those components with your bare hands.
7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

HEALTH SAFETY CONDITIONS

1. Never operate the copier without the ozone filters installed.
2. Always replace the ozone filters with the specified ones at the specified intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The copier and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with

local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

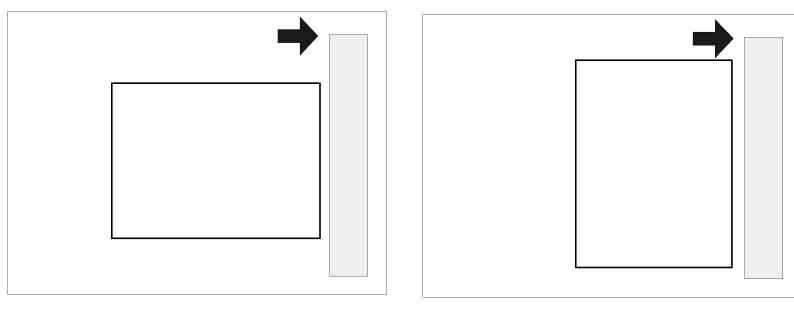
⚠ CAUTION

- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

CONVENTIONS AND TRADEMARKS

CONVENTIONS

| Symbol | What it means |
|---|-------------------------|
|  | Core Tech Manual |
|  | Screw |
|  | Connector |
|  | E-ring |
|  | C-ring |
|  | Clamp |
| FFC | Flexible Film Connector |



The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.

WARNINGS, CAUTIONS, NOTES

In this manual, the following important symbols and notations are used.

⚠ WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

⚠ CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property

★ Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

↓ Note

- This information provides tips and advice about how to best service the machine.

Trademarks

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- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.
- PowerPC® is a registered trademark of International Business Machines Corporation.
- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

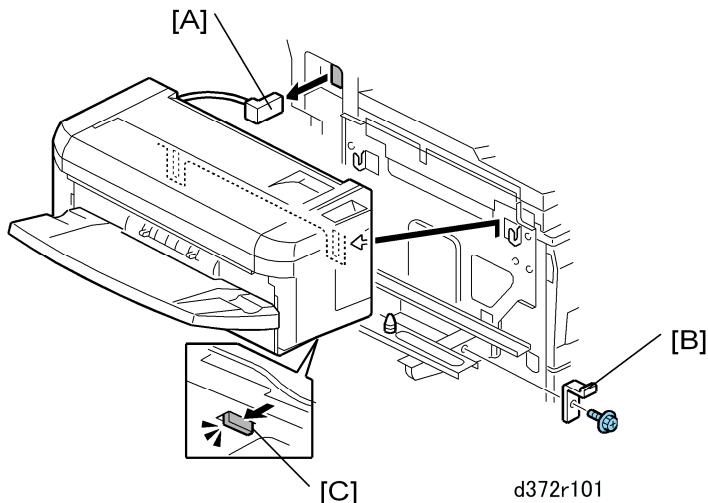
1. REPLACEMENT AND ADJUSTMENT

1.1 COMMON PROCEDURES

1.1.1 DISCONNECTING, REMOVING THE FINISHER

 **Important**

- The finisher must be removed from the machine for these procedures. The front and rear covers cannot be removed while the finisher is attached to the side of the machine.

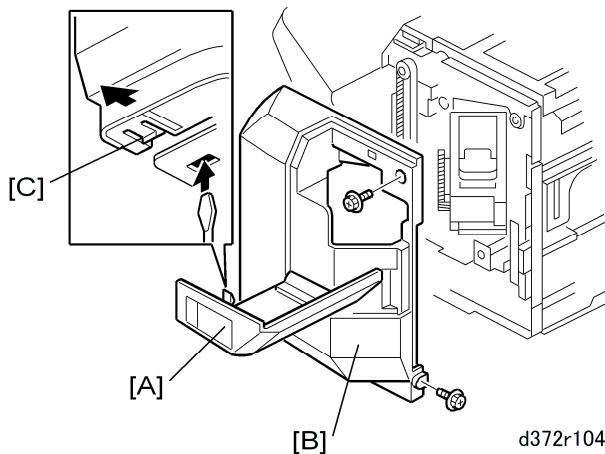


500-Sheet
Finisher
D372

- Disconnect the finisher I/F cable [A] on the left side of the machine.
- Remove the lock plate [B] ( x1).
- Press the spring release [C] toward the rear of the finisher, then lift the finisher off its center post.

Common Procedures

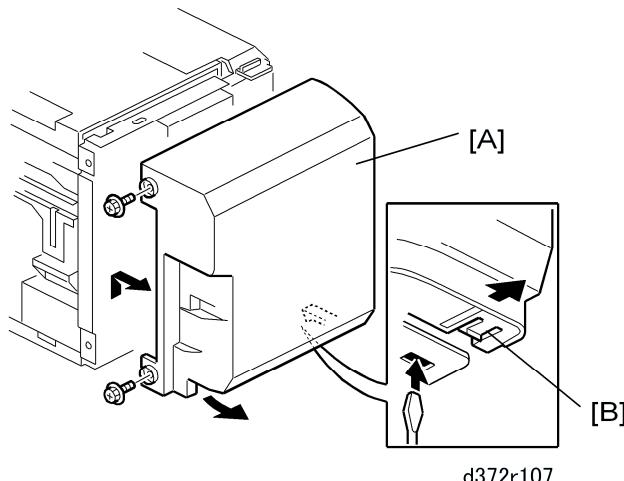
1.1.2 FRONT COVER



Preparation

- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
1. Open the stapler door [A].
 2. Remove the front cover [B] (\wedge x2)
Release tab [C] after removing the screws, then raise the bottom of the front cover to remove it.

1.1.3 REAR COVER



Preparation

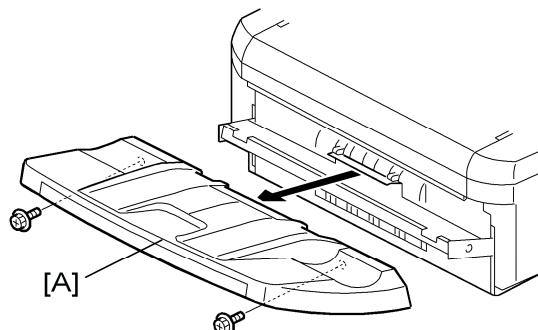
- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
1. Remove the rear cover [A] (\wedge x2)
Release tab [B] after removing the screws, then raise the bottom of the rear cover to remove it.

1.1.4 TRANSPORT UNIT

Preparation

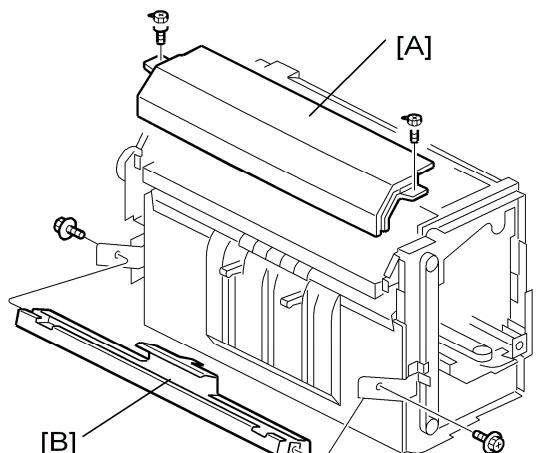
Remove:

- Front cover
- Rear cover



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1. Remove the paper output tray [A] (\wedge x2).

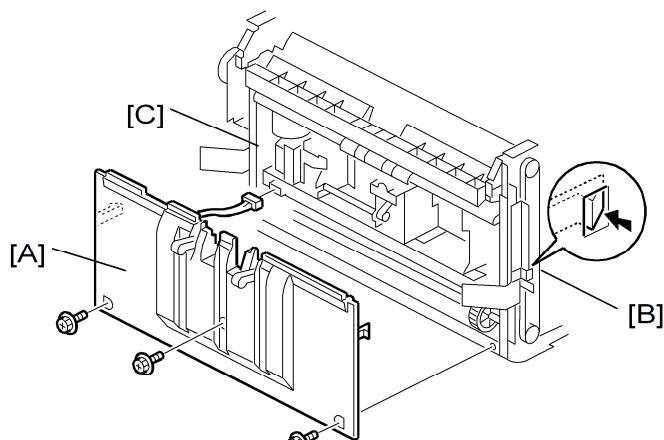


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2. Remove the left top cover [A] (\wedge x2).
3. Remove the tray support [B] (\wedge x2).

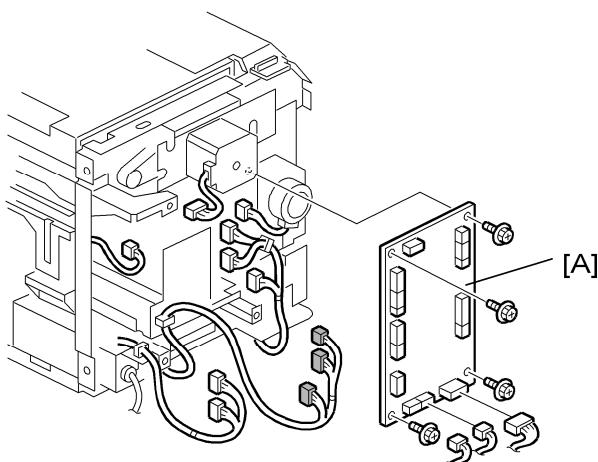
500-Sheet
Finisher
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Common Procedures



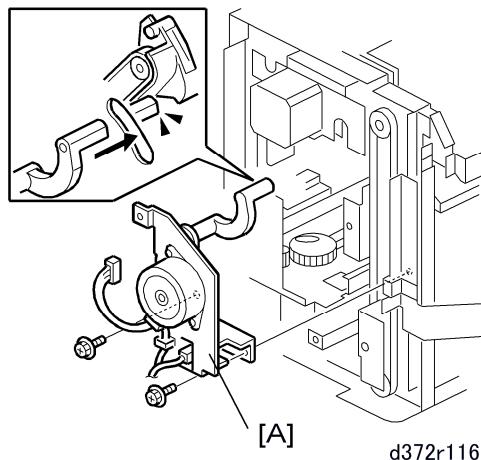
d372r115

4. Remove the screws of the end fence [A] (\wedge x3).
5. Release tabs [B] and [C].
6. Remove the end fence.



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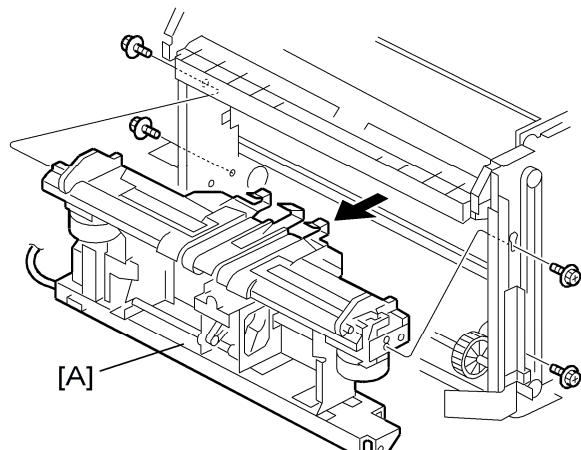
7. Remove the main board [A] (\square x 14, \wedge x4)



d372r116

Common Procedures

8. Remove the positioning roller arm motor bracket [A] (\wedge x2).



d372r117

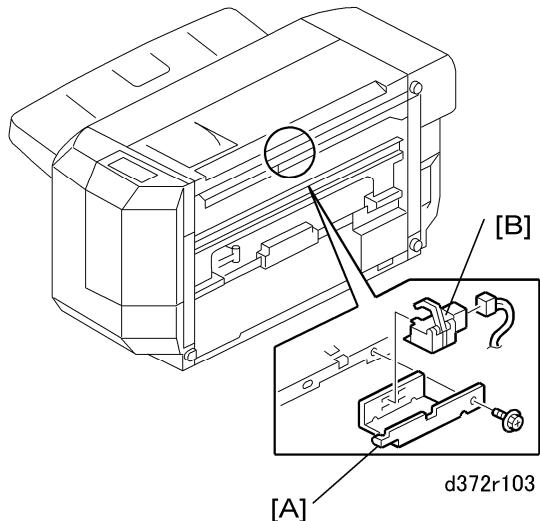
9. Remove the transport unit [A] (\wedge x3 Rear, \wedge x2 Front).

500-Sheet
Finisher
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Sensors

1.2 SENSORS

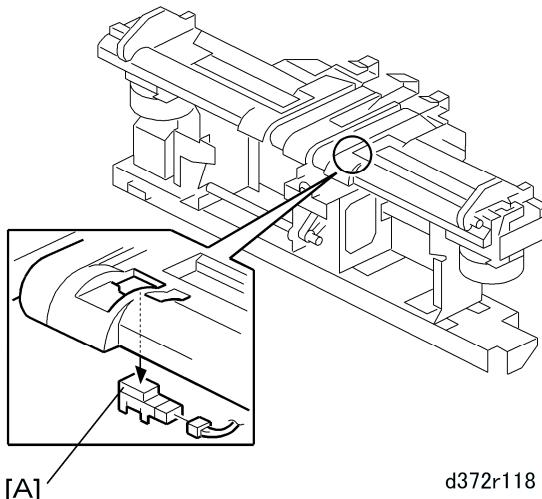
1.2.1 ENTRANCE SENSOR



Preparation

- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
1. Remove the sensor bracket [A] (x1).
 2. Disconnect the entrance sensor [B] (Pawls x4, x1).

1.2.2 PAPER SENSOR



Preparation

- Disconnect the finisher.

Sensors

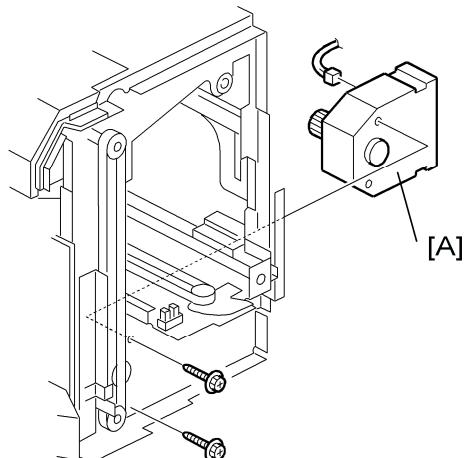
- Remove the finisher from the side of the machine.
 - Remove the transport unit
1. Disconnect the sensor [A] (☞ x1, Pawls x3, ☛ x1)

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Finisher
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Motors

1.3 MOTORS

1.3.1 TRAY LIFT MOTOR



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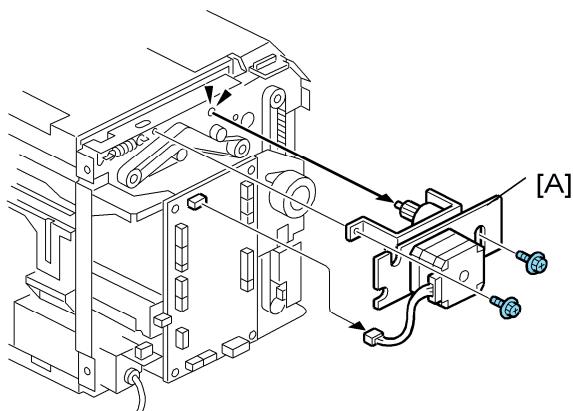
Preparation

- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
 - Remove the front cover
1. Remove the tray lift motor [A] (\wedge x2, \square x1).

1.3.2 TRANSPORT MOTOR

Preparation

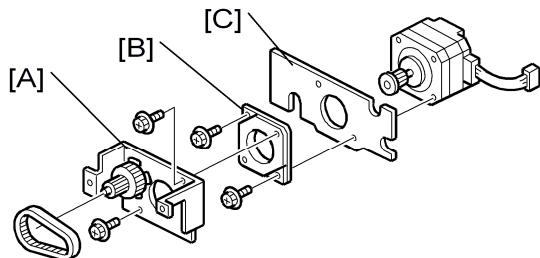
- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.



d372r110

Motors

1. Remove the motor bracket [A] (x2, x1)



d372r111

2. Remove:

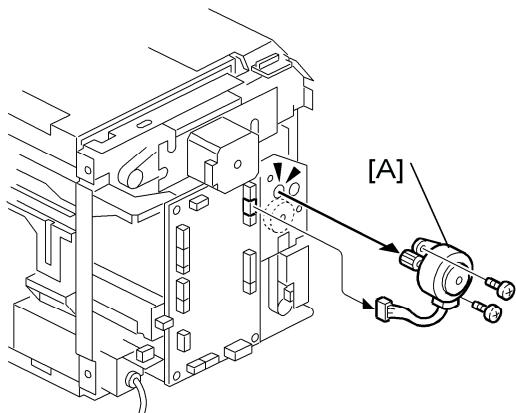
- [A] 1st bracket (Timing belt x1, x2)
- [B] 2nd bracket (x2)
- [C] 3rd bracket

Reinstallation

- After reattaching the motor, rotate its drive gear and confirm that the timing belt is set correctly.
- Rotate the motor drive gear by hand and confirm that these rollers are turning: 1) entrance roller, 2) positioning roller, and 3) return rollers. (The return rollers are the two small sponge rollers below the positioning roller.)

500-Sheet
Finisher
D372

1.3.3 POSITIONING ROLLER ARM MOTOR



d372r109

Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.

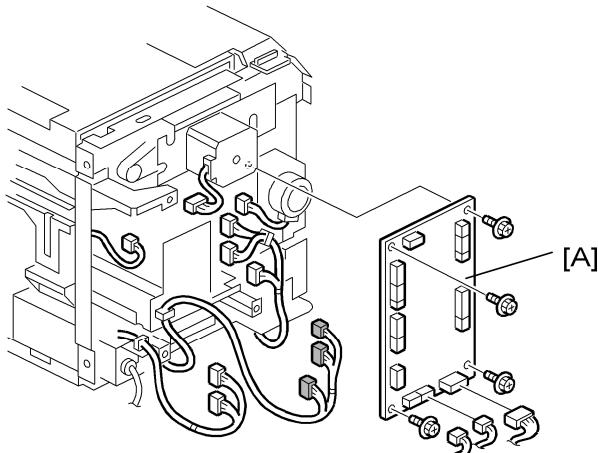
1. Remove the positioning roller arm motor [A] (x2, x1).

Motors

1.3.4 STAPLER MOVEMENT MOTOR

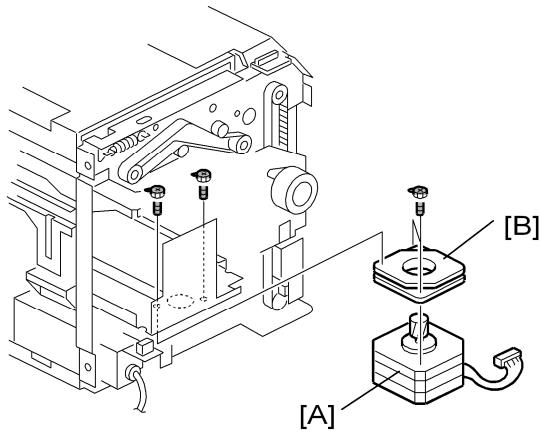
Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the rear cover.



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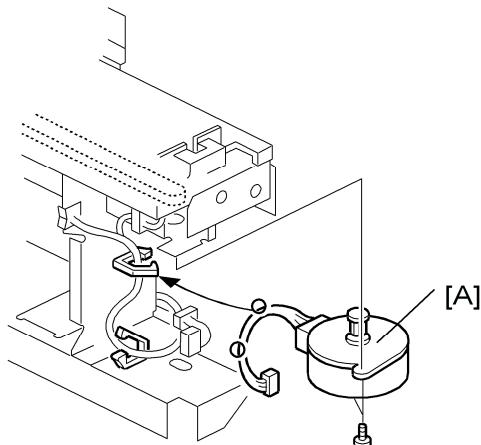
1. Remove the main board [A] (\square x 14, \wedge x4).



d372r112

2. Remove the stapler movement motor [A] (\wedge x2, \square x1).
3. Remove the bracket [B] (\wedge x2).

1.3.5 FRONT FENCE MOTOR



d372r119

Preparation

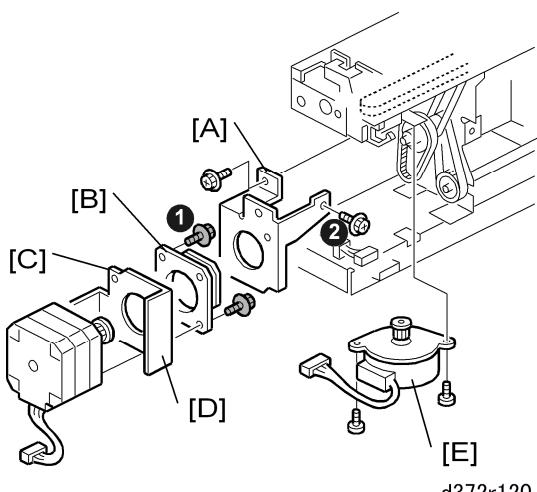
- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
 - Remove the transport unit
1. Remove the front fence motor [A] (\wedge x1, \square x2, \square x1).

 500-Sheet
Finisher
D372

1.3.6 FEED-OUT BELT MOTOR, REAR FENCE MOTOR

Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the transport unit



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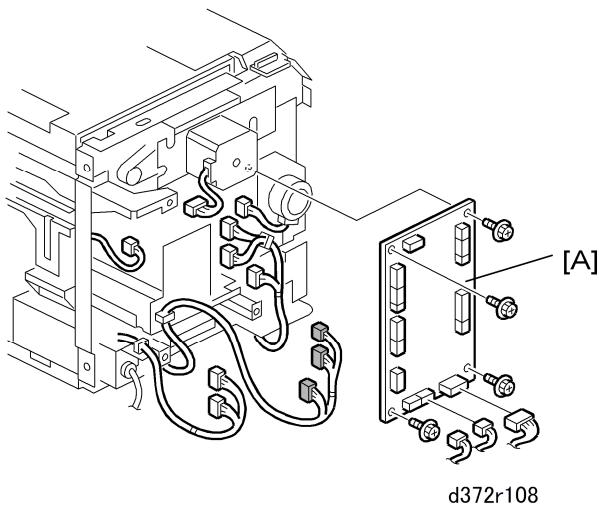
1. Remove the feed-out belt motor mount [A] ①, ② (\wedge x2).
2. Remove:

Motors

- [B] 1st bracket (☞ x2)
 - [C] 2nd bracket (☞ x2)
 - [D] 3rd bracket
3. Remove the rear fence motor [E] (☞ x2, ☐ x1)

1.4 BOARDS

1.4.1 MAIN BOARD



500-Sheet
Finisher
D372

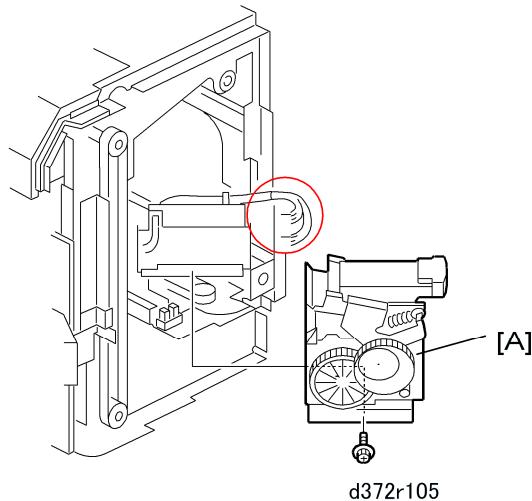
Preparation

- Disconnect the finisher.
 - Remove the finisher from the side of the machine.
 - Remove the rear cover.
1. Remove the main board [A] (x14, x4)

Others

1.5 OTHERS

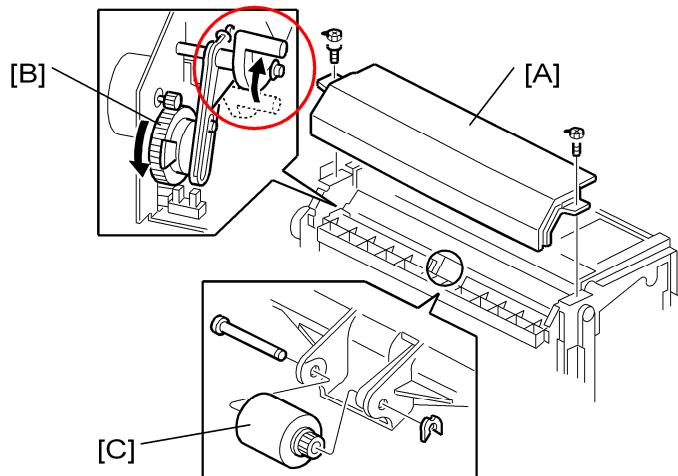
1.5.1 STAPLER



Preparation

- Remove the front cover.
- 1. Remove the stapler [A] (x1, x2)

1.5.2 POSITIONING ROLLER



Preparation

- Disconnect the finisher.
- Remove the finisher from the side of the machine.
- Remove the front cover.

Others

- Remove the rear cover.
- 1. Remove the left top cover [A] (☞ x2)
- 2. Rotate drive gear [B] of the positioning roller arm motor to raise the positioning roller to its highest position.
- 3. Remove the positioning roller [C] (☛ x1)

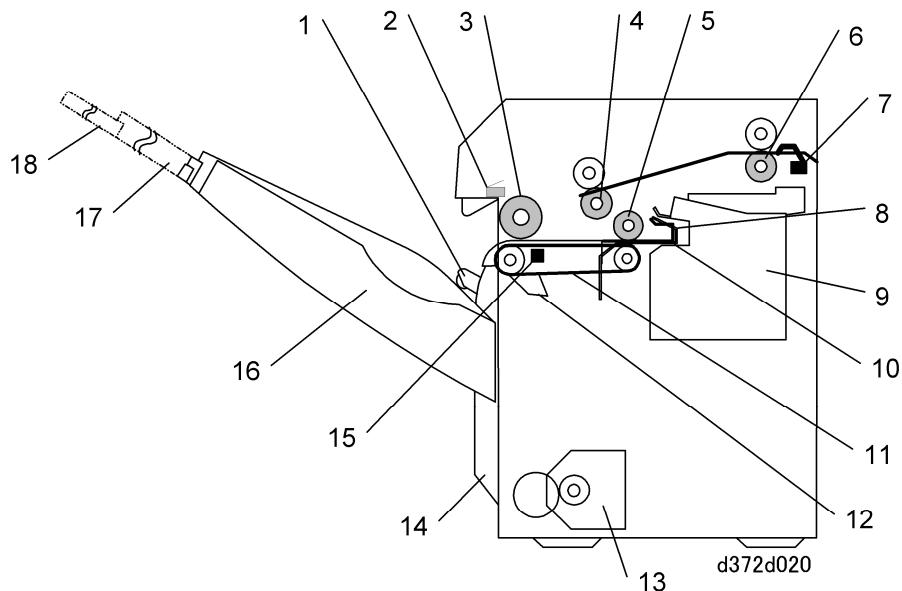
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Overview

2. DETAILED SECTION DESCRIPTIONS

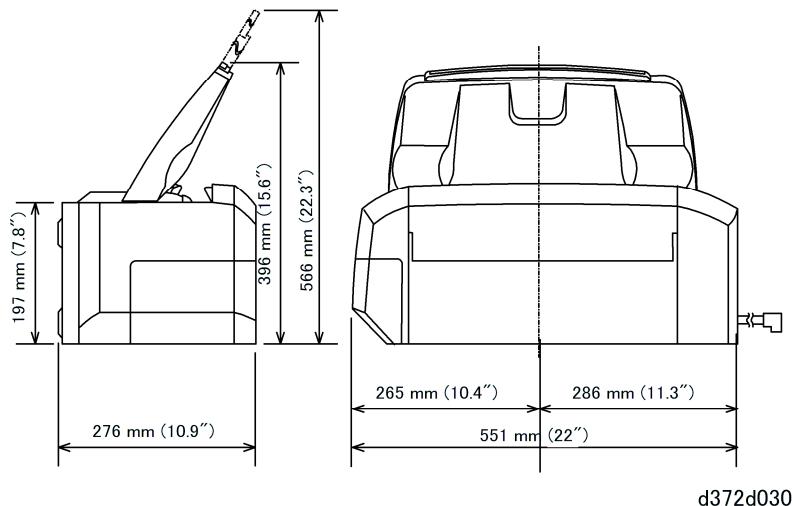
2.1 OVERVIEW

2.1.1 IMPORTANT PARTS

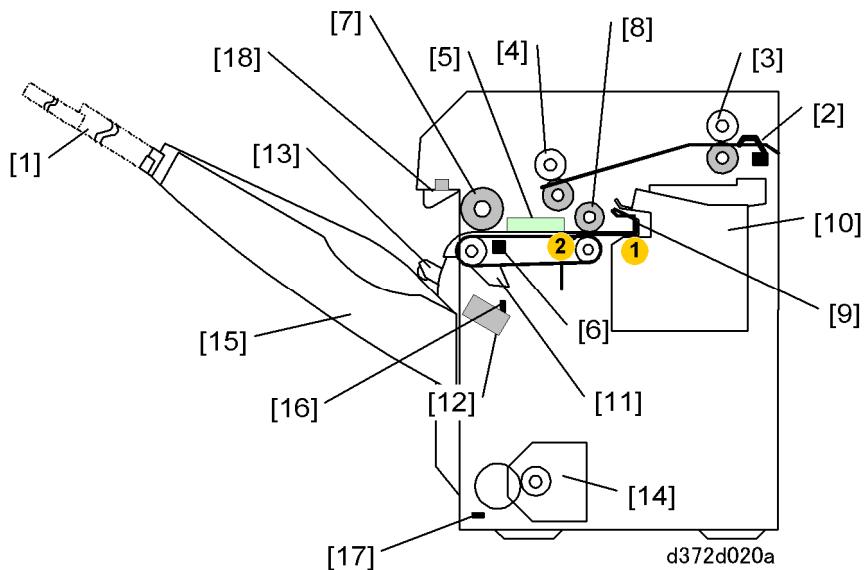


| | | | |
|----|----------------------------|-----|--------------------------|
| 1. | Stack Edge Depressors (x2) | 10. | Bottom Fences |
| 2. | Tray Upper Limit Switch | 11. | Feed-out Belt |
| 3. | Positioning Roller | 12. | Feed-out Belt Pawls (x2) |
| 4. | Exit Roller | 13. | Tray Lift Motor |
| 5. | Return Roller | 14. | End Fence |
| 6. | Entrance Roller | 15. | Paper Sensor |
| 7. | Entrance Sensor | 16. | Output Tray |
| 8. | Mobile Fence (x1) | 17. | Tray Extension (Middle) |
| 9. | Stapler | 18. | Tray Extension (End) |

2.1.2 EXTERNAL DIMENSIONS



2.1.3 GENERAL OPERATION



500-Sheet
Finisher
D372

Here is a brief summary of what happens inside the finisher. For more details, see the other sections of this manual.

First, the operator pulls out the tray extension [1], and selects the paper size and operation mode for the job (Normal, Shift, or Stapling).

Paper Transport

The entrance sensor [2] detects the paper when it enters the finisher. The entrance rollers [3] feed the paper to the exit rollers [4]. The paper falls between the front and side fences [5].

Overview

Positioning

The paper sensor [6] detects the paper on the tray. The positioning roller [7] (mounted on a free-swinging arm) descends and touches the paper. The positioning roller (turning counterclockwise) and the return roller [8] push the trailing edge of the paper against the two bottom fences and the mobile fence at [9]. (The mobile fence is centered between the stationary bottom fences.)

Jogging

The front and side fences move in to align the sheets for stacking.

Stapling

The stapler [10] staples the stack with one or two staples.

Paper Output

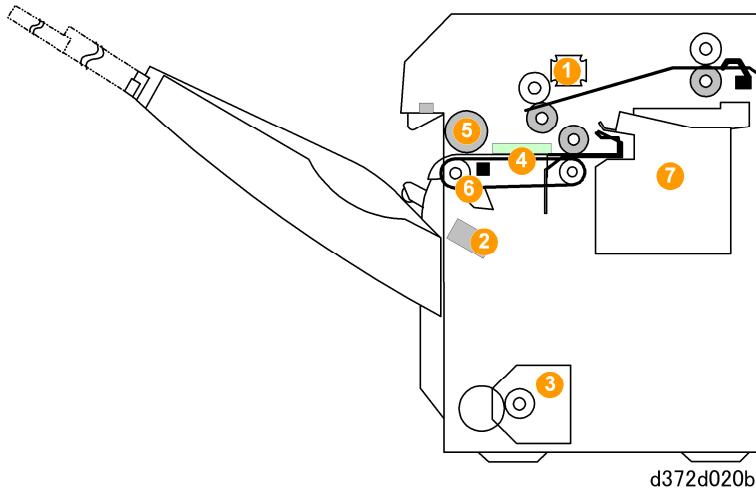
The feed-out belt motor switches on, moves the mobile fence forward and rotates the feed-out belt with the feed-out belt pawls [11]. The mobile fence pushes the stack from ① to ②, then the pawls come around and push the stack out of the finisher. Before the next stack exits, the edge depressor solenoid [12] switches on and retracts the edge depressors just before the feed-out belt pawls push the stack out. The two stack edge depressors [13] lightly push down on the trailing edge of the stack to keep it down against the end fence. The edge depressors are attached to the paper height sensor, so this action checks if it is necessary to move the tray up or down.

Tray Operation

The tray lift motor [14] raises and lowers the output tray [15] to keep the tray at the correct height. The readings of the paper height sensor [16] are used to control the raising and lowering of the tray with the tray lift motor.

The tray-full sensor [17] located at the bottom of the tray rail at the back of the finisher switches on after the tray descends to its lowest point. This signals that the tray is full. A spring-loaded bar [18] and its push-switch also signal tray full if the top of the paper load in the tray pushes this bar up and trips the switch. (This is a backup device to signal tray full if the tray-full sensor fails.)

2.1.4 INITIALIZATION: WHAT HAPPENS AT POWER ON



Here is a summary of what happens during the initialization of the finisher after the system power is turned on.

Note

- The initialization halts if the entrance sensor or paper sensor on the stapling tray detects paper inside the finisher.

500-Sheet
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D372

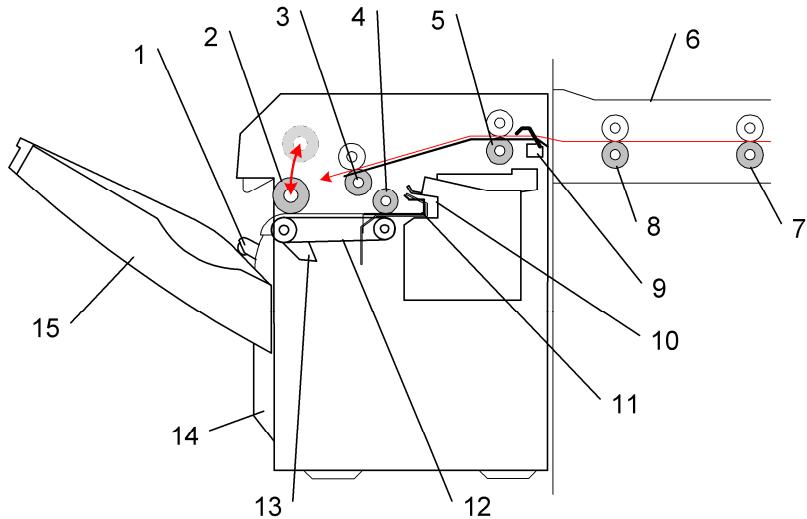
| No. | What Happens |
|-----|---|
| 1 | The transport motor roller switches on and off. |
| 2 | The edge depressor solenoid switches on, retracts the edge depressors, and then switches off to allow the depressors to lower. |
| 3 | The tray lift motor switches on, lowers the tray slightly, raises it to the start position and switches off. |
| 4 | The front and side fence motors switch on and off to position both side fences at their home positions (both retracted). |
| 5 | The positioning roller arm motor switches on and off to bring the positioning roller to its home position (up). |
| 6 | The feed-out belt motor switches on and moves the belt pawls to their home positions below the paper sensor on the stapling tray. |
| 7 | The stapler movement motor switches on, reverses, and then switches off to make |

Overview

| No. | What Happens |
|-----|--|
| | sure that the stapler is at its home position. |

2.2 PAPER TRANSPORT

2.2.1 OVERVIEW



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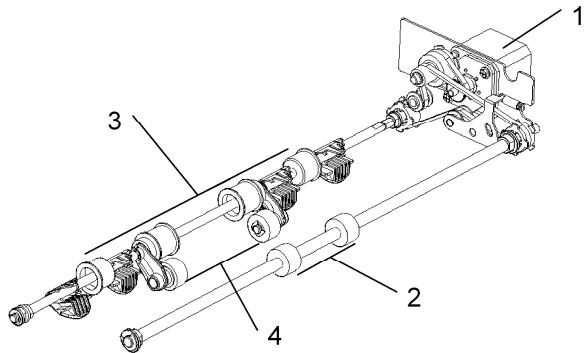
500-Sheet
Finisher
D372

| | | | |
|----|---------------------------------|-----|--------------------------|
| 1. | Stack Edge Depressors | 9. | Entrance Sensor |
| 2. | Positioning Roller | 10. | Mobile Fence |
| 3. | Exit Roller | 11. | Bottom Fences (x2) |
| 4. | Return Rollers | 12. | Feed-Out Belts (x2) |
| 5. | Entrance Roller | 13. | Feed-Out Belt Pawls (x2) |
| 6. | Bridge Unit (Copier) | 14. | End Fence |
| 7. | Transport Roller (Main Machine) | 15. | Output Tray |
| 8. | Exit Roller (Main Machine) | | |

Paper Transport

2.2.2 TRANSPORT ROLLERS

Paper Feed Rollers



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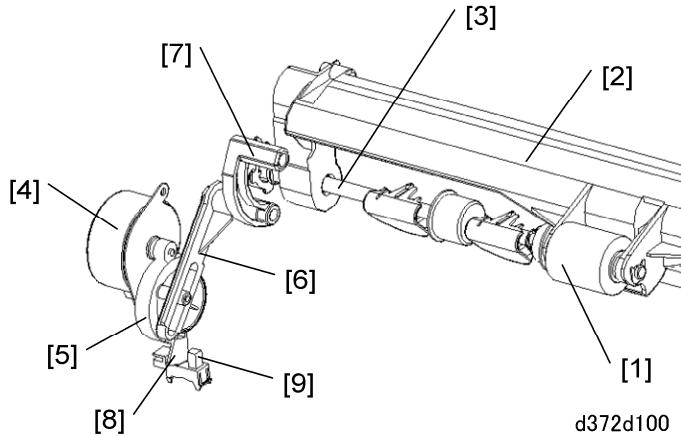
| | |
|----|-------------------------|
| 1. | Transport Motor |
| 2. | Entrance Rollers |
| 3. | Exit Rollers (Teflon) |
| 4. | Return Rollers (Sponge) |

The transport motor [1] uses timing belts to drive all the rollers in the unit.

The entrance rollers [2] take the paper from the copier and feed it to the exit rollers [3], where the paper drops onto the jogging and stapling tray. The return rollers [4] rotate in the opposite direction and feed each sheet against the bottom fences inside the finisher. The positioning roller (described in the next section) assists the return rollers in feeding each sheet against the end fences.

2.2.3 POSITIONING ROLLER

Positioning Roller Mechanism



The positioning roller [1] (driven by the transport motor) is mounted on the positioning roller arm [2] that swings freely on the shaft [3].

The positioning roller arm motor [4] drives a cam [5]. The eccentric rotation of this cam raises and lowers the coupler [6] that pushes against the positioning roller arm [7]. This motion raises and lowers the rotating positioning roller as the cam turns through one full rotation.

An actuator [8] attached to the cam wheel deactivates the positioning roller HP sensor [9] and stops the motor. This stops the positioning roller arm and positioning roller at the highest point (home position).

When the positioning roller is lowered:

- The transport motor slows down to match the speed of the main machine's exit roller.
- At the same time, the positioning roller motor accelerates briefly, lowers the positioning roller arm and then stops.

When the positioning roller touches the paper:

- The positioning roller (driven by the transport roller) continues to rotate.
- The positioning roller (and the smaller two sponge rollers), rotating against the direction of paper feed, touch the paper and send it back against the bottom fences.
- The number of sheets that stack on the staple tray while the positioning roller motor is stopped is different for each job.
- To meet the requirement for the increasing number of sheets, the length of prescribed time that the positioning roller is in contact with each sheet of paper is very short, regardless of the size of the stack.
- The positioning roller arm motor remains off just long enough for the positioning roller to send the sheet against the bottom fences.

500-Sheet
Finisher
D372

Paper Transport

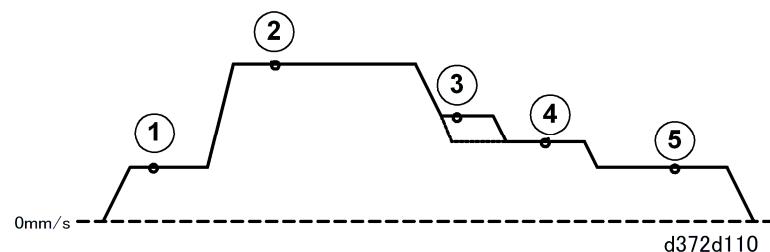
When the positioning roller is raised:

- The motor switches on again, raises the positioning roller arm, slows down slightly, and then the arm stops at the home position.
- The motor slows down slightly before reaching the home position to reduce the impact and noise of the arm returning to the home position.

This cycle of lowering the positioning roller, touching the paper with the positioning roller and return rollers, and then lifting them again and stopping at the home position, is done for each sheet of paper.

Transport Motor Control

The transport motor drives all the rollers inside the finisher and controls the line speed of the finisher.



| | |
|---|---|
| ① | The transport motor accelerates to match the line speed of the main machine (150 mm/s). |
| ② | The transport motor speed accelerates to 600 mm/s after the leading edge of the sheet passes the entrance sensor and feeds 21.5 mm. |
| ③ | After the trailing edge goes 96 mm past the entrance sensor, the transport motor slows the line speed to 200 mm/s for paper shorter than 300 mm, or to 300 mm/s for paper longer than 300 mm. |
| ④ | After the paper sensor detects that the trailing has fed 45 mm past the exit roller, the transport motor slows the line speed to 200 mm/s so that the sheet can be positioned for jogging. At this time, the positioning roller arm motor switches on and starts to lower the positioning roller arm and positioning roller. |
| ⑤ | The transport motor slows the line speed in the finisher to match the line speed of the paper path in the main machine. The positioning roller reaches the end of its downward stroke and remains in that position long enough to feed the sheet back against the bottom fences. The positioning roller arm motor reverses and raises the |

| | |
|--|--|
| | positioning roller arm to the end of its upward stroke and stops at the home position. While the sheet is being jogged between the front and rear side fences, the cycle repeats from ② when the next sheet feeds. |
|--|--|

2.2.4 POSITIONING ROLLER INITIALIZATION

The following sequence occurs when the system is switched on:

Paper in Paper Path (Jam)

If paper is detected in the paper path between the copier exit roller and finisher entrance roller, the transport motor switches on then immediately switches off.

Normal Startup

The transport motor switches on and rotates the positioning roller to home position. The positioning roller arm motor switches on, lowers the positioning roller arm, raises the positioning roller to the up position and then stops when the actuator of the positioning roller HP sensor switches off the sensor.

- If the HP sensor does not go OFF within the prescribed time, this indicates an error.
- If the HP sensor does not go ON after the motor has switched on, this also indicates an error.

In either case, the positioning roller arm motor is switched off. The first occurrence causes a jam error. An SC code is issued if the error occurs again.

This initialization sequence is executed:

- When the copier is powered on
- When the stapler door is opened or closed
- When the top cover of the finisher is opened or closed to remove a jam

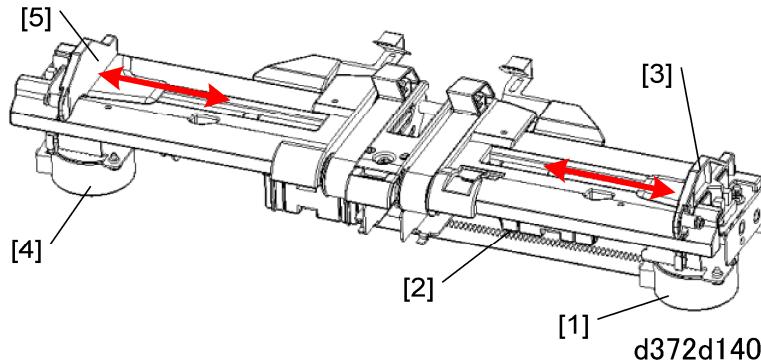
500-Sheet
Finisher
D372

Jogging (Paper Alignment)

2.3 JOGGING (PAPER ALIGNMENT)

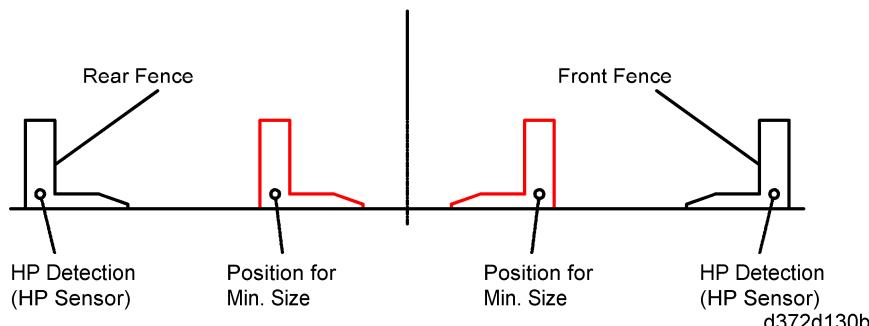
2.3.1 OVERVIEW

Two side fences, a rear fence and a front fence, move in and out to align the sides of the paper stack. Each fence is controlled by an independent timing belt and motor.



The front fence motor [1] and timing belt [2] move the front fence [3] backward and forward.

The rear fence motor [4] and timing belt (not shown) move the rear fence [5] forward and backward.



The diagram above shows the positions of the side fences.

- When the copier exit sensor signals that a sheet of paper has been sent from the copier to the finisher, both fence motors switch on and move the side fences to the start position.

The start position for each fence is set wider than the paper size selected for the job:

- 15 mm wider than the paper for shift mode.
- 7 mm wider than the paper for staple mode
- 10 mm wider than 12-in. paper for oblique stapling
- 12 mm wider than 12-in. paper for straight stapling

- The paper is fed onto the output tray. The transport motor slows down the rotation of

Jogging (Paper Alignment)

the positioning roller and return rollers. The positioning roller descends. The positioning roller and return rollers feed the trailing edge of the paper to the right against the bottom fences. The side fence motors switch on and jog the edges of the sheet so that the first sheet is properly aligned.

3. The side fences return to the start position after the next sheet has feed 50 mm past the entrance sensor.
4. Steps 2 and 3 are repeated for the next sheet.
5. In stapling mode: After the last page of the document has fed and been aligned on top of the stack by the rear and front fences, the side fences retract and advance two more times against the sides of the complete stack.
6. The stack is now ready to be output from the finisher. The side fences stop at the sides of the stack and wait for the stack to be output. After output, the side fence motors switch on and move the fences to the jog start position.
 - As soon as 10 sheets stack on the jogging tray in shift mode, the stack is output regardless of whether the document has finished printing or not.
 - In stapling mode, the side fence that jogs the side of the stack stops and waits for stapling to end. After stapling, the side fence motor switches on and retracts the side fence 0.5 mm. (If the stack is centered, both fences retract 0.25 mm).
 - After the stack is output by the feed-out belt, the side fence motors switch on and once again move the fences to the jog start position.
7. In the shift mode: The rear side fence does the jogging against the side of the stack, and the front fence does not move. For the next stack, the roles of the side fences are reversed: the front fence does the jogging and the rear fence does not move. The operation continues to alternate for the next stacks so that each stack is shifted to the front (or back) depending how it was jogged between the side fences. (Steps 2, 3, 6 repeat.)
In the staple mode, the steps are done in sequence (2), (3), (5), (6).
8. After the last stack of the job has been output, the main machine sends a STOP signal to end the job, and the front and rear side fence motors switch on and the side fences retract to their home positions.

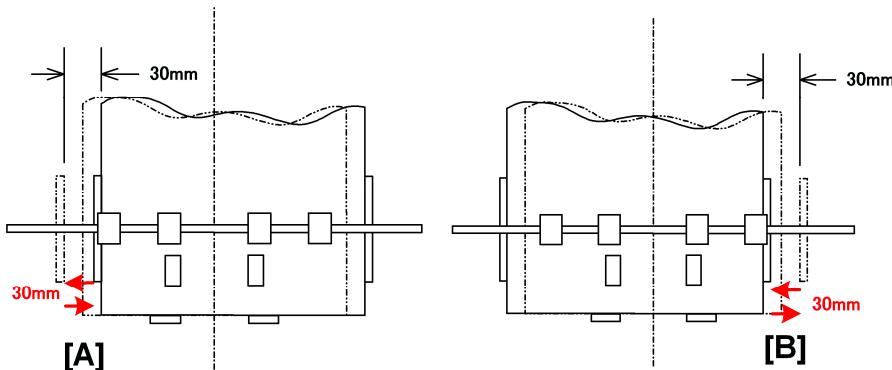
500-Sheet
Finisher
D372

2.3.2 SIDE FENCE OPERATION

Shift Mode

Side Fence Operation: Shift Mode

Jogging (Paper Alignment)



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The diagram above illustrates the operation of the side fences in shift mode with no stapling.

- Every sheet of the first set is pushed by the front fence [A] against the rear fence, which does not move.
- Every sheet of the second set is pushed by the rear fence [B] against the front fence, which does not move.
- The sequence alternates for every set in the print job. At the end of the job, every set is stacked on the output tray neatly offset by 30 mm, making them easy to separate.

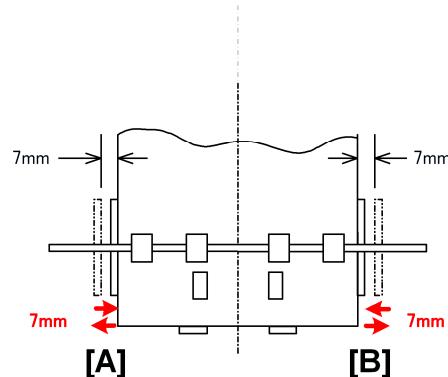
Normal (Non-Shift) Mode

The diagram above illustrates the operation of the side fences in normal (non-shift) mode.

The operation is slightly different, depending on the paper size. There are three cases:

- Standard paper sizes (other than "wide" or "small" paper)
- Wide paper sizes (133 to 147 mm)
- Small paper sizes (up to 133 mm)

Standard Paper Sizes



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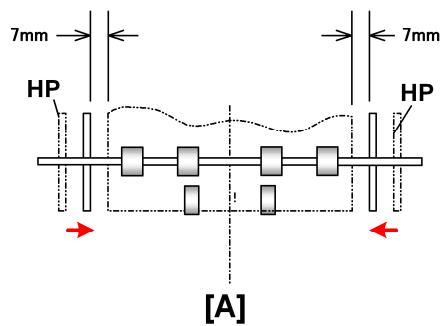
Every time a sheet is fed the front fence [A] and rear fence [B] both push against the sides of the stack within the space of 7 mm on each side.

Jogging (Paper Alignment)

Wide and Small Paper Sizes

Wide Paper

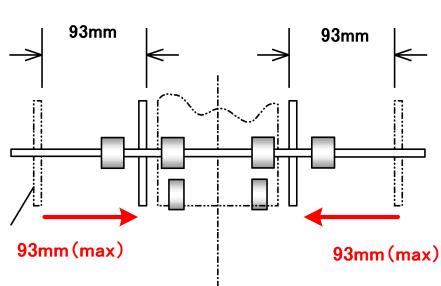
Paper Width: 133 mm to 147 mm



[A]

Smaller Paper

Paper Width: up to 133 mm



[B]

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Every time a wide sheet [A] is fed, the front fence and rear fence both push against the sides of the stack within the space of 7 mm on each side.

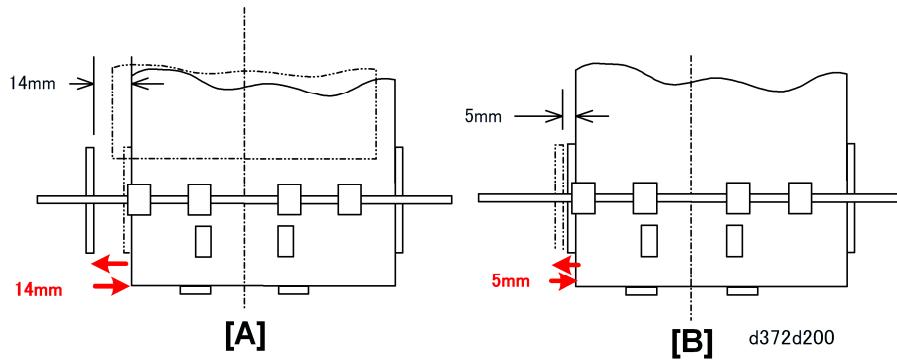
Every time a smaller sheet [B] is fed, the front fence and rear fence both push against the sides of the fence with the space of 93 mm on each side.

Staple Mode

The operation of the side fences is slightly different, depending on the type of stapling selected for the job:

- One staple (front/oblique, front/straight, rear/oblique, rear straight)
- Two staples at two positions

Staple Mode: 1 Staple



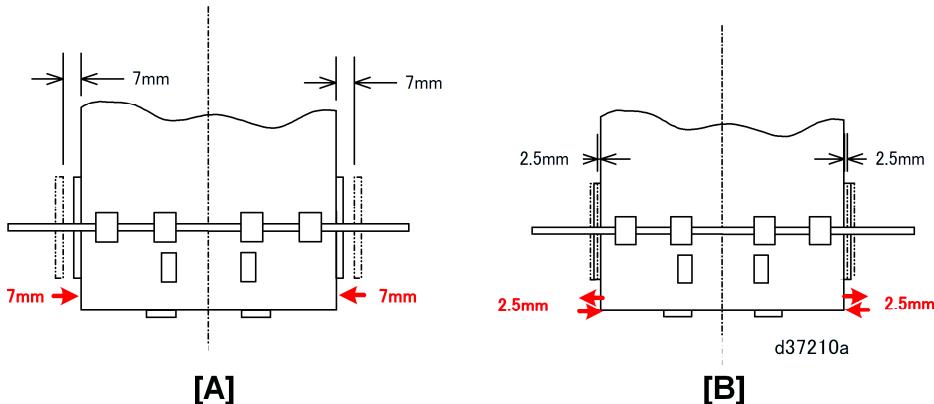
In the One-Staple Mode, one side fence jogs one side of the stack. The diagram above illustrates the operation of the side fences for stapling at one position (front/oblique, front/straight, rear/oblique, or rear/straight).

- Every time a sheet [A] is fed, the front fence pushes the sheet against the rear fence, which does not move.
- After the last sheet [B] is pushed against the rear fence, the front fence moves front to back twice (5 mm) to align the side of the stack for stapling.

Staple Mode: 2 Staples

500-Sheet
Finisher
D372

Jogging (Paper Alignment)



In the Two-Staple Mode, both side fences jog the sides of the stack. The diagram above illustrates the operation of the side fences for stapling at two positions.

- Every time a sheet [A] is fed, the front and rear side fences push the sheet to center it.
- After the last sheet [B] is centered, the front and side fences push and retract twice (5 mm) to align the sides of the stack centered for stapling.

2.3.3 SIDE FENCE INITIALIZATION

Initialization of the front and rear side fence positions at power on is determined by the states of the front fence HP sensor and rear fence HP sensor. The descriptions below apply to both HP sensors.

- Paper on Stapling Tray
Initialization is not executed if the paper sensor on the stapling tray detects paper present.
- Fence HP Sensor OFF
The fence motor switches on until the HP sensor goes ON, advances 0.25 mm, then switches OFF. This is the home position.
- Fence HP sensor ON
The fence motor drives the fence toward the center until the HP sensor goes OFF, advances 15 mm, then switches off. The motor switches ON again, advances the fence 0.25 mm, then switches off. (This is the home position.)

2.3.4 SIDE FENCE MOTOR ERRORS

A side fence motor error can occur in two cases:

- The HP sensor does not go OFF even after the side fence has run long enough to advance the fence 12.5 mm from the fence home position, far enough to deactivate the fence HP sensor.
- The HP sensor does not go ON even after the motor has run long enough for the side fence to retract 105.0 mm, far enough for the fence to reach the side fence HP sensor.

Jogging (Paper Alignment)

When an error occurs the finisher ceases to operate (all motors are switched off with the exception of the stapler movement motor).

Errors for the front fence and rear fence motors are counted separately.

- The first occurrence of an error issues a paper jam alert.
- The second occurrence of an error issues an SC code. SC721 is issued for the front fence motor and SC722 for the rear fence motor.

To recover from an error:

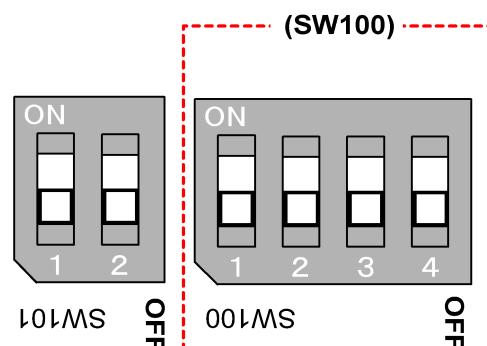
- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after an SC code is issued, cycling the main machine off/on may restore full operation if no problems are detected.

2.3.5 SIDE FENCE OPERATION ADJUSTMENT

The distance between the front and rear side fences can be adjusted with DIP SW100. The DIP SW adjustment is done in increments of 0.5 mm (Max. Range: ± 3.5 mm).

- The adjustment is halved for center jogging. If the adjustment is 0.5 mm, for example, this means the position adjustment 0.25 mm for each side fence.

The table below shows the adjustments done with DIP SW100 on the main board of the finisher.



| 1 | 2 | 3 | 4 | Adjustment (mm) |
|----|----|-----|-----|-----------------|
| ON | ON | ON | ON | -3.5 |
| ON | ON | ON | OFF | -3.0 |
| ON | ON | OFF | ON | -2.5 |

500-Sheet
Finisher
D372

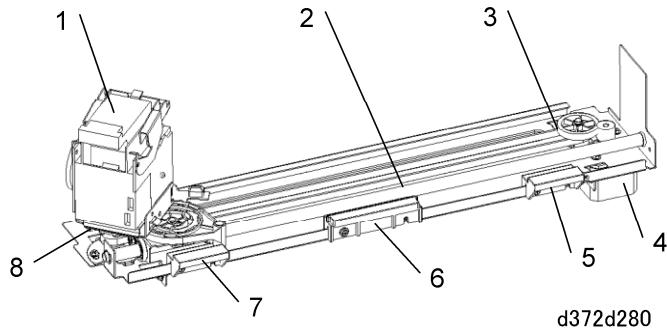
Jogging (Paper Alignment)

| 1 | 2 | 3 | 4 | Adjustment (mm) |
|-----|-----|-----|-----|-----------------|
| ON | ON | OFF | OFF | -2.0 |
| ON | OFF | ON | ON | -1.5 |
| ON | OFF | ON | OFF | -1.0 |
| ON | OFF | OFF | ON | -0.5 |
| ON | OFF | OFF | OFF | 0.0 |
| OFF | ON | ON | ON | 3.5 |
| OFF | ON | ON | OFF | 3.0 |
| OFF | ON | OFF | ON | 2.5 |
| OFF | ON | OFF | OFF | 2.0 |
| OFF | OFF | ON | ON | 1.5 |
| OFF | OFF | ON | OFF | 1.0 |
| OFF | OFF | OFF | ON | 0.5 |
| OFF | OFF | OFF | OFF | 0.0 |

2.4 STAPLING

2.4.1 OVERVIEW

Stapler Movement



| | | | |
|----|--------------------------|----|---------------------|
| 1. | Stapler Unit | 5. | Trip Plate – Rear |
| 2. | Guide Rail | 6. | Trip Plate – Center |
| 3. | Driver Gear, Timing Belt | 7. | Trip Plate – Front |
| 4. | Stapler Movement Motor | 8. | Stapler HP Sensor |

500-Sheet
Finisher
D372

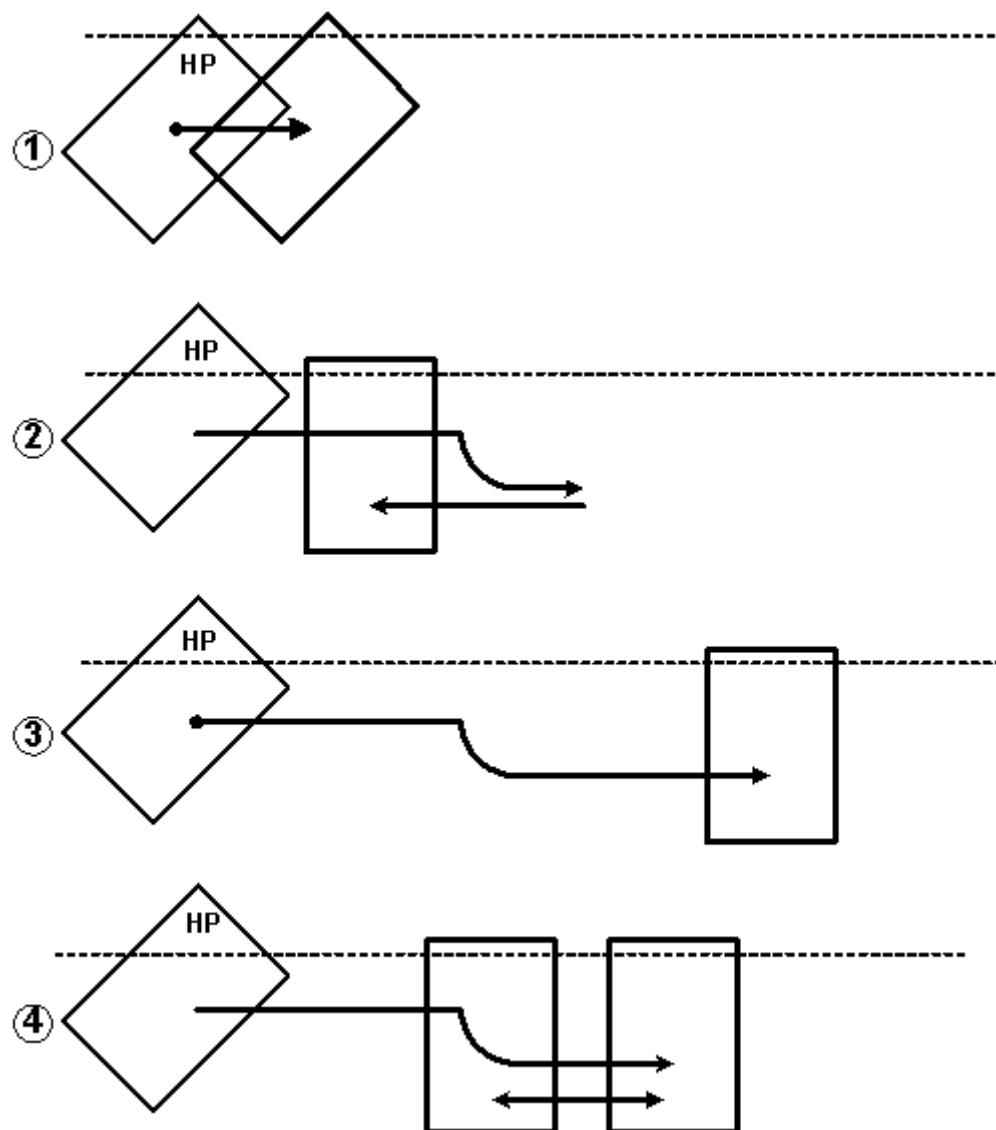
The illustration below shows how the stapler moves during each stapling mode.

Note

- When the plate on the bottom of the stapler unit strikes a trip plate, this swivels the stapler unit from straight to oblique or vice versa.

Stapling

Staple Positions

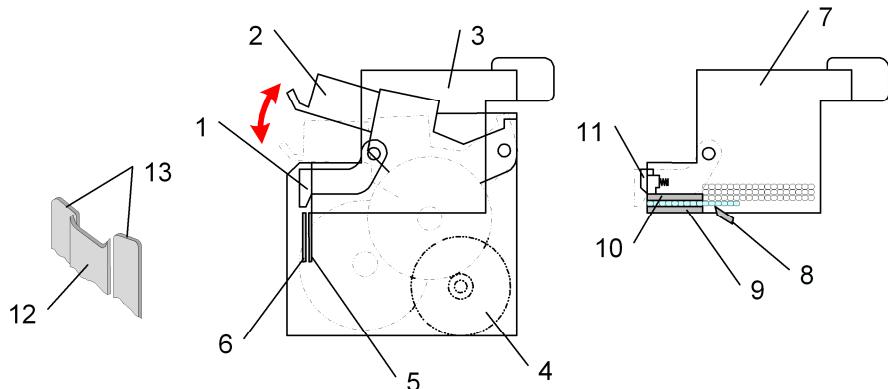


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| | |
|---|-----------------------------------|
| ① | Front Oblique Stapling: 1 Staple |
| ② | Front Straight Stapling: 1 Staple |
| ③ | Rear Straight Stapling: 1 Staple |
| ④ | 2 Staples (Rear then Front) |

Stapling

Stapler EH-530



d372d440a

| | | | |
|----|---------------|-----|--------------------|
| 1. | Faceplate | 8. | Staple Supply Pawl |
| 2. | Clincher | 9. | Staple Sheet |
| 3. | Cartridge | 10. | Base |
| 4. | Stapler Motor | 11. | Plunger |
| 5. | Homing Plates | 12. | Driver Plate |
| 6. | Driver Plate | 13. | Homing Plates |
| 7. | Cartridge | | |

500-Sheet
Finisher
D372

The stapler motor (4) drives both the driver plate (12) and homing plates (13) toward the clincher. The driver plate and homing plates separate and feed the staples to the clincher (2) that performs the stapling.

The pressure of the plunger (11) feeds the next staple for firing. A staple supply pawl below the staple sheet moves to the front and back to assist in staple supply. The plunger feeds only one staple at a time, but the staple supply pawl can feed up to 10 staples.

2.4.2 STAPLER MOVEMENT MOTOR INITIALIZATION

Initialization of the stapler unit position is determined by the state of the stapler HP sensor. One of the following sequences occurs at power on, depending on the state of the stapler HP sensor.

- Stapler HP sensor OFF

Stapling

The motor turns on and brings the stapler forward until the stapler HP sensor goes ON.

Then the motor remains on to move the stapler an additional 1.2 mm, then stops. This is the home position.

- Stapler HP sensor ON

The stapler movement motor turns on and moves the stapler to the rear until the stapler HP sensor goes OFF. The motor stays on to move the stapler 12 mm, then stops. Next, the motor turns on again and brings the stapler forward until the stapler HP sensor goes ON, the motor stays on to move the stapler 1.2 mm, then stops. This is the home position.

2.4.3 STAPLER ERRORS

A stapler position error can occur in two cases:

- Stapler HP sensor does not go OFF.

The stapler HP sensor does not go OFF even after the stapler movement motor has been on long enough to move the stapler away from the home position.

- Stapler HP sensor does not go ON

While the stapler is out of the home position, the stapler HP sensor does not go ON even after the stapler movement motor has been on long enough to move the stapler into the home position.

- Stapler is out of staples.

At power on, if staples are not detected in the stapler, the staple detection sequence executes up to 10 times until "staples present" is detected. If staples cannot be detected after 10 attempts, then the staples out alert is issued.

When one of these errors occurs, the exciter current to the stapler motor is switched off.

Both of the HP sensor errors described above are counted as the same error. In either case, the first occurrence of the error is considered a jam, and the second occurrence issues SC742 (Stapler Movement Motor Error).

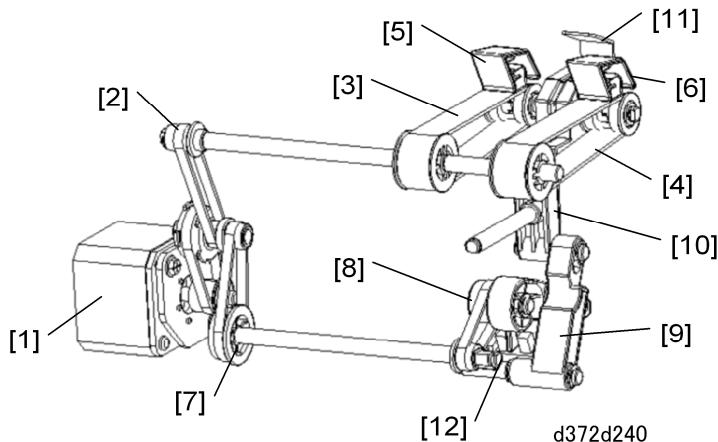
To recover from an error:

- At the first occurrence of a stapler HP sensor error, removing the jam then opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC742 is issued, cycling the main machine power off/on may restore full operation if no problems are detected.

2.5 PAPER OUTPUT

2.5.1 OVERVIEW

Feed-Out Mechanism



500-Sheet
Finisher
D372

| | | | |
|----|---------------------------|-----|------------------------------|
| 1. | Feed-Out Belt Motor | 7. | Mobile Fence Drive Shaft |
| 2. | Feed-Out Belt Drive Shaft | 8. | Mobile Fence Cam |
| 3. | Rear Feed-Out Belt | 9. | Mobile Fence Follower |
| 4. | Rear Feed-Out Belt Pawl | 10. | Mobile Fence Link and Slider |
| 5. | Front Feed-Out Belt | 11. | Mobile Fence |
| 6. | Front Feed-Out Belt Pawl | 12. | Feed-Out Belt HP Sensor |

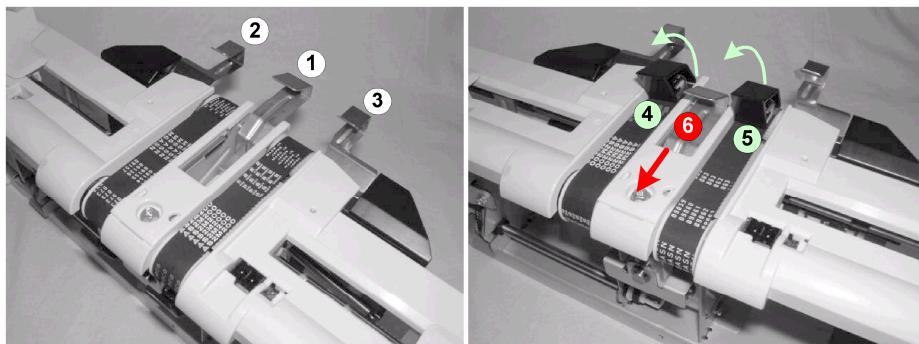
The feed-out belt motor [1] drives the timing belt and shaft [2] that rotates the feed-out belts [3] and [4]. The rear pawl [5] and front pawl [6] attached to the rear and front belts push the stack out of the finisher after stapling.

The feed-out belt motor also drives the timing belt and shaft [7] that rotates the mobile fence cam [8]. The mobile fence follower [9] converts the rotary movement of the cam to rectilinear movement (left-to-right) and transmits this movement via the link/slider [10] to the mobile fence [11]. The mobile fence is moved forward to start pushing the stack out of the finisher. The pawls on the rapidly moving feed-out belt complete pushing the stack out of the finisher. After the cam releases the follower, a spring pulls the mobile fence back to its home position.

Paper Output

When the actuator attached to the mobile fence cam switches the feed-out belt HP sensor [12] ON, this stops the feed-out belt motor with the pawls at their home positions.

Bottom Fences

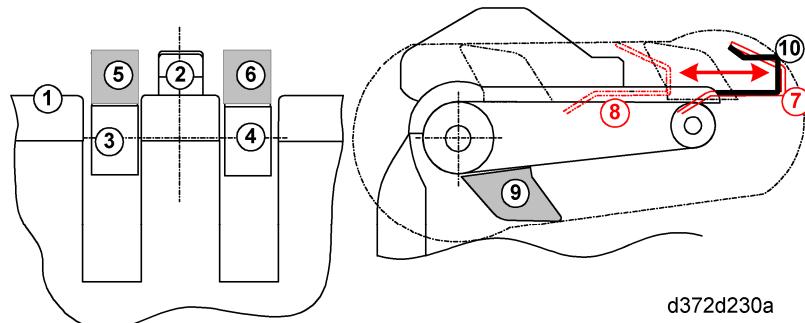


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There are three bottom fences. A mobile fence (1) resides between two stationary bottom fences (2) and (3). When the mobile fence (1) is at its home position, the positioning roller and return rollers feed the trailing edge of each sheet against these fences.

When the stack is ready to be moved to the output tray, the mobile fence (6) pushes the stack to the right. The rear pawl (4) and front pawl (5), mounted on the rear and front feed-out belts, swing up from below and push the stack onto the tray. The mobile fence (6) returns to its home position between the stationary bottom fences.

Feed-Out Mechanism: Right and Front View



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| | | | |
|----|--------------------------|-----|---------------------------------|
| 1. | Stapling Tray | 6. | Rear Feed-Out Belt Pawl |
| 2. | Mobile Fence | 7. | Mobile Fence HP |
| 3. | Front Feed-Out Belt | 8. | Mobile Fence (Forward Position) |
| 4. | Rear Feed-Out Belt | 9. | Feed-Out Pawls (HP) |
| 5. | Front Feed-Out Belt Pawl | 10. | Bottom Fences x2 |

Paper Output

In the left illustration, just before that stack is output:

- The stack is on the stapling tray (1).
- The mobile fence (2) has pushed the stack forward to start moving it out of the finisher.
- The front and rear feed-out belts (3) and (4) have rotated the front and rear pawls (5) and (6) behind the stack so they can push the stack out of the finisher.

In the right illustration, after stack output:

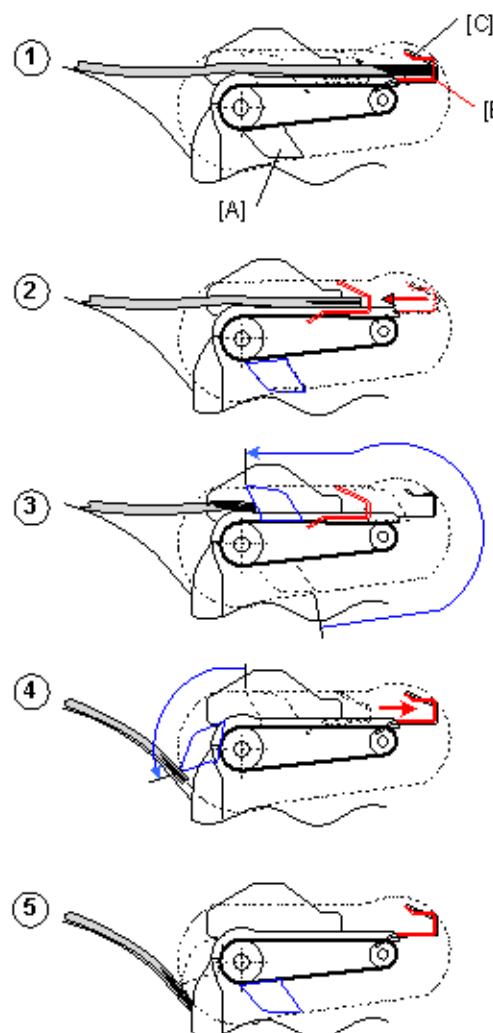
- The mobile fence (driven by its cam, follower, and lever below) moved from its home position (7) to (8) to start pushing the stack out of the finisher.
- The feed-out belt pawls pushed the stack out of the finisher then stopped at their home positions (9).
- A long spring pulled the mobile fence back to its home position between the stationary bottom fences (10)

500-Sheet
Finisher
D372

Paper Output

2.5.2 FEED-OUT

The diagram below shows how the feed-out belt and mobile fence work together to push the stack to the output tray.



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| | |
|---|---|
| ① | Document stacking has finished and the stack is ready to be output. The output belt pawls are at their home positions [A]. The mobile fence [B] is at its home position between the front and rear bottom fences [C]. |
| ② | The mobile fence pushes the stack to the right and stops. |
| ③ | The feed-out belt pawls rapidly swing up and push the stack toward the output tray. |
| ④ | The feed-out belt pawls push the stack onto the output tray. A spring (not shown) retracts the mobile fence. |

Paper Output

⑤

The actuator on the mobile fence cam activates the feed-out belt pawl HP sensor. This switches the motor off and the pawls stop at the home position.

2.5.3 FEED-OUT BELT INITIALIZATION

Initialization of the positions of the feed-out belt pawls at power on is determined by the state of the feed-out belt HP sensor. This operation does not affect the mobile fence because it is held in its home position by a spring.

One of the following sequences occurs at power on, depending on the state of the feed-out belt HP sensor.

- Feed-out belt HP sensor ON
The feed-out belt motor switches on and rotates clockwise until the HP sensor goes OFF. The motor reverses for 50 ms until the HP sensor goes ON again and stops. This is the home position.
- Feed-out belt HP sensor OFF
The feed-out belt motor rotates counter-clockwise until the HP goes ON and then stops. This is the home position.

500-Sheet
Finisher
D372

2.5.4 FEED-OUT BELT ERRORS

A feed-out belt error can occur in two cases:

- The feed-out belt HP sensor does not go OFF even after the motor has started.
- The feed-out belt does not go ON after the feed-out belt motor has started at power on and the finisher is ready to operate.
- Stapler out of staples

When an error occurs, the feed-out belt motor is switched off.

Either of the errors caused by the states of the feed-out belt HP sensor is counted as the same error.

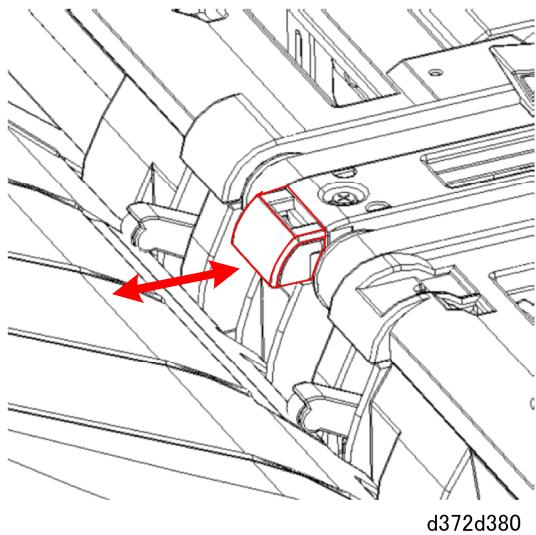
- The first occurrence of an error issues a paper jam alert.
- The second occurrence of an error issues an SC723 (Feed-out Belt Motor Error).

To recover from an error:

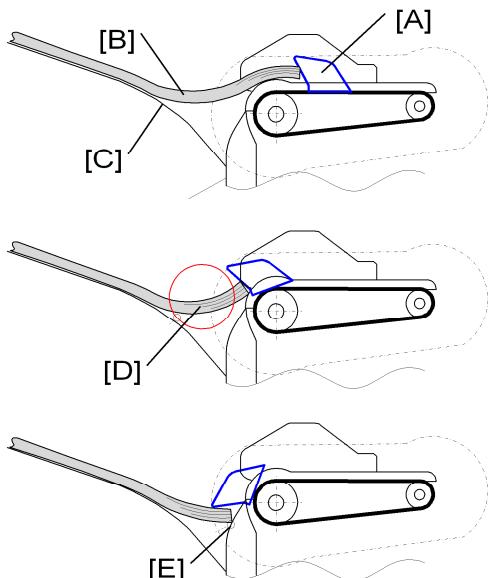
- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC723 is issued, cycling the main machine power off/on may restore full operation if no problems are detected.

Paper Output

2.5.5 FEED-OUT EXTENSION



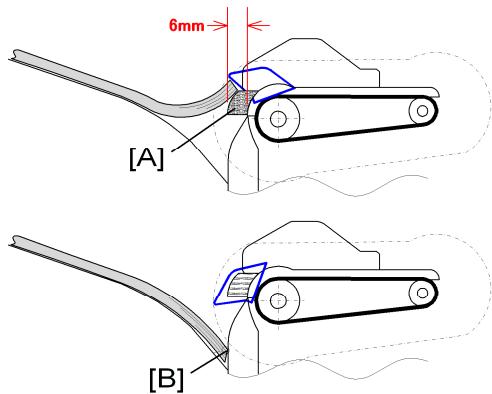
A retractable extension is attached to the center of the stapling tray. The operator can pull it out manually if the trailing edges of the stacks are catching on the end fence and not falling straight down onto the tray.



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When the feed-out belt pawls [A] push a stack of paper [B] onto the tray [C], a bend [D] forms at the trailing edge. With some types of paper (especially larger paper such as A3), this bend can cause the edge of the stack to catch on the end fence [E] when it falls into the tray.

Paper Output



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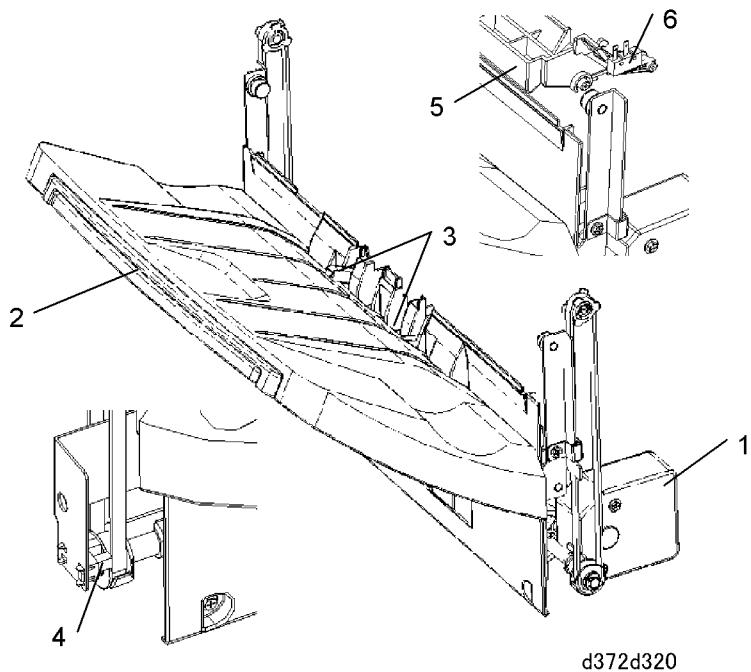
Pulling the stapling tray extension [A] out by hand extends by 6 mm the distance that the pawls must push the trailing edge of the stack. The extra 6 mm forces the edge of the stack to bend more so it will snap down with more force and not catch on the end fence. This prevents the trailing edge of the stack [B] from catching on the end fence when it falls into the tray.

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D372

Tray Operation

2.6 TRAY OPERATION

2.6.1 OVERVIEW



| | |
|----|-------------------------|
| 1. | Tray Lift Motor |
| 2. | Output Tray |
| 3. | Edge Depressors |
| 4. | Tray Full Sensor |
| 5. | Upper Limit Push-bar |
| 6. | Tray Upper Limit Switch |

The tray lift motor (1) raises and lowers the output tray (2).

The edge depressors (3) lightly press down on the trailing edges of stacks already on the tray to keep them down against the end fence.

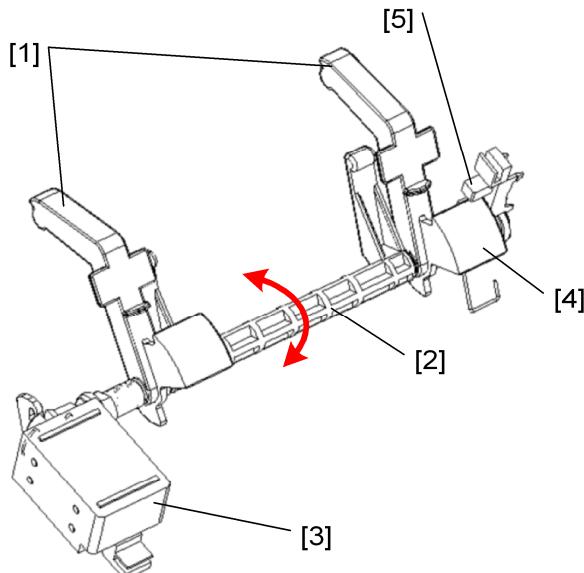
When the actuator on the bottom of the rear rail switches the tray full sensor (4) ON, this means that the tray is at its lowest point and the tray is full.

If the tray becomes overloaded, the top of the stack pushes up the spring-loaded push-bar

Tray Operation

(5). This will turn on the tray upper limit switch (6) and turn off the tray lift motor. This is a safety device to signal tray full in case the tray full sensor fails.

2.6.2 TRAY LIFT CONTROL



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D372

| | |
|----|-------------------------|
| 1. | Edge Depressors |
| 2. | Rotating Shaft |
| 3. | Edge Depressor Solenoid |
| 4. | Actuator |
| 5. | Paper Height Sensor |

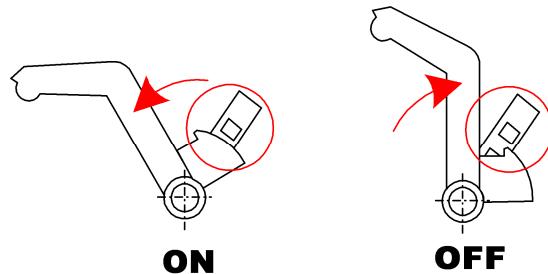
While the feed-out belt motor is running, the tray lift motor switches on (300 ms for shift mode, 500 ms for stapling mode), lowers the output tray, stops, then waits to receive the stack.

Just before a stack falls onto the output tray, the edge depressor solenoid (3) switches ON and retracts the edge depressors (1) away from the top of the stack already on the tray so that the next stack can fall freely.

The feed-out belt motor stops immediately after the stack has fallen between the side fences. The edge depressor solenoid switches OFF, and the edge depressors fall onto the trailing edge of the stack against the end fence.

Tray Operation

The edge depressors touch the top of the stack, and they are connected to the paper height sensor [5], so this action checks if it is necessary to move the tray up or down.

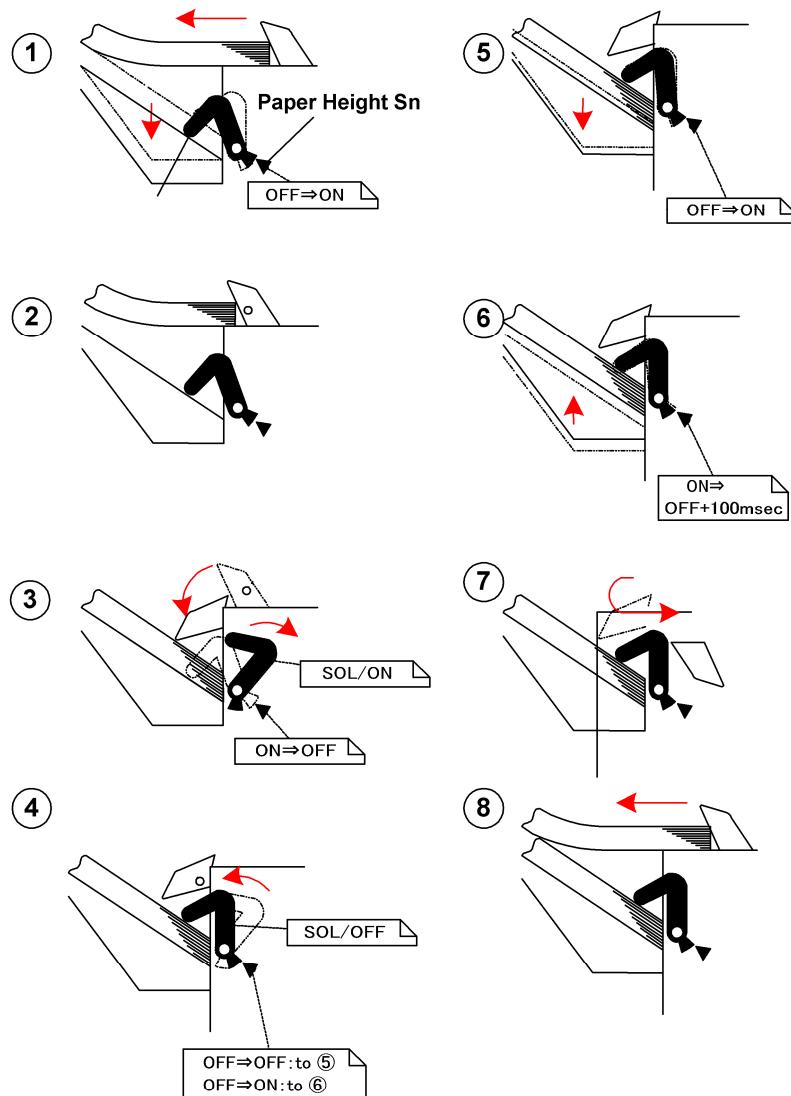


- After 200 ms if the paper height sensor is **ON**, the tray lift motor switches ON and raises the tray.
- If the paper height sensor is **OFF**, the tray lift motor lowers the tray until the paper height sensor switches ON, pauses for 100 ms, switches on again briefly to raise tray to the prescribed position to receive the next stack.

Tray Operation

The diagram below shows how the feed-out belt pawls, output tray, and edge depressors operate together.

Stack Output to Tray



500-Sheet
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D372

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| | |
|---|---|
| ① | The feed-out motor switches on and starts to move the feed-out belts and pawls, pushing the stack toward the output tray. The tray motor switches on and lowers the tray until the paper height sensor switches on. |
| ② | The motor stops briefly to stop the pawls. |

Tray Operation

| | |
|-----|--|
| (3) | The motor starts, and just as the pawls start to push the stack onto the tray the edge depressor solenoid switches on and retracts the edge depressors |
| (4) | The stack is on the tray. The solenoid switches off, and the depressors move forward and press down lightly on the trailing edge of the stack. <ul style="list-style-type: none"> ▪ If the paper height sensor is OFF, go to (5) ▪ If the paper height sensor is ON, go to (6) |
| (5) | The tray lift motor switches on, lowers the tray, and then stops when the paper height sensor goes ON. |
| (6) | The tray lift motor reverses for 100 ms to raise the tray to the start position. |
| (7) | The pawls move to their home positions and stop. |
| (8) | The sequence starts again with the next finished stack., |

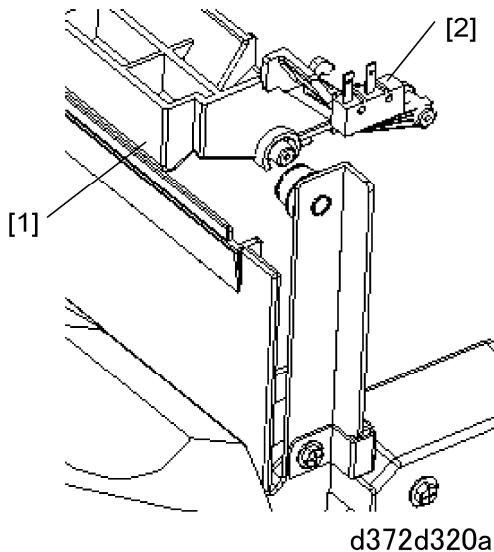
2.6.3 TRAY INITIALIZATION

The following sequence occurs at power on depending on the states of the paper height sensor and tray full sensor:

| | |
|-----|---|
| (1) | The edge depressor solenoid switches from ON to OFF. |
| (2) | <ul style="list-style-type: none"> ▪ If paper height sensor ON, then go to (3). ▪ Paper height sensor OFF. If the tray full sensor is ON and the paper height sensor is OFF, this signals that the output tray is full. Removing the paper from the tray will switch the paper height sensor ON. The tray lift motor switches on, lowers the tray, reverses for briefly to raise the tray to the start position, then switches OFF. |
| (3) | The tray lift motor continues to lift the tray until the paper height sensor goes OFF, continues to run 100 ms, and stops. |

2.6.4 TRAY LIFT ERRORS

Tray Lift Motor Error



If the tray becomes overloaded and the paper pushes and raises the push-bar [1], this will switch ON the upper limit switch [2] (a push-switch). Activating this switch switches off the tray lift motor. This is a backup device that will switch off the tray lift motor if the tray full sensor or paper height sensors fail.

The table below shows how the state of the two sensors and one switch signal an error.

500-Sheet
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D372

| Tray Upper Limit SW | Tray Full Sn | Paper Hgt Sn | What Happens |
|---------------------|--------------|--------------|--|
| ON | OFF | OFF | Tray Full. One or both sensors has failed. |
| OFF | ON | OFF | Tray Full |
| OFF | ON | ON | Lift motor starts to raise tray |
| OFF | OFF | OFF | Lift motor starts to lower tray |
| OFF | OFF | ON | Lift motor starts to raise tray. |

The machine issues a tray-full alert when the tray becomes full:

- Tray full sensor ON
- The tray has reached its lowest position.

Tray Operation

- Paper height sensor OFF (full upright)

The paper on the tray has pushed the edge depressors to the full upright position.

Normally, removing the paper from the tray restores normal operation. The actuator falls and the paper height sensor switches ON. This signals the lift motor to raise the tray to the start position.

An error will occur if an abnormal condition exists:

- After the paper height sensor switches ON and the tray lift motor raises the tray, if paper height sensor does not go OFF after 20 sec., this signals an error and the tray lift motor will switch OFF.
- With the paper height sensor OFF and the tray full sensor OFF, the tray lift motor lowers the tray. The tray lift motor will switch off if the paper height sensor does not go ON within 3 sec.

These two errors are counted as the same error. The first occurrence of the error is considered a jam, and at the second occurrence SC750 (Tray Lift Motor Error) is issued.

To recover from an error:

- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC750 is issued, cycling the main machine off/on may restore full operation if no problems are detected.

Edge Depressor Solenoid Error

At power on, or while the stack starts being output to the tray (the solenoid starts to go OFF), if the paper height sensor remains OFF this indicates a solenoid error. When this error occurs:

- All motors switch off.
- The error is logged.

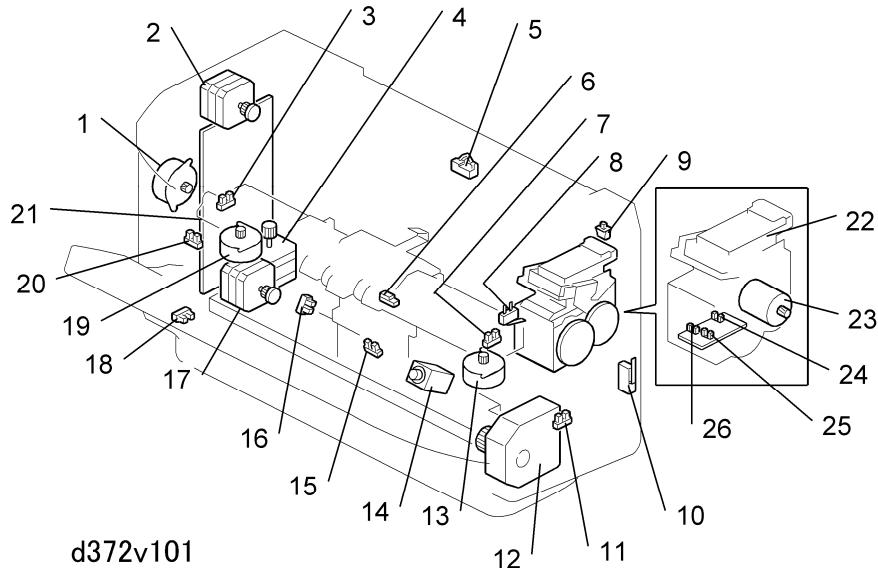
The first occurrence is considered a jam, and the second occurrence causes SC751 (Edge Depressor Solenoid).

To recover from an error:

- At the first occurrence of the error after a paper jam error, opening and closing either the top cover or the stapler door triggers the initial check and restores normal operation if no problems are detected.
- At the second occurrence after SC750 is issued, cycling the main machine off/on may restore full operation if no problems are detected.

2.7 ELECTRICAL COMPONENTS

2.7.1 COMPONENT LAYOUT



500-Sheet
Finisher
D372

| | | | |
|-----|----------------------------|-----|------------------------------|
| 1. | Positioning Roller Motor | 14. | Stack Depressor Solenoid |
| 2. | Transport Motor | 15. | Feed-Out Belt HP Sensor |
| 3. | Rear Fence HP Sensor | 16. | Paper Height Sensor |
| 4. | Stapler Movement Motor | 17. | Feed-Out Belt Motor |
| 5. | Entrance Sensor | 18. | Output Tray Full Sensor |
| 6. | Stapling Tray Paper Sensor | 19. | Rear Fence Motor |
| 7. | Front Fence HP Sensor | 20. | Positioning Roller HP Sensor |
| 8. | Tray Upper Limit Switch | 21. | Main Board |
| 9. | Top Cover Switch | 22. | Stapler |
| 10. | Stapler Door Switch | 23. | Stapler Motor |
| 11. | Stapler HP Sensor | 24. | Staple Cartridge Set Sensor |
| 12. | Tray Lift Motor | 25. | Stapler Hammer HP Sensor |
| 13. | Front Fence Motor | 26. | Staple End Sensor |

Electrical Components

2.7.2 SUMMARY OF ELECTRICAL COMPONENTS

| Motors | | |
|--------|------------------------------|--|
| M1 | Feed-Out Belt Motor | Drives the two feed-out belts (1 pawl each). The pawls push the finished stack out of the finisher. |
| M2 | Front Fence Motor | Moves the front fence to the back and front. |
| M3 | Positioning Roller Arm Motor | Lowers and raises the positioning roller arm and positioning roller. |
| M4 | Rear Fence Motor | Moves the rear fence to the front and back. |
| M5 | Stapler Movement Motor | Moves the stapler to the front and back. |
| M6 | Transport Motor | Drives all the rollers in the finisher: entrance roller, positioning roller, return rollers, exit roller |
| M7 | Tray Lift Motor | Raises and lowers the output tray. |
| M8 | Stapler Motor | The motor inside the stapler that drives staple supply and stapling. |

| Board | | |
|-------|------------|--|
| PCB1 | Main Board | Controls operation of the finisher. DIP switches can be changed to adjust the positions of the front and rear side fences. |

| Sensors | | |
|---------|-------------------------|--|
| S1 | Entrance Sensor | Detects the leading edge of the paper when it enters the finisher. Readings of this sensor are used for timing of finisher operation. Also detects jams. |
| S | Feed Out Belt HP Sensor | Detects the HP of the feed-out belt pawls on the two feed-out belts (one pawl on each belt). |

Electrical Components

| Sensors | | |
|---------|------------------------------|--|
| S2 | Front Fence HP Sensor | Detects the HP of the front fence at the front of the finisher. |
| S3 | Output Tray Full Sensor | Located at the bottom left corner of the finisher. When the actuator on the tray rail switches this sensor ON, this signals tray full. |
| S4 | Paper Height Sensor | Used to monitor the positions of the edge depressors that press down on the trailing edge of the stack at the end fence. When the top of the stack pushes the depressors up, this switches the sensor OFF and signals the tray lift motor to lower the tray. |
| S5 | Positioning Roller HP Sensor | Detects the HP of the positioning roller when it is up. |
| S6 | Rear Fence HP Sensor | Detects the HP of the rear fence at the back of the finisher. |
| S7 | Stapler HP Sensor | Detects HP of the stapler at the front of the finisher. |
| S8 | Stapling Tray Paper Sensor | Detects paper on the stapling tray, |

500-Sheet
Finisher
D372

| Solenoid | | |
|----------|--------------------------|---|
| SOL | Stack Depressor Solenoid | When a stack is output, the tray lift motor lowers the tray slightly. At this time, the stack depressor solenoid switches ON and retracts the edge depressors briefly so that the trailing edge of the stack can fall onto the tray. The solenoid then switches OFF and lowers the arms against the trailing edge of the stack to keep it down against the end fence. |

Electrical Components

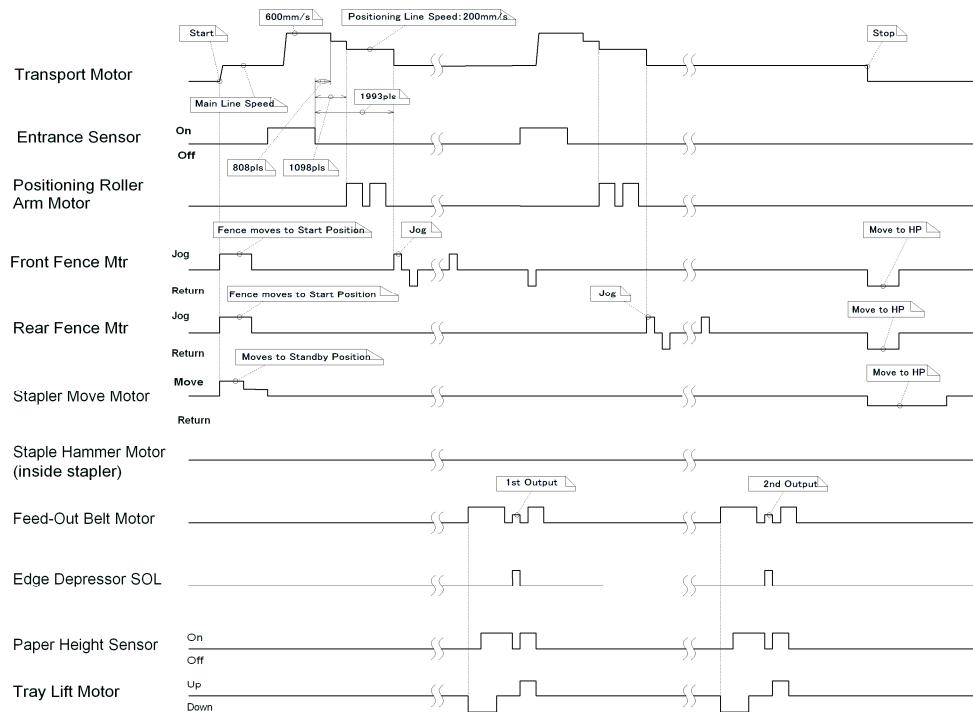
| Switches | | |
|----------|-------------------------|--|
| SW1 | Stapler Door Switch | Detects when the stapler top cover is open or closed. |
| SW2 | Top Cover Switch | Detects when the top cover is opened or closed. |
| SW3 | Tray Upper Limit Switch | If the tray becomes full, the top of the stack will push up a plate that activates this switch and switches off the finisher. This is a backup feature that will shut down operation if the tray full sensor or paper height sensor fails with the output tray full. |
| Other | | |
| Stapler | Stapler Unit | Staples sheets stacked on the stapling tray. |

Electrical Components

2.7.3 TIMING CHARTS

The first flowchart below is the operational timing chart for shift mode, the second chart is for stapling mode.

Shift Mode

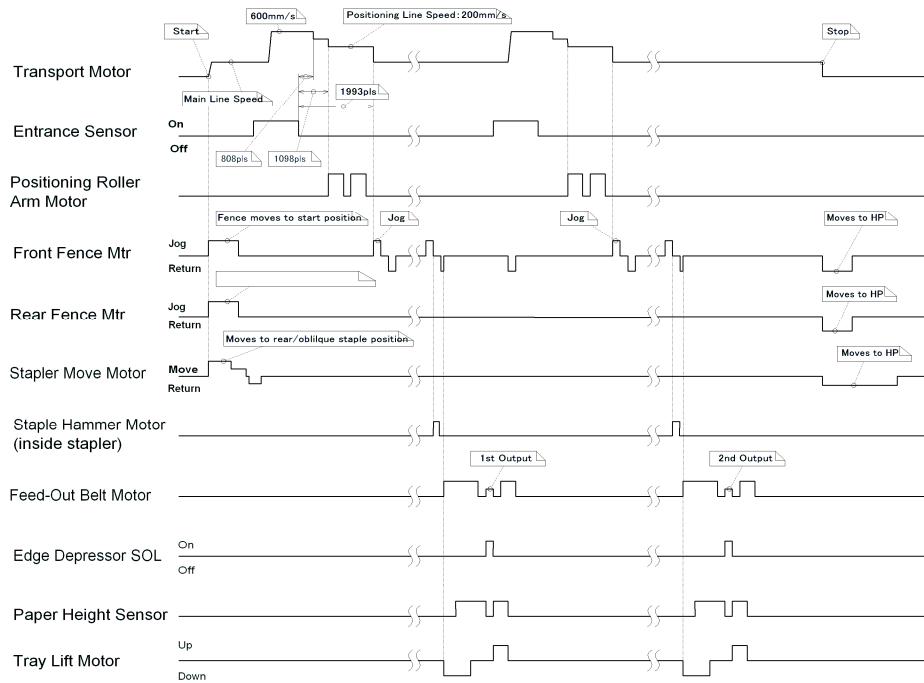


500-Sheet
Finisher
D372

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Electrical Components

Staple Mode: Rear/Oblique



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2.7.4 ERROR LIST

Here is a comprehensive list of finisher errors.

Solution Key

| Symbol | Solution |
|--------|--|
| ① | <ol style="list-style-type: none"> 1. Open top cover (or stapler door). 2. Remove jammed paper (or staple). 3. Close the top cover (or stapler door). |
| ② | <p>1st Occurrence (Jam Error):</p> <ol style="list-style-type: none"> 1. Open top cover (or stapler door). 2. Remove jammed paper (or staple). 3. Close the top cover (or stapler door). <p>2nd Occurrence (SC Code):</p> <ol style="list-style-type: none"> 1. Cycle the machine power off/on 2. If this does not solve the problem, refer to Section "4. Troubleshooting". 3. Look up the SC code in table and do the service procedure. |

Electrical Components

| No. | Error | Problem/Solution |
|-----|-----------------------------------|--|
| 1 | Entrance sensor | <p>Problem: Lag errorOccurs during paper feed. A paper exit signal (ON) was received from the main machine, but the entrance sensor did not switch ON after the finisher transport motor ran long enough to feed paper 500 mm.</p> <p>Solution: ①</p> |
| 2 | Entrance sensor | <p>Problem: Late errorOccurs during paper feed. The entrance detected the paper, but the entrance sensor did not go OFF after the finisher transport motor ran long enough to feed 1.5 times the length of the paper size signaled by the main machine.</p> <p>Solution: ①</p> |
| 3 | Paper in paper path | <p>Problem: Occurs at power on, or after the top cover or stapler door has been closed. After the top or stapler cover switch is closed, the stapler cover switch goes OFF but the entrance sensor remains ON for longer than 50 ms.</p> <p>Solution: ①</p> |
| 4 | No paper present | <p>Problem: Occurs during stapling, stapling mode WAIT. The paper sensor on the stapling tray remains OFF for more than 50 ms.</p> <p>Solution: No action required.</p> |
| 5 | Positioning roller motor error | <p>Problem: Occurs during initialization or during operation of the positioning roller motor.</p> <ul style="list-style-type: none"> ▪ During initialization or while the positioning roller arm was being lowered, the HP sensor remained ON did |

500-Sheet
Finisher
D372

Electrical Components

| No. | Error | Problem/Solution |
|-----|------------------------------|---|
| | | <p>not go OFF within the prescribed time.</p> <ul style="list-style-type: none"> ▪ During initialization, the positioning roller HP sensor remained OFF did not go ON within the prescribed time. ▪ When the positioning roller arm is raised from the down position, the HP sensor does not go ON even after the positioning roller motor remained on for 450 pulses. <p>Solution: ②</p> |
| 6 | Front side fence motor error | <p>Problem:</p> <p>Occurs at power on, when the paper moves to the start position in the finisher, or in standby mode.</p> <ul style="list-style-type: none"> ▪ The front side fence HP sensor did not switch from ON to OFF after the front side fence motor remained on for 50 pulses to move the fence toward the rear. ▪ The front side fence HP sensor did not switch from OFF to ON after the front side fence motor remained on for 420 pulses. <p>Solution: ②</p> |
| 7 | Rear side fence motor error | <p>Problem:</p> <p>Occurs at power on, when the paper moves to the start position in the finisher, or in standby mode.</p> <ul style="list-style-type: none"> ▪ The rear side fence HP sensor did not switch from ON to OFF after the rear side fence motor remained on for 50 pulses to move the fence forward. ▪ The front side fence HP sensor did not switch from OFF to ON after the front side fence motor remained on for 420 pulses to move the fence toward the rear. <p>Solution: ②</p> |
| 8 | Feed-out belt motor | <p>Problem:</p> <p>Occurs at initialization or during feed-out belt operation.</p> <ul style="list-style-type: none"> ▪ The feed-out belt HP sensor did not switch from ON to |

Electrical Components

| No. | Error | Problem/Solution |
|-----|--------------------------------|---|
| | | <p>OFF after the feed-out belt motor ran for 100 pulses.</p> <ul style="list-style-type: none"> The feed-out belt HP sensor did not switch from OFF to ON after the feed-out belt motor ran for 1000 pulses. <p>Solution: ②</p> |
| 9 | Stapler movement motor error 1 | <p>Problem:</p> <p>Occurs at initialization or while the paper is being fed to the start position in the finisher.</p> <ul style="list-style-type: none"> The stapler HP sensor did not switch from ON to OFF after the stapler movement motor ran for 200 pulses. The stapler HP sensor did not switch from OFF to ON after the stapler movement motor ran for 5600 pulses. <p>Solution: ②</p> |
| 10 | Stapler motor error | <p>Problem:</p> <p>Occurs during staple supply to the stapler.</p> <p>The stapler operation (stapling) did not end after 600 ms.</p> <p>A staple jam can also cause this error.</p> |
| 11 | Tray lift motor error | <p>Problem:</p> <p>Occurs at initialization, after return to standby, or during feed-out belt operation.</p> <ul style="list-style-type: none"> The paper height sensor did not go OFF after the tray lift motor ran for 3 sec. to lower the tray. The paper height sensor did not go OFF after the tray lift motor ran for 20 sec. to raise the tray. <p>Solution: ②</p> |
| 12 | Edge depressor solenoid | <p>Problem:</p> <p>Occurs at initialization or during feed-out belt operation.</p> <ul style="list-style-type: none"> The paper height sensor remained ON after the solenoid went OFF. <p>Solution: ②</p> |
| 13 | Tray full sensor | <p>Problem:</p> |

500-Sheet
Finisher
D372

Electrical Components

| No. | Error | Problem/Solution |
|-----|-------------------------------|--|
| | | <p>The tray full sensor went ON with the edge depressor solenoid OFF and paper height sensor OFF.</p> <p>Solution: Tray full, remove paper.</p> |
| 14 | Staple out | <p>Problem:</p> <p>Occurs during standby or during stapling.</p> <ul style="list-style-type: none"> ▪ The staple near-end sensor went ON, or during staple supply the self-priming sensor did not go ON, even after 10 attempts to supply more staples to the stapler. <p>Solution: Replace the empty staple cartridge.</p> |
| 15 | Top cover open | <p>Problem:</p> <p>The top cover remained open longer than 2 ms.</p> <p>Solution: Close the top cover.</p> |
| 16 | Stapler cover open | <p>Problem:</p> <p>The stapler cover remained open longer than 2 ms.</p> <p>Solution: Close the stapler cover.</p> |
| 17 | Tray upper limit switch is ON | <p>Problem:</p> <p>The tray upper limit switch remained on longer than 2 ms.</p> <p>Solution: Before determining that an error has occurred:</p> <ul style="list-style-type: none"> ▪ Lower the safety lever. ▪ Cycle the machine power off/on |
| 18 | System error | <p>Problem:</p> <p>An abnormal condition was detected and existed longer than 60 sec.</p> <p>Solution: DFU</p> |
| 19 | Exceeded system limitation | <p>Problem:</p> <p>Occurs when the number of command requests received has exceeded the limit. The entrance detected the paper, but the entrance sensor did not go OFF after the finisher transport motor ran long enough to feed 1.5 times the length of the paper size signaled by the main machine.</p> |

Electrical Components

| No. | Error | Problem/Solution |
|-----|------------------------|--|
| | | Solution: DFU |
| 20 | Abnormal data transfer | Problem: A problem has been detected at ASAP during data transmission. Solution: ① |

500-Sheet
Finisher
D372

Specifications

3. SPECIFICATIONS

3.1 SPECIFICATIONS

| | | | | |
|------------------------------|---|--------|----------|----------------|
| Target Line Speed | 77 mm/sec. to 205 mm/sec | | | |
| Target CPM | 35 cpm | | | |
| Face-down Output Size | 12"x18", A3 SEF to A6 SEF, DLT to HLT SEF Shift sizes: A3 SEF to B5 SEF A5, B6, A6 SEF labels possible | | | |
| Paper Thickness | 52 g/m ² (45 K) to 157 g/m ² (135 K) Up to 253 g/m ² (220K) without shift | | | |
| Stapling | | | | |
| Stack Height for Stapling | 50 sheets: A4, LT and smaller 30 sheets: B4, LG and larger | | | |
| Size | A3 SEF to B5 SEF (can be mixed if same width) | | | |
| Stack Thickness | 64g/m ² (45 K) to 157 g/m (135 K) | | | |
| Stapling Positions | Front/Oblique: 1, Front/Parallel: 1 Rear/Oblique: 1, Rear/Parallel: 1, 2 locations | | | |
| Output Tray Capacity | | | | |
| Non-staple Mode | 500 sheets: A4, LT and smaller | | | |
| Staple Mode | 250 sheets: B4, LG and larger Stack Size (Stapling) | Stacks | Size | |
| | 2 to 9 Sheets | | 55 to 46 | A4, B5, LT LEF |

Specifications

| | | | | |
|-------------------------------|-----------------------|---|---------------------------|--------------------|
| | 10 to 50 Sheets | | 45 to 10 | |
| | 2 to 9 Sheets | | 55 to 27 | |
| | 10 to 50 Sheets | | 25 to 8 | A4, B5, LT SEF |
| | 2 to 9 Sheets | | 55 to 27 | A3, B4, DLT, LG |
| | 10 to 30 Sheets | | 25 to 8 | |
| | | | | |
| Stacking | | Non-Stapling Mode | Vertical: 15 mm or less | |
| | | | Horizontal: 15 mm or less | |
| Jogging Precision | | | | |
| | 2 to 30 Sheets | 2 mm | | |
| | 31 to 50 Sheets | 3 mm | | |
| Dimensions (w x d x h) | | 396 x 551 x 276 mm (15.6 x 21.7 x 10.9 in.) | | |
| Weight | | 12 kg (26.4 lb.) | | |

500-Sheet
Finisher
D372

PRINTER/SCANNER OPTION

D383

PRINTER/SCANNER OPTION D383

TABLE OF CONTENTS

| | |
|--|----------|
| 1. INSTALLATION | 1 |
| 1.1 CONTROLLER BOARD SLOTS | 1 |
| 1.1.1 INTERFACE BOARD, SD CARD SLOTS | 1 |
| 1.2 PRINTER AND P/S OPTIONS | 5 |
| 1.2.1 OVERVIEW..... | 5 |
| 1.2.2 KIT CONTENTS..... | 6 |
| 1.2.3 PRINTER, PRINTER/SCANNER UNIT INSTALLATION | 8 |
| 1.2.4 PRINTER, SCANNER ENHANCE OPTIONS | 11 |
| 1.3 INSTALLING CONTROLLER OPTIONS..... | 14 |
| 1.3.1 IEEE 1284 INTERFACE BOARD (B679) | 14 |
| 1.3.2 IEEE 802.11A/G (D377)..... | 15 |
| 1.3.3 BLUETOOTH UNIT (B826)..... | 19 |
| 1.3.4 POSTSCRIPT 3 UNIT (D383)..... | 20 |
| 1.3.5 GIGABIT ETHERNET (G831) | 1 |
| 1.4 CHECK ALL CONNECTIONS..... | 2 |
| 2. SERVICE TABLES..... | 3 |
| 2.1 PRINTER SERVICE TABLES | 3 |
| 2.2 SCANNER SERVICE TABLES | 5 |
| 3. SPECIFICATIONS..... | 7 |
| 3.1 SPECIFICATIONS | 7 |
| 3.1.1 PRINTER CONTROLLER (GENERAL) | 7 |
| 3.1.2 USB SPECIFICATIONS..... | 8 |
| 3.1.3 IEEE 802.11A/G, G SPECIFICATIONS | 8 |
| 3.1.4 BLUETOOTH SPECIFICATIONS | 8 |
| 3.1.5 SCANNER SPECIFICATIONS..... | 9 |
| 3.1.6 SOFTWARE ACCESSORIES | 10 |

Read This First

Safety, Conventions, Trademarks

SAFETY

PREVENTION OF PHYSICAL INJURY

1. Before disassembling or assembling parts of the machine and peripherals, make sure that the machine and peripheral power cords are unplugged.
2. The plug should be near the machine and easily accessible.
3. Note that some components of the machine and the paper tray unit are supplied with electrical voltage even if the main power switch is turned off.
4. If any adjustment or operation check has to be made with exterior covers off or open while the main switch is turned on, keep hands away from electrified or mechanically driven components.
5. If the [Start] key is pressed before the machine completes the warm-up period (the [Start] key starts blinking red and green), keep hands away from the mechanical and the electrical components as the machine starts making copies as soon as the warm-up period is completed.
6. The inside and the metal parts of the fusing unit become extremely hot while the machine is operating. Be careful to avoid touching those components with your bare hands.
7. To prevent a fire or explosion, keep the machine away from flammable liquids, gases, and aerosols.

HEALTH SAFETY CONDITIONS

1. Never operate the machine without the ozone filters installed.
2. Always replace the ozone filters with the specified types at the proper intervals.
3. Toner and developer are non-toxic, but if you get either of them in your eyes by accident, it may cause temporary eye discomfort. Try to remove with eye drops or flush with water as first aid. If unsuccessful, get medical attention.

OBSERVANCE OF ELECTRICAL SAFETY STANDARDS

1. The machine and its peripherals must be installed and maintained by a customer service representative who has completed the training course on those models.

SAFETY AND ECOLOGICAL NOTES FOR DISPOSAL

1. Do not incinerate toner bottles or used toner. Toner dust may ignite suddenly when exposed to an open flame.
2. Dispose of used toner, developer, and organic photoconductors in accordance with

local regulations. (These are non-toxic supplies.)

3. Dispose of replaced parts in accordance with local regulations.
4. When keeping used lithium batteries in order to dispose of them later, do not put more than 100 batteries per sealed box. Storing larger numbers or not sealing them apart may lead to chemical reactions and heat build-up.

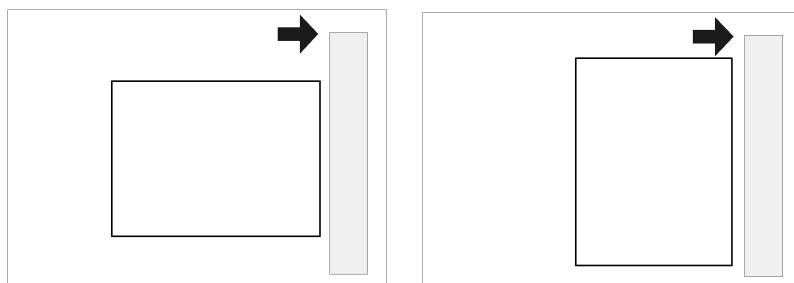
⚠ CAUTION

- The danger of explosion exists if a battery of this type is incorrectly replaced. Replace only with the same or an equivalent type recommended by the manufacturer. Discard used batteries in accordance with the manufacturer's instructions.

Conventions and Trademarks

CONVENTIONS

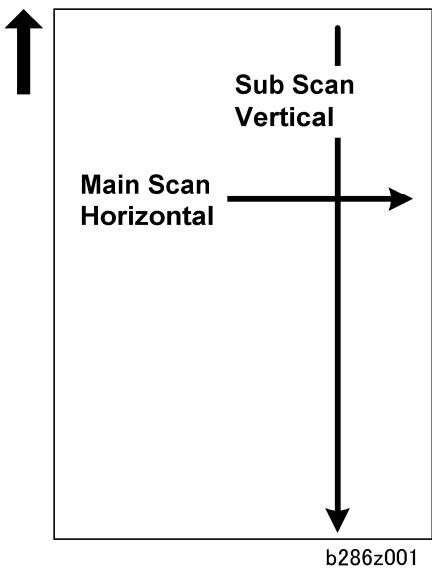
| Symbol | What it means |
|---|-------------------------|
|  | Core Tech Manual |
|  | Screw |
|  | Connector |
|  | E-ring |
|  | C-ring |
|  | Harness clamp |
| FFC | Flexible Film Connector |



SEF (Short Edge Feed)

LEF (Long Edge Feed)

The notations "SEF" and "LEF" describe the direction of paper feed. The arrows indicate the direction of paper feed.



In this manual "Horizontal" means the "Main Scan Direction" and "Vertical" means the "Sub Scan Direction" relative to the paper feed direction.

WARNINGS, CAUTIONS, NOTES

In this manual, the following important symbols and notations are used.

⚠ WARNING

- A Warning indicates a potentially hazardous situation. Failure to obey a Warning could result in death or serious injury.

⚠ CAUTION

- A Caution indicates a potentially hazardous situation. Failure to obey a Caution could result in minor or moderate injury or damage to the machine or other property.

★ Important

- Obey these guidelines to avoid problems such as misfeeds, damage to originals, loss of valuable data and to prevent damage to the machine

↓ Note

- This information provides tips and advice about how to best service the machine.

TRADEMARKS

- Microsoft®, Windows®, and MS-DOS® are registered trademarks of Microsoft Corporation in the United States and /or other countries.
- PostScript® is a registered trademark of Adobe Systems, Incorporated.
- PCL® is a registered trademark of Hewlett-Packard Company.
- Ethernet® is a registered trademark of Xerox Corporation.
- PowerPC® is a registered trademark of International Business Machines Corporation.

- Other product names used herein are for identification purposes only and may be trademarks of their respective companies. We disclaim any and all rights involved with those marks.

1. INSTALLATION

1.1 CONTROLLER BOARD SLOTS

The following items are standard (not options) for the Color Scanner Unit on the D018/D020.

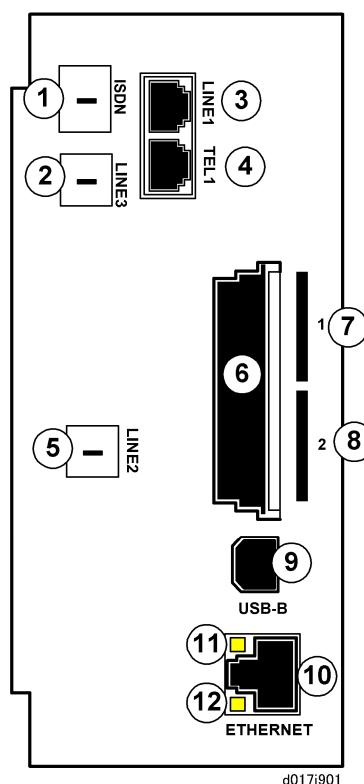
- Printer/Scanner Unit
- 256 MB memory

These items are available as options for the Monochrome Scanner Unit D017/D019.

1.1.1 INTERFACE BOARD, SD CARD SLOTS

The machine controller box has one board slot and two SD card slots.

- Only one interface board option can be installed.
- Only two SD cards are available for applications and maintenance.



Printer/
Scanner
Option
D383

Controller Board Slots

Board Slots

| No. | Name | Description |
|-----|----------------|---|
| ① | ISDN | Jack for ISDN connection (Japan Only) |
| ② | Line 3 | Not used. (G4 is not available for installation outside Japan at this time.) |
| ③ | Line 1 | Jack for the main telephone line from the outside for connection to Fax Option (D361). |
| ④ | TEL1 | Jack for telephone connection |
| ⑤ | Line 2 | Jack for a 2nd line connection to the Fax Interface Unit (D361) (G3) when this option is installed. |
| ⑥ | Board Slot | Optional interface boards are installed here. |
| ⑦ | SD Card Slot 1 | For options provided on SD cards. The application SD card (with the exception of the HDD Encryption unit or VM SD card) should be installed in Slot 1. If more than one application is to be used, move the applications to the same SD card with SP5873. |
| ⑧ | SD Card Slot 2 | For options provided on SD cards and servicing. The HDD Encryption unit SD card and VM card must be installed in Slot 2. |
| ⑨ | USB-B | Built-in for connection of USB devices (USB 2.0) |
| ⑩ | Ethernet | Standard LAN connection point. 100BaseT LAN |
| ⑪ | Green LED | Lights when the network is connected and operating. |
| ⑫ | Orange LED | Indicates the current transmission speed: ON: 100Base OFF: 10Base |

- Only two SD Card slots are available for applications.
- To install more applications, they must be moved onto one SD Card. (See 1.2.4 Printer, Scanner Enhance Options for specific instructions)

Controller Board Slots

Board Slot

The following optional interface boards are available. There is only one board slot so only one can be installed.

| No. | Interface Board |
|------|--|
| B679 | IEEE1284 Interface Board Type A (B679) |
| B826 | Bluetooth Interface Unit Type 3245 (B826) |
| D377 | File Format Converter Type E (D377) |
| D377 | IEEE802.11a/g Interface Unit Type J/K (D377) |
| G831 | Gigabit Ethernet Type 7300 (G831) |

SD Card Slots

The following options are provided on SD cards.

- Two SD card slots are available.
- The VM application SD card and HDD Encryption Unit SD Card must be installed in Slot 2 (lower).
- Other applications should be installed in Slot 1 (upper). If more than one application is required, move the applications onto one SD card with SP5873-1.
- Due to copyright restrictions, the PostScript Unit (D383) cannot be moved to another SD card. However, other applications can be moved onto the PostScript 3 SD card.

Printer/
Scanner
Option
D383

| No. | SD Card Applications |
|------|--|
| D362 | Data Overwrite Security Unit Type I (D362) |
| D377 | Browser Unit Type D (D377) |
| D377 | HDD Encryption Unit (D377) |
| D377 | VM Card Type E (D377) |
| D383 | PostScript3 Unit Type 3350 (D383) |
| D383 | Printer Enhance Option Type 3350 (D383) |

Controller Board Slots

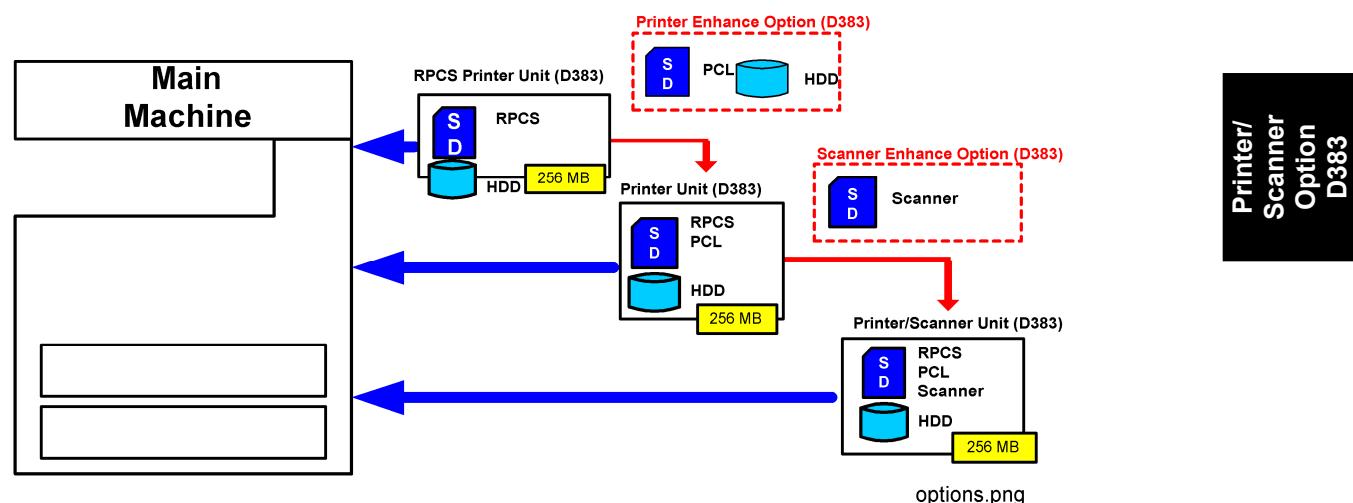
| No. | SD Card Applications |
|------|---|
| D383 | Printer Unit Type 3350 (D383) |
| D383 | Printer/Scanner Unit Type 3350 (D383) |
| D383 | RPCS Printer Unit Type 3350 (D383) |
| D383 | Scanner Enhance Option Type 3350 (D383) |

1.2 PRINTER AND P/S OPTIONS

1.2.1 OVERVIEW

This section describes the installation of the following items:

- RPCS Printer Unit
- Printer Unit
- Printer/Scanner Unit
- 256 MB Memory. Optional memory is required for each unit.
- HDD unit
- Printer Enhance Option
- Scanner Enhance Option



Main Units

The three main units are:

- **RPCS Printer Unit Type 3350**. For customers who require only basic copying and printing and the RPCS printer language. The HDD is not required but the 256 MB memory must be installed.
- **Printer Unit Type 3350**. For customers who do not require the extended scanning features but need more printing capability (both RPCS and PCL printer languages are provided). The 256 MB memory is required.
- **Printer/Scanner Unit Type 3350**. For customers who require the full range of DS features (advanced scanning and printing features such as "scan-to" solutions, virtual mailboxes, PCL, etc.). The 256 MB memory unit is required.

Printer and P/S Options

Separate Options

There are three separate options: HDD, 256 MB memory and PS3.

- **HDD.** Provided with the following kits: Printer Enhance Option, Printer Unit, and Printer/Scanner Unit. Refer to the illustration above. If an HDD has already been installed as a separate item, the HDD unit in the machine does not need to be replaced with the HDD from the kit.
- **256 MB memory.** Not provided with any option. However, every unit (RPCS, Printer Unit, P/S unit) requires installation of the 256 MB memory.
- **PostScript 3 Unit.** The PS3 option can be used with the RPCS Unit, the Printer Unit, or the Printer/Scanner Unit.

Enhance Options

There are two enhance options:

- Printer Enhance Option Type 3350. Updates the RPCS unit by adding PCL.
- Scanner Enhance Option Type 3350. Updates the RPCS unit or Printer Unit by adding the advanced scanning features.

1.2.2 KIT CONTENTS

Check the accessories and their quantities against the list below and the illustration on the next page. This is a common list for all the kits.

Common Accessory Table

This common accessory table lists all the items of the following units and options for the D007/D008:

- RPCS: RPCS Printer Unit
- PU: Printer Unit
- P/S: Printer/Scanner Unit
- PEO: Printer Enhance Unit
- SEO: Scanner Enhance Unit

| | Description | Qty | Kit Contents | | | | |
|----|-----------------|-----|--------------|-----|-----|-----|-----|
| | | | RPCS | PU | P/S | PEO | SEO |
| | 256 MB Memory*1 | 1 | No | No | No | No | No |
| 1. | HDD*2 | 1 | No | Yes | Yes | Yes | No |
| 2. | Screws | 2 | No | Yes | Yes | Yes | |

Printer and P/S Options

| | Description | Qty | Kit Contents | | | | |
|----|-----------------|-----|--------------|-----|-----|-----|-----|
| | | | RPCS | PU | P/S | PEO | SEO |
| 3. | SD Card | 1 | Yes | Yes | Yes | Yes | Yes |
| 4. | NA Keytop Set*3 | 1 | Yes | Yes | Yes | Yes | Yes |
| | EU Keytop Set*3 | 1 | Yes | Yes | Yes | Yes | Yes |
| 5. | Ferrite Core | 1 | No | Yes | Yes | Yes | Yes |

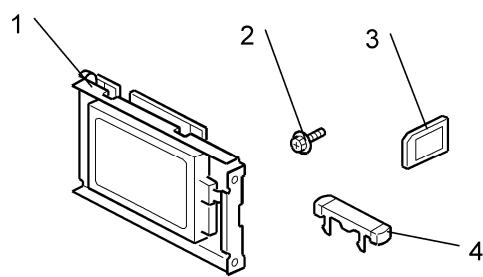
*1: The 256 Memory is a separate option and it is not provided in the kits. However, one memory unit is required for the installation of every print unit.

*2: The HDD can be installed anytime as a separate option. If an HDD unit has already been installed, it does not need to be replaced with the HDD unit from the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit kit.

*3: The number of keytops provided varies:

Printer/
Scanner
Option
D383

| Kit | Keytops | | | |
|----------------------|---------|-----------------|---------|---------|
| | Copy | Document Server | Printer | Scanner |
| RPCS Unit | 1 | | 1 | |
| Printer Unit | 1 | 1 | 1 | |
| Printer/Scanner Unit | 1 | 1 | 1 | 1 |
| Printer Enhance Unit | | 1 | | |
| Scanner Enhance Unit | | | | 1 |



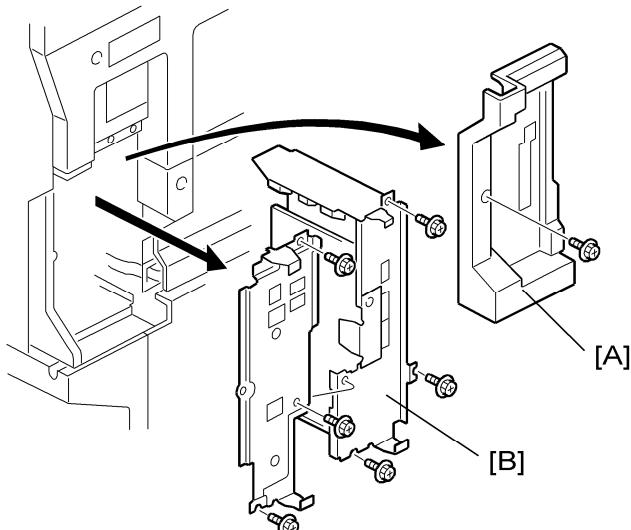
d383i100

Printer and P/S Options

1.2.3 PRINTER, PRINTER/SCANNER UNIT INSTALLATION

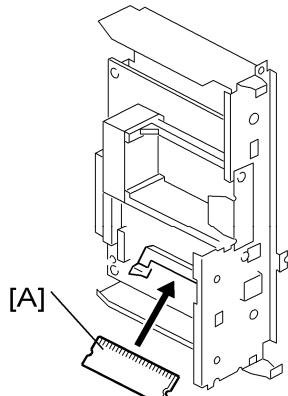
CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017r960

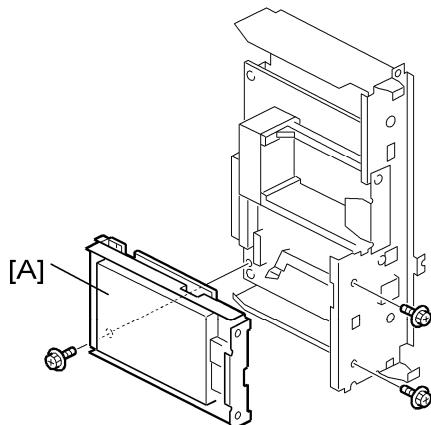
1. Remove the application cover [A] (x1).
2. Remove the controller board [B] (x3).



d017i501

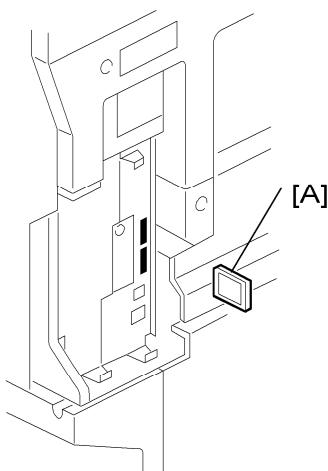
3. Install the 256 MB memory [A].

Printer and P/S Options



d017r965

4. Attach the HDD unit [A] to the controller board bracket (x2, x3).
5. Reinstall the controller board with the HDD.

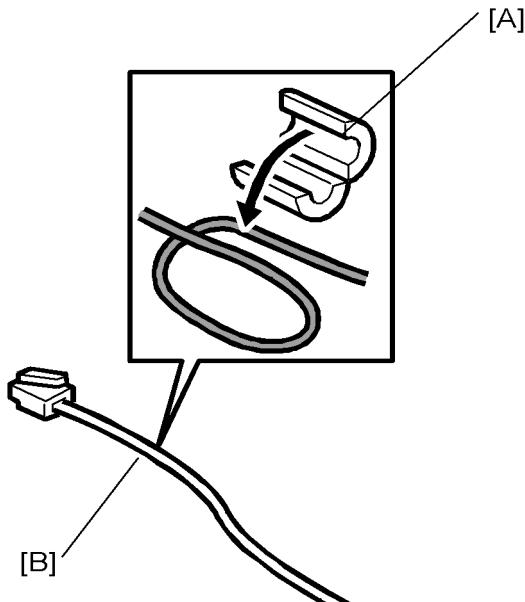


Printer/
Scanner
Option
D383

d017i502a

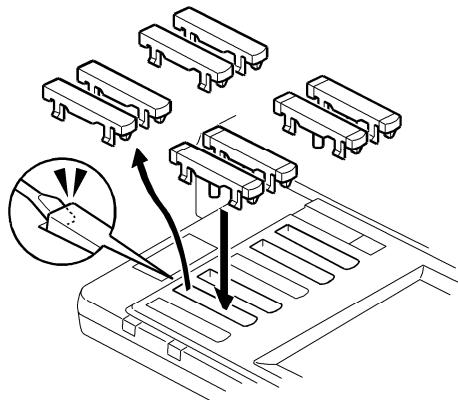
6. Insert the SD card [A] in SD card Slot 1 (upper).
7. Cycle the machine power off/on.
8. Format the HDD with SP5832-1.
9. Do SP5853 to copy the preset stamp data from the firmware to the hard disk.
10. Do SP5846-040 to copy the address book to the hard disk from the controller board.
11. Do SP5846-041 to let the user get access to the address book.
12. Reattach the application cover (x1).

Printer and P/S Options



b767i903

13. Attach the ferrite core [A] to the LAN cable [B].
14. Connect the LAN cable to the "NIC" connection.
15. Connect the USB cable to the "USB" connection.



d383i105

16. Remove the 1st, 2nd, 4th, and 5th blank key tops.

Note

- The 3rd blank keytop from the top is reserved for the "Fax" keytop. Do not remove it at this time.

17. Replace the blank keytops with the keytops received in the kit from top to bottom:

- 1st Copy
- 2nd Document Server
- 4th Printer

Printer and P/S Options

- 5th Scanner
18. Connect the machine power cord and turn the main power switch on.
19. Enable the NIB and/or USB function.
- To enable the NIB function, enter the SP mode and set SP5985-001 (On Board NIC) to "1" (Enable).
 - To enable the USB function, enter the SP mode and set SP5985-002 (On Board USB) to "1" (Enable).
20. If there was no HDD in the machine before you installed the Printer Enhance Option, Printer Unit, or Printer/Scanner Unit:
- Do SP5846 41 so the user can use the address book.
 - Do SP5853 to copy the preset stamp data to the hard disk. Then turn the main power switch off/on

 **Important**

- These SPs must be done immediately after installation of an HDD unit in a machine that previously had no HDD.
- The first time the machine power is turned on with the new HDD installed, the system automatically takes the address book from the NVRAM and writes it on the new HDD. However, only the system administrator can use the new address book on the HDD at this time.
- If you do SP5846 41 immediately after power on, then all users can use the address book.

 **Note**

- It is not necessary to format the new hard disk after installation.

Printer/
Scanner
Option
D383

1.2.4 PRINTER, SCANNER ENHANCE OPTIONS

Accessory Check

Refer to the "Common Accessory Table"

Installation

The installation of the printer enhance option and scanner enhance option is done with SP5873 001 (Application Move).

 **Note**

- If you are going to update the RPCS unit with both the printer and scanner enhance options, the order of execution is not important.

1. Turn off the copier.
2. Remove the cover ( x1).
3. Confirm that the RPCS Unit or Printer Unit SD card is in the upper slot.

Printer and P/S Options

4. Put the option SD Card (Printer Enhance Option or Scanner Enhance Option) in the lower slot.
5. Turn the copier on.
6. Go into the SP mode and select SP5873-1.
7. Touch "Execute".
8. Obey the instructions on the display and touch "Execute" to start.
9. When the display tells you copying is completed, touch "Exit", then turn the machine off.
10. Remove the option SD card from the lower slot.
11. Turn the copier on.
12. Go into the User Tools mode and confirm that update was successful.

User Tools> System Settings> Administrator Tools> Firmware Version> Next

13. Turn the copier off and reattach the SD card slot cover.
14. Return the copied SD card to the customer for safekeeping, or tape it to the faceplate of the controller.

To undo an option update

1. Turn the main switch off.
2. Confirm that the RPCS Unit or Printer Unit SD card is in SD card the upper slot
3. Put the empty SD card (Printer Enhance Option or Scanner Enhance Option D383) in the lower slot.
4. Turn the main switch on.
5. Go into the SP mode and do SP5873-2 (Undo Exec).
6. Obey messages on the operation panel to complete the procedure.
7. Turn the main switch off.
8. Remove the restored SD card from the lower slot..
9. Turn the main switch on.
10. Go into the User Tools mode and confirm that undo was successful.

User Tools> System Settings> Administrator Tools> Firmware Version> Next

11. Turn the copier off again, then reattach the cover.

Important Notes About SD Cards

Here are some basic rules about moving an application to another SD card.

- The authentication data is moved with the application program to the target SD card.
- Once an application has been moved from the original SD card, the original SD card cannot be used unless the application is restored to the SD card with SP5873-2 (Undo Execute).
- SD cards must be stored in a safe location at the customer site The empty SD card

Printer and P/S Options

serves as proof of purchase and is the only evidence that the customer is licensed to use the application program.

- Before storing the card from which an application has been copied, label it carefully so that you can identify it easily if you need to do the undo procedure later.

If PostScript3 is not used...

Move all applications which the customer wants onto one SD card. The destination card should have the largest amount of space available so it can hold as many other applications as possible.



- The VM Card can be neither merged nor moved to another SD card. This card must be installed in Slot 2 (lower).

| SD Card Options | SD Card Size | Module Size |
|-----------------------------------|--------------|-------------|
| Printer/Scanner Unit Type 3350 | 32 MB | 9.3 MB |
| RPCS Printer Unit Type 3350 | 32 MB | 6.3 MB |
| Printer Unit Type 3350 | 32 MB | 8.3 MB |
| Printer Enhance Option Type 3350 | 16 MB | 4 MB |
| Scanner Enhance Option Type 3350 | 16 MB | 3 MB |
| DataOverwriteSecurity Unit Type I | 16 MB | 4 MB |
| PostScript3 Unit Type 3350 | 64 MB | 14.6 MB |

Printer/
Scanner
Option
D383

If PostScript3 is used...

Move all applications to the PostScript3 SD card.

Installing Controller Options

1.3 INSTALLING CONTROLLER OPTIONS

1.3.1 IEEE 1284 INTERFACE BOARD (B679)

Accessories

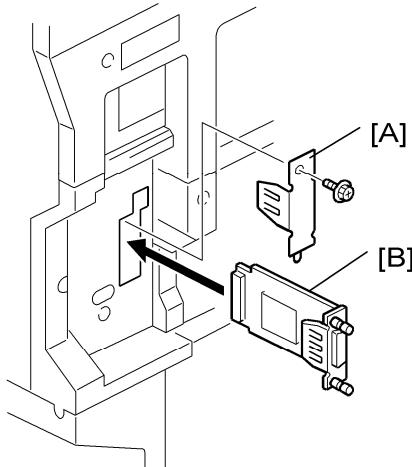
Check the accessories and their quantities against the following list:

| No | Description | Quantity |
|----|--------------------------------|----------|
| 1 | IEEE 1284 Interface Board B679 | 1 |

Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i503

- Remove the application cover (x1).
- Remove the cover [A] of the board slot (x1).
- Install the interface board [B] (x2 knob screws).

Note

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

- Reattach the application cover (x1).

Important

- If the 500-Sheet Finisher is installed, remove it before you attach the parallel cable. Install the finisher again after you connect the parallel cable.

1.3.2 IEEE 802.11A/G (D377)

Accessories

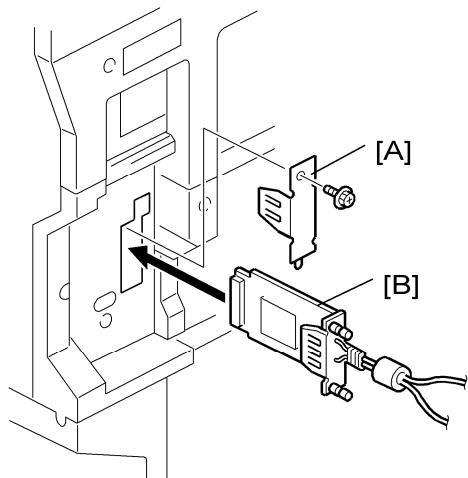
Check the accessories and their quantities against the following list:

| No | Description | Quantity |
|----|--------------------------------|----------|
| 1 | IEEE 802.11a/b Interface Board | 1 |
| 2 | Antenna Cables | 2 |
| 3 | Antenna Clamps | 8 |

Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



d017i507

1. Remove the plastic application cover (x1).
2. Remove the cover [A] of the board slot (x1).
3. Insert the interface card [B] as shown above.

Note

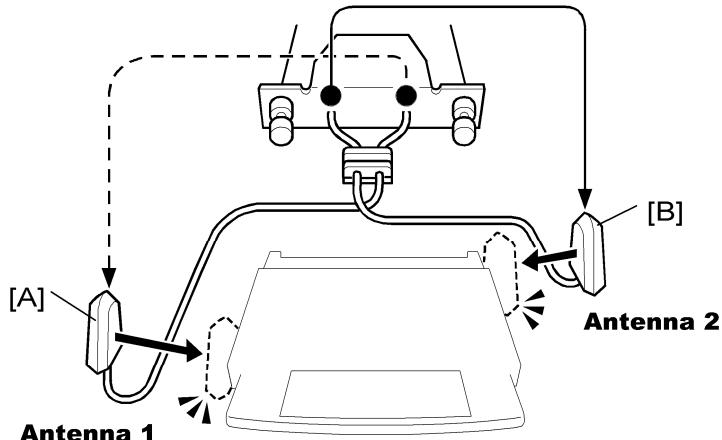
- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.

1. Look at the markings on the antenna bracket.

Printer/
Scanner
Option
D383

Installing Controller Options

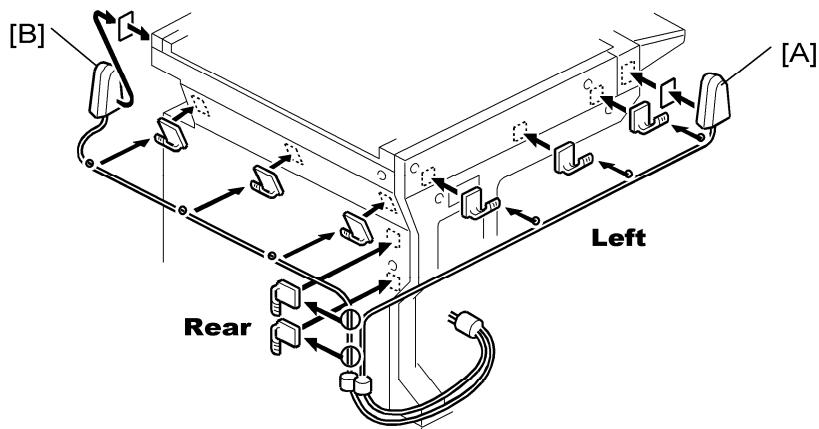
- **ANT1.** Antenna 1 transmits and receives. It must be installed on the front left corner of the main machine. (The core on the Antenna 1 cable is black.)
- **ANT2.** Antenna 2 only receives. It is installed on the rear right corner of the machine.



d017i508

Important

- To assure reliable data sending and receiving, Antenna 1 must be installed on the front left corner of the machine.



d017i509

2. Remove the seals from of the cable clamps and attach them to the left side of the machine as shown above.
3. Attach Antenna 1 [A] to the left front corner of the machine. (The core on the Antenna 1 cable is black.)
4. Set the cable of Antenna 1 in the clamps and close them.
5. Remove the seals from the cable clamps and attach them to the rear of the machine as shown above.

Installing Controller Options

6. Attach Antenna 2 [B] to the right rear corner of the machine.
7. Set the cable of Antenna 2 in the clamps and close them.

User Tool Settings for IEEE 802.11a/g

Go into the User Tools mode and do the procedure below. These settings take effect every time the machine is powered on.



- You cannot use IEEE 802.11a/g if you use Ethernet.

1. Press the “User Tools” key.
2. On the touch panel, touch “System Settings”.



- The Network I/F (default: Ethernet) must be set for either Ethernet or wireless LAN.

3. Select “Interface Settings”> “Network”> “Network I/F Setting”
4. Press “IEEE 802.11”. Only the wireless LAN options show.
5. Set the Communication Mode. Select either “802.11 Ad hoc”, “Ad hoc” or “Infrastructure”.
6. Enter the SSID setting. (The setting is case sensitive.)
7. Set the Channel. You need this setting when Ad Hoc Mode is selected.
 - Range: 1 to 14 (default: 11)
 - The allowed range for the channel settings may vary for different countries.
8. Do the WEP (Encryption) Setting.
 - The WEP (Wired Equivalent Privacy) setting is designed to protect wireless data transmission. The same WEP key is required on the receiving side in order to unlock encoded data. There are 64 bit and 128 bit WEP keys.
 - WEP: Select “Active” or “Inactive”. (“Inactive” is the default.)
 - Range of Allowed Settings: 64-bit (10 characters) or 128-bit (26 characters)
9. Set the Transmission Speed.
 - Press the Next button to show more settings. Then select the transmission speed for the mode: Auto, 11 Mbps, 5.5 Mbps, 2 Mbps, 1 Mbps (default: Auto). This setting should match the distance between the closest machine or access point. This depends on which mode is selected.
 - For the Ad Hoc Mode, this is the distance between the machine and the closest PC in the network. For the Infrastructure Mode, this is the distance between the machine and the closest access point.

Printer/
Scanner
Option
D383

Installing Controller Options

| | |
|----------|-----------------|
| 11 Mbps | 140 m (153 yd.) |
| 5.5 Mbps | 200 m (219 yd.) |
| 2 Mbps | 270 m (295 yd.) |
| 1 Mbps | 400 m (437 yd.) |

10. Press “Return to Default” to initialize the wireless LAN settings. Press “Yes” to initialize the following settings:
- Transmission mode
 - Channel
 - Transmission Speed
 - WEP
 - SSID
 - WEP Key

SP Mode Settings for IEEE 802.11b Wireless LAN

The following SP commands and UP modes can be set for IEEE 802.11b

| SP No. | Name | Function |
|----------|----------------|---|
| 5840 006 | Channel MAX | Sets the maximum range of the channel settings for the country. |
| 5840 007 | Channel MIN | Sets the minimum range of the channels settings allowed for your country. |
| 5840 011 | WEP Key Select | Used to select the WEP key (Default: 00). |
| UP mode | Name | Function |
| | SSID | Used to confirm the current SSID setting. |
| | WEP Key | Used to confirm the current WEP key setting. |
| | WEP Mode | Used to show the maximum length of the string that can be used for the WEP Key entry. |

1.3.3 BLUETOOTH UNIT (B826)

Accessories

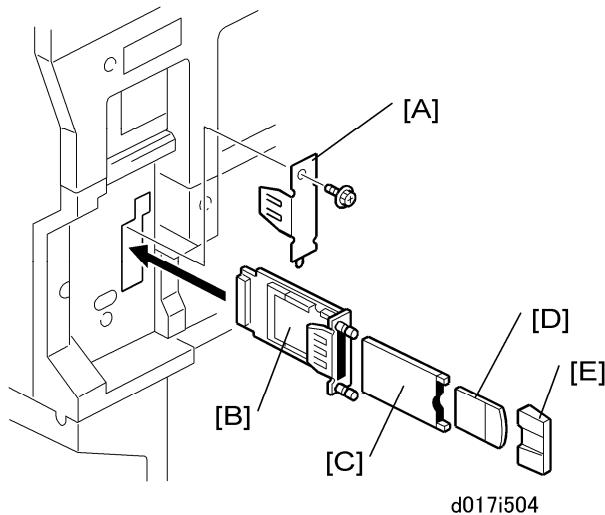
Check the accessories and their quantities against the following list:

| No | Description | Quantity |
|----|---------------------|----------|
| 1 | Bluetooth Unit B826 | 1 |
| 2 | PCI Card | 1 |
| 3 | Cap | 1 |

Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



1. Remove the plastic application cover (x1).
2. Remove the cover [A] of board slot (x1).
3. Attach the interface board [B] to the controller board (x2 knob screws).

Note

- Use a screwdriver to tighten the knob-screws. Do not tighten manually, because this can disconnect the board.
4. Install the Bluetooth card [C] in the slot in the Bluetooth unit.
 5. Insert the antenna [D] into the Bluetooth card.
 6. Attach the antenna cap [E].

Printer/
Scanner
Option
D383

Installing Controller Options

1.3.4 POSTSCRIPT 3 UNIT (D383)

Accessories

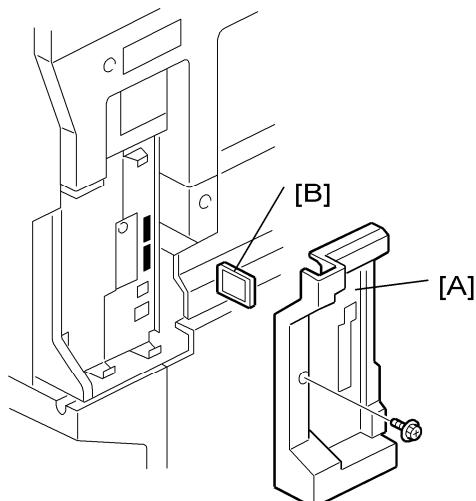
Check the accessories and their quantities against the following list:

| No | Description | Quantity |
|----|---------------------------------------|----------|
| 1 | PostScript 3 Emulation SD Card (D383) | 1 |
| 2 | Decal | 1 |

Installation

CAUTION

- Turn off the main power switch and disconnect the power supply cord.



- Remove the plastic application cover [A] (x1).
- Insert the SD card [B] into Slot 1 (upper slot).
- Reattach the plastic application cover (x1).
- Attach the "Adobe PostScript 3" decal to the front cover.

1.3.5 GIGABIT ETHERNET (G831)

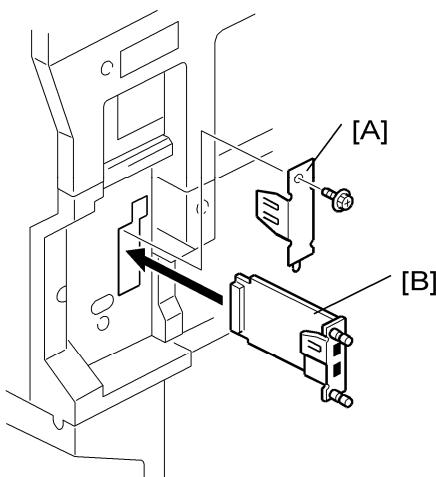
Accessories

Check the accessories and their quantities against the following list:

| No | Description | Quantity |
|----|-------------------------|----------|
| 1 | Gigabit Ethernet (G381) | 1 |
| 2 | Ferrite Core | 1 |

Installation

1. Switch the machine off.



d017i505

2. Remove the plastic application cover (x1).
3. Remove the board cover [A] (x 2).
4. Insert the Gigabit Ethernet Board [B] into the slot and fasten it with the screws.
5. Switch the machine on.
6. Print a configuration page to confirm that the machine recognizes the installed board for USB2.0:

User Tools > Printer Features > List/Test Print > Configuration Page

Printer/
Scanner
Option
D383

Check All Connections

1.4 CHECK ALL CONNECTIONS

1. Connect the machine's power cord and turn on the main switch.
 2. Go into the printer user mode and print the configuration page.
 - User Tools> Printer Settings> List Test Print> Config. Page
-  Note
- The same data can also be printed with printer SP1-004 – Print Summary. All installed options are listed in the “System Reference” column.

2. SERVICE TABLES

2.1 PRINTER SERVICE TABLES

| SP | Number/Bit SW | | Initial |
|------|---------------|----------|--|
| 1001 | Bit Switch | | <p>Adjusts the bit switch settings.</p> <p>Note: These bit switches are currently not used.</p> |
| | 001 | Bit SW 1 | |
| | 002 | Bit SW 2 | |
| | 003 | Bit SW 3 | |
| | 004 | Bit SW 4 | |
| | 005 | Bit SW 5 | |
| | 006 | Bit SW 6 | |
| | 007 | Bit SW 7 | |
| | 008 | Bit SW 8 | |

Printer/
Scanner
Option
D383

| SP | Number/Name | | Function/[Setting] |
|------|------------------|---------------------------|--|
| 1003 | Clear setting | | |
| | 001 | Initialize Printer System | Initializes the settings in the printer feature settings of UP mode. |
| | 002 | Clear CSS Counter | DFU |
| | 003 | Delete Program | DFU |
| 1004 | Print Summary | | Prints the printer summary sheet. |
| 1005 | Display Version. | | Displays the version of the controller firmware. |

Printer Service Tables

| SP | Number/Name | Function/[Setting] |
|------|--------------------|--|
| 1006 | Sample/Proof Print | [0~1/0/1] 0: Link with Doc. Server 1: Enable |

| SP | Function/[Setting] | | | | | |
|------|--|-----|------------|-------|------------|-----|
| 7910 | PDL Part No. Information | | | | | |
| | Returns a text string for the version. | | | | | |
| | RPCS | 150 | R55 | 156 | PDF | 162 |
| | PS | 151 | RTIFF | 157 | BMLinks | 163 |
| | RPDL | 152 | PCL | 156 | PICTBRIDGE | 164 |
| | R98 | 153 | PCLXL | 159 | FONT | 180 |
| | R16 | 154 | MSIS | 160 | FONT1 | 181 |
| | RPGL | 155 | MSIS (OPT) | 161 | FONT2 | 182 |
| | | | | FONT3 | 183 | |

| 7911 | PDL Version Information | | | Returns a text string for the version. | | |
|------|-------------------------|------------|-----|--|-----|-----|
| | RPCS | 150 | R55 | 156 | PDF | 162 |
| PS | 151 | RTIFF | 157 | BMLinks | 163 | |
| RPDL | 152 | PCL | 156 | PICTBRIDGE | 164 | |
| R98 | 153 | PCLXL | 159 | FONT | 180 | |
| R16 | 154 | MSIS | 160 | FONT1 | 181 | |
| RPGL | 155 | MSIS (OPT) | 161 | FONT2 | 182 | |
| | | | | FONT3 | 183 | |

2.2 SCANNER SERVICE TABLES

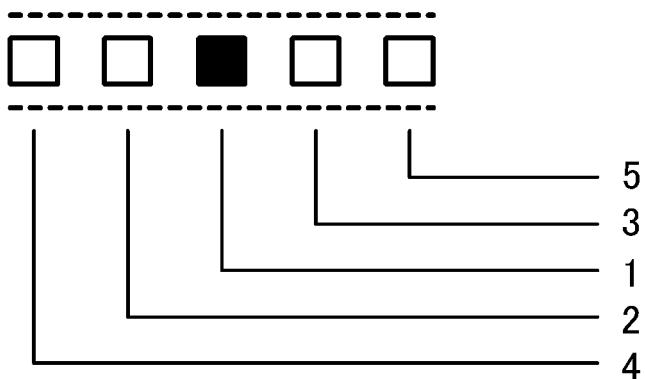
| SP | Number/Name | Function/[Setting] |
|------|--------------------|---|
| 1004 | Compression Type | Selects the compression type for binary picture processing. [1-3/1/1] 1: MH, 2: MR, 3: MMR |
| 1005 | Erase Margin | Creates an erase margin for all edges of the scanned image. If the machine has scanned the edge of the original, create a margin. [0 – 5/0/1mm] |
| 1009 | Forbid Using TWAIN | Sets the system not to use the network TWAIN scanner driver. 0: Not forbidden (can use TWAIN) 1: Forbid using TWAIN driver. |

Printer/
Scanner
Option
D383

| SP | Number/Name | Function/[Setting] |
|--------|--|--------------------|
| 2021 | Compression level (grayscale) | |
| | These SP codes set the compression ratio for the grayscale processing mode that can be selected with the notch settings on the operation panel. Range: 5 (lowest ratio) to 95 (highest ratio) | |
| 2021 1 | Level 3 (Middle I-Qual) | [5~95/40/1/step] |
| 2021 2 | Level 2 (High I-Qual) | [5~95/50/1/step] |
| 2021 3 | Level 4 (Low I-Qual) | [5~95/30/1/step] |
| 2021 4 | Level 1 (Highest I-Qual) | [5~95/60/1/step] |
| 2021 5 | Level 5 (Lowest I-Qual) | [5~95/20/1/step] |

Scanner Service Tables

Compression Notch Assignment



b767i910

3. SPECIFICATIONS

3.1 SPECIFICATIONS

3.1.1 PRINTER CONTROLLER (GENERAL)

| | |
|---------------------|--|
| Printing Speed | D017/D019: Maximum 25 ppm (A4/LT LEF) D018/D020: Maximum 33 ppm (A4/LT LEF) |
| Printer Languages | PCLXL/PCL5e PostScript 3 RPCS (Refined Printing Command Stream - an original Ricoh PDL) |
| Resolution (Driver) | RPCS 200/600 dpi PS3 300/600 dpi PCL5e 300/600 dpi PCLXL 300/600 dpi |
| Resident Fonts | PCL: TrueType: 10, Intellifont: 35, International: 13, Bitmap: 1 PS3: Option fonts PS3 |
| Connectivity | Std.: RJ-45 network port (100BASE-TX, 10BASE-T, USB 2.0) Option: IEEE802.11a/g, g (Wireless LAN), Bluetooth, IEEE1284 (Centronics Parallel), Gigabit Ethernet |
| Network Protocols | TCP/IP, IPX/SPX, SMB (NetBIOS over TCP/IP), AppleTalk (Auto Switching) |
| RAM | Maximum MS model: 512 MB (Resident 256 MB + Additional 256 MB) CS model: 768 MB (Resident 512 MB + Additional 256 MB) Note: Additional 256 MB is required for all printer/scanner unit and printer units. Note: Additional 256 MB is required for all printer/scanner unit and printer units. |

Printer/
Scanner
Option
D383

Specifications

3.1.2 USB SPECIFICATIONS

USB connectivity is built into the controller.

| | |
|------------|--|
| Interface | USB 2.0 |
| Data rates | 480 Mbps (high speed), 12 Mbps (full speed), 1.5 Mbps (low speed) High speed mode is only supported by USB 2.0. |

3.1.3 IEEE 802.11A/G, G SPECIFICATIONS

| | | |
|-------------------------|--|-----------------|
| Standard applied | IEEE802.11a/g, g | |
| Data transmission rates | Speed | Distance |
| | 11 Mbps | 140 m (153 yd.) |
| | 5.5 Mbps | 200 m (219 yd.) |
| | 2 Mbps | 270 m (295 yd.) |
| | 1 Mbps | 400 m (437 yd.) |
| Network protocols | TCP/IP, Apple Talk, NetBEUI, IPX/SPX, SMB | |
| Bandwidth | 2.4GHz (divided over 14 channels, 2400 to 2497 MHz for each channel) | |

3.1.4 BLUETOOTH SPECIFICATIONS

| | |
|-----------------------------|---|
| Transmission Specifications | Based on Bluetooth V1.1 |
| Data Transfer Speed | 1 Mbps |
| Profile | Hard Copy Cable Replacement Profile (HCRP), Serial Port Profile |

Specifications

| | |
|--------------------------|---|
| | (SPP), BIP |
| Distance Between Devices | 10 m (The maximum distance when using outdoors, otherwise depends on the office environment.) |

3.1.5 SCANNER SPECIFICATIONS

| | |
|--------------------------------------|--|
| Standard Scanner Resolution: | Main scan/Sub scan 600 dpi |
| Scanning Speed | MS: 52 ipm, E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression) CS: 25 (D018)/ 32 (D020) ipm, E-mail/Scan-to-Folder/Network Delivery Scanner (A4 LEF, Text 200 dpi, MH Compression) |
| Available scanning Resolution Range: | 100 to 1200 dpi (when used as a Network TWAIN scanner) 100, 200, 300, 400, 600 dpi (when used as a network delivery scanner, Scan-to-Folder, Scan-to-Email, or Document Server storage) |
| Grayscales: | 8 bits/pixel |
| Interface: | Ethernet 10/100BASE TX, Wireless LAN 802.11a/g, g |
| Compression Method: | MH, MR, MMR (Binary Picture Processing) JPEG (Grayscale Processing) |
| Video Memory Capacity: | 384 MB |
| Image Storage Capacity: | Number of originals per file: Maximum 1,000 pages Maximum of files: 3000 files Max. Storage on Doc. Server: 9,000 pages (B&W (ITU-T No. 1/200 dpi MMR) |

Printer/
Scanner
Option
D383

Specifications

3.1.6 SOFTWARE ACCESSORIES

Printer

The printer drivers and utility software are provided on one CD-ROM. An auto-run installer allows you to select which components to install.

Printer Drivers

| Printer Language | Windows 95/98/Me | Windows NT4.0 | Windows 2000, XP, Server 2003/Vista | Macintosh |
|------------------|------------------|---------------|-------------------------------------|-----------|
| PCL 6 | Yes | Yes | Yes | No |
| PCL 5e | Yes | Yes | Yes | No |
| PS3 | Yes | Yes | Yes | Yes |
| RPCS | Yes | Yes | Yes | No |

Note

- The printer drivers for Windows NT 4.0 are only for the Intel x86 platform. There is no Windows NT 4.0 printer driver for the PowerPC, Alpha, or MIPS platforms.
- The PS3 drivers are all genuine AdobePS drivers, except for Windows 2000/XP/Server 2003/Vista, which uses Microsoft PS. A PPD file for each operating system is provided with the driver.

Utility Software

| Software | Description |
|--|---|
| Agfa Monotype Font Manager 2000 (Win 95/98/Me, NT4, 2000) | A font management utility with screen fonts for the printer. |
| Smart Device Monitor for Admin (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista) | A printer management utility for network administrators. NIB setup utilities are also available. |
| DeskTopBinder – SmartDeviceMonitor for Client (Win 95/98/Me, NT4, 2000/XP/Server 2003/Vista) | A printer management utility for client users. Peer-to-peer printing utility and parallel/recovery printing functions are included. |

Specifications

| Software | Description |
|--|---|
| LAN-Fax M7 Driver (Win 95/98/Me, NT4, 2000/XP) | This driver allows use of the LAN-Fax functions by installing the LAN-Fax driver, Address Book, and LAN-Fax Cover Sheet Editor. |
| PS Utility for Mac | This software provides several convenient functions for printing from Macintosh clients. |
| Acrobat Reader | A utility that allows reading PDF files. |

Scanner

The scanner driver and utility software are provided on one CD-ROM.

Scanner Driver

- Network Twain Driver for Win95/98/Me/NT4/2000/XP/Server 2003/Vista

Scanner Utilities

- DeskTopBinder Lite for 2000/XP/Server 2003

Printer/
Scanner
Option
D383

INTERNAL SHIFT TRAY SH3010
D385

INTERNAL SHIFT TRAY SH3010 D385

TABLE OF CONTENTS

| | | |
|-----------|---|----------|
| 1 | OVERALL MACHINE INFORMATION..... | 1 |
| 1.1 | SPECIFICATIONS..... | 1 |
| 1.2 | COMPONENT LAYOUT | 2 |
| 2. | DETAILED SECTION DESCRIPTIONS | 3 |
| 2.1 | BASIC OPERATION..... | 3 |
| 2.2 | PRIMARY MECHANISMS | 4 |
| 2.2.1 | TRAY SHIFT | 4 |
| 2.2.2 | HALF TURN DETECTION..... | 5 |
| 3. | REPLACEMENT AND ADJUSTMENT | 6 |
| 3.1 | TRAY COVER REPLACEMENT | 6 |
| 3.1.1 | TRAY COVER REMOVAL..... | 6 |
| 3.1.2 | TRAY COVER ATTACHMENT..... | 6 |
| 3.2 | TRAY MOTOR AND HALF TURN SENSOR REPLACEMENT | 7 |
| 3.2.1 | REPLACING THE TRAY MOTOR..... | 7 |
| 3.2.2 | REPLACING THE HALF TURN SENSOR | 7 |

1 OVERALL MACHINE INFORMATION

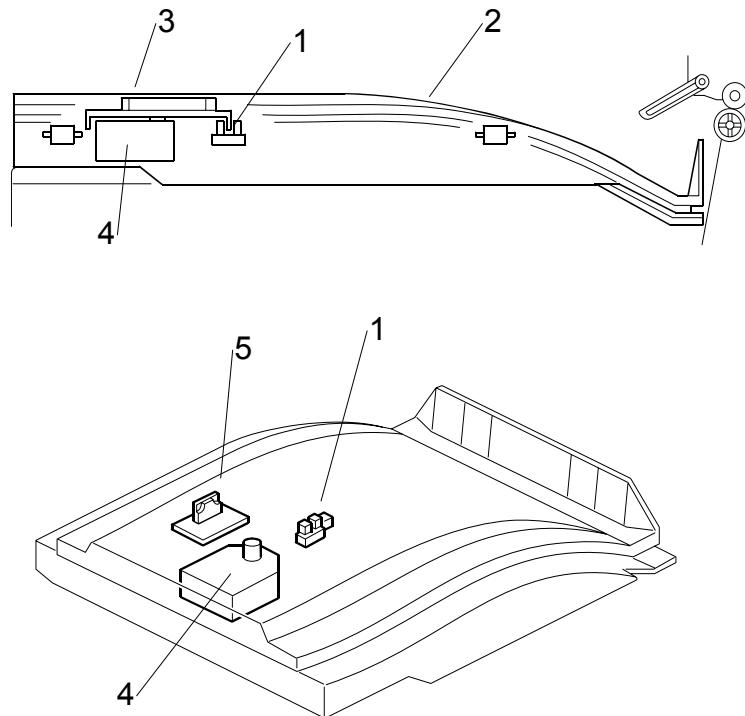
1.1 SPECIFICATIONS

| | |
|--------------------|---|
| Paper Size: | Standard Size: A5 lengthwise to A3 HLT lengthwise to DLT |
| | Non-standard Size: Paper Width: 90 ~ 297 mm Paper Length: 148 ~ 432 mm |
| Paper Weight: | 60 ~ 105 g/m ² , 16 ~ 28 lbs. |
| Tray Capacity: | 125 sheets (80 g/m ² , 20 lbs.): B4 or larger 250 sheets (80 g/m ² , 20 lbs.): A4 or smaller |
| Power Source: | 5 VDC, 24 VDC (from the copier) |
| Power Consumption: | 17 W |
| Weight: | 1.1 kg |
| Size (W x D x H): | 530 mm x 410 mm x 120 mm |

Internal Shift
Tray SH3010
D385

COMPONENT LAYOUT

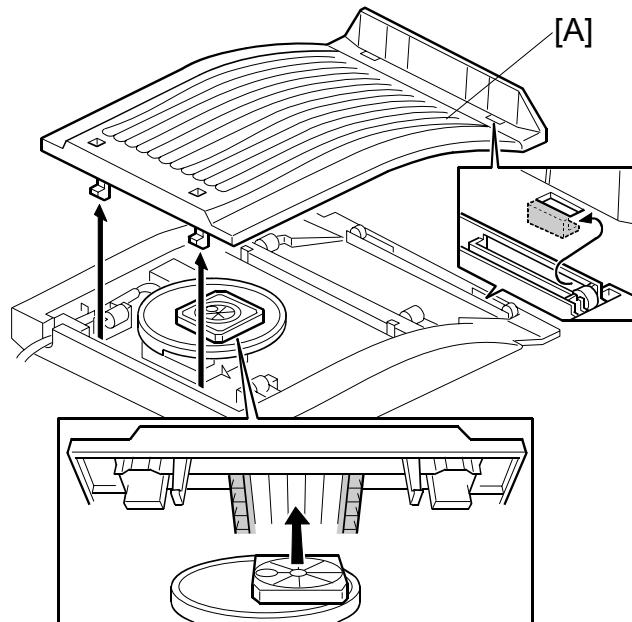
1.2 COMPONENT LAYOUT



1. Half Turn Sensor
2. Tray Cover
3. Slip Disc
4. Tray Motor
5. Driver PCB

2. DETAILED SECTION DESCRIPTIONS

2.1 BASIC OPERATION



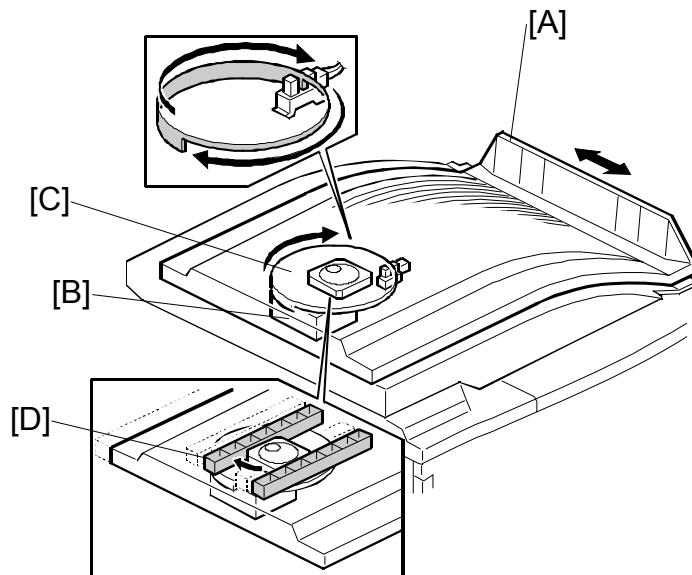
The shift tray allows copies to be sorted into separate piles on one tray.

From the left-right movement of the tray cover [A], the piles of copies are offset into two positions, slightly overlapping one another.

Internal Shift
Tray SH3010
D385

2.2 PRIMARY MECHANISMS

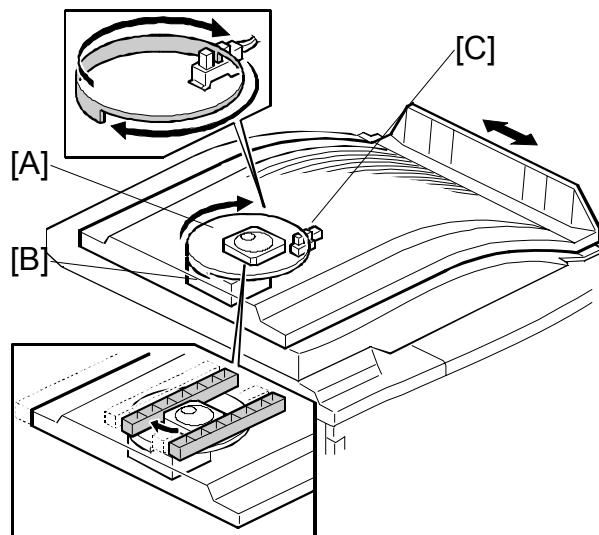
2.2.1 TRAY SHIFT



As stated above, the shift tray cover [A] moves from left to right to create two possible positions for the copies to stack up. This motion is driven by the tray motor [B], which connects to the slip disc [C] via a small shaft. The shaft is connected at the rotational center of the disc. However, there is an off-centered white square attached to the top surface of the disc. When the tray cover is attached to the unit, this square fits into a groove [D] (approximately equal to its width) that runs lengthwise along the underside of the tray.

When the motor is running, the disc rotation causes the off-centered white square to change position. Since the square only has freedom of movement along the groove [D], the only net motion of the tray is from left to right.

2.2.2 HALF TURN DETECTION



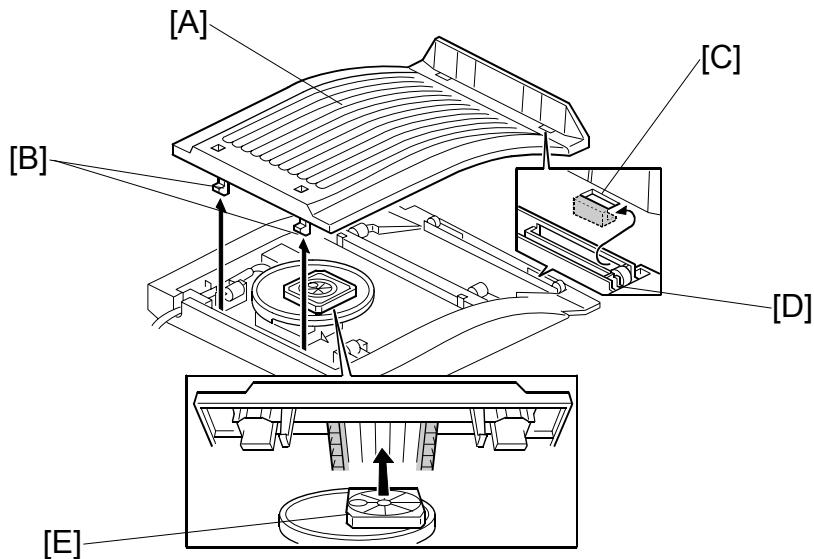
Half turn detection is performed through a combination of two components: the slip disc [A] and half turn sensor [C].

The slip disc has a rim extending below the top surface. However, the rim only extends 180° around the disc. The half turn sensor is below the edge of the disc, opposite the tray motor. The sensor is positioned so that the rim of the disc passes between the LED and photo diode when the disc turns.

While the motor [B] is rotating the disc and moving the tray cover, the disc rim is not between the diode and LED. After the disc has turned its maximum 180°, the rim passes between these two parts and blocks the signal to the LED, stopping the motor. The tray stays in place until the motor is activated again to move the tray across to receive another copy of the original.

3. REPLACEMENT AND ADJUSTMENT

3.1 TRAY COVER REPLACEMENT



3.1.1 TRAY COVER REMOVAL

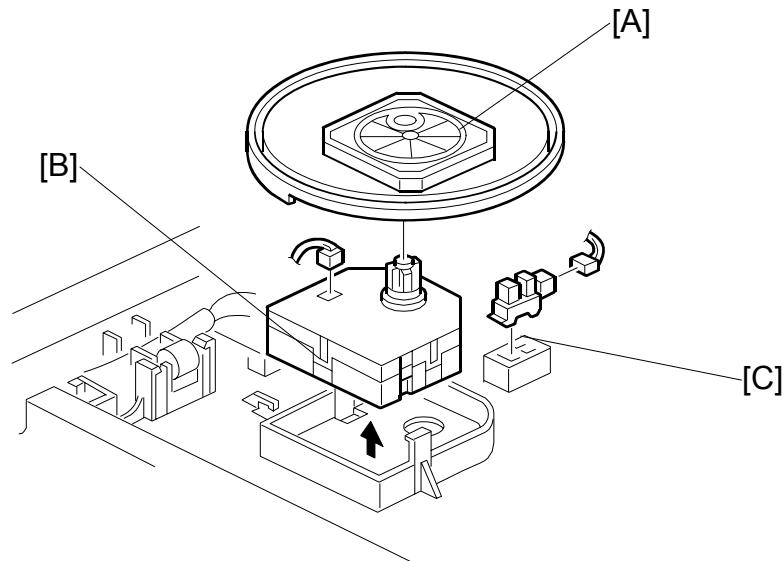
1. Remove the tray cover [A] by pressing on the two pawls [B] on the left side of the cover.

3.1.2 TRAY COVER ATTACHMENT

NOTE: The right side of the tray cover should be attached first.

1. Fit the pawls [C] (just below the cover fin) around the thin bar [D] on the shift tray.
2. Align the square [E] so that it fits into the groove in the underside of the tray cover and does not interfere with the attachment of the cover.
3. Complete the attachment by inserting the left side pawls [B] into place.

3.2 TRAY MOTOR AND HALF TURN SENSOR REPLACEMENT



3.2.1 REPLACING THE TRAY MOTOR

1. Remove the slip disc [A].
2. Remove the tray motor [B] from the motor holder (1 connector).

3.2.2 REPLACING THE HALF TURN SENSOR

1. Remove the half turn sensor [C] (1 connector).

Internal Shift
Tray SH3010
D385