TITLE **PAGE**

ADJUSTMENTS

REP 1.1 TOP REAR COVER

PARTS LIST ON PL 1.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Open the Printer.
2. Open the Upper Rear Cover.
3. Remove four screws and remove the Top Rear Cover.

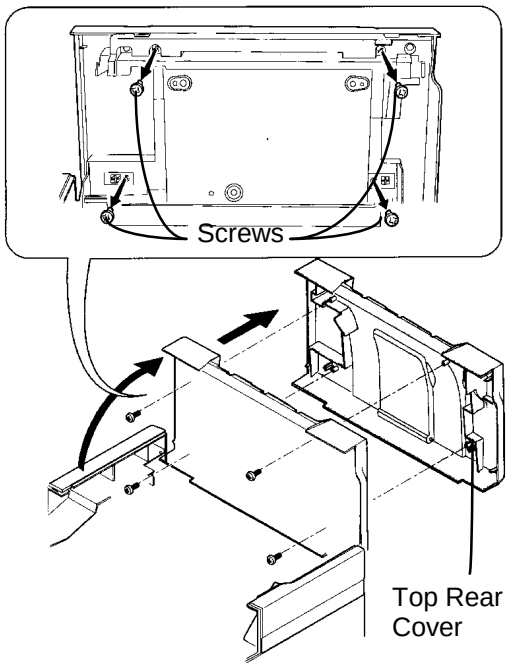


Figure 1. Removing the Top Rear Cover

REP 1.2 REAR COVER

PARTS LIST ON PL 1.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Remove two screws.
2. Remove two screws. lift up, then out, and remove the Rear Cover.

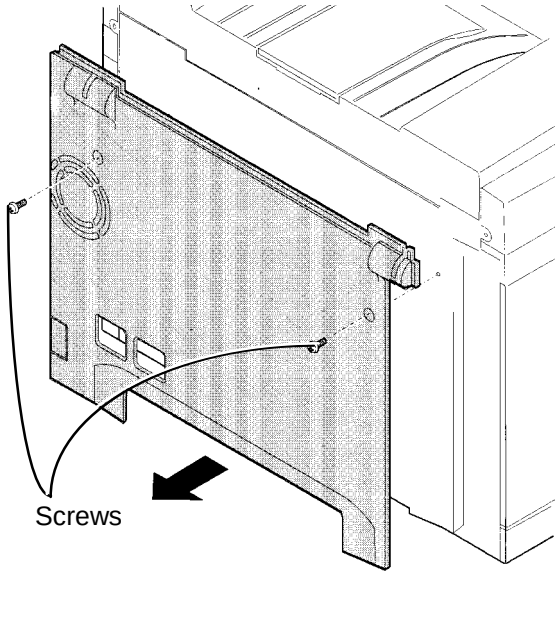


Figure 1. Removing the Rear Cover

REP 1.3 SIDE COVER

PARTS LIST ON PL 1.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Raise the Upper Rear Cover.
2. (Figure 1): Remove the screws and remove the Side Cover.

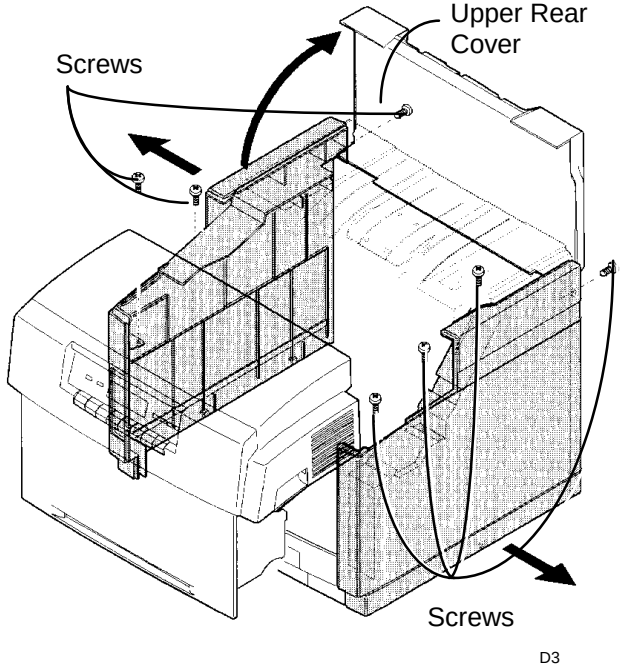


Figure 1. Removing the Side Covers

REP 1.4 FRONT COVER

PARTS LIST ON PL 1.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Release and open the Fuser Cover.
2. (Figure 1): Remove the screws and slide the cover forward slightly.
3. Disconnect CN305.
4. Remove the Front Cover.

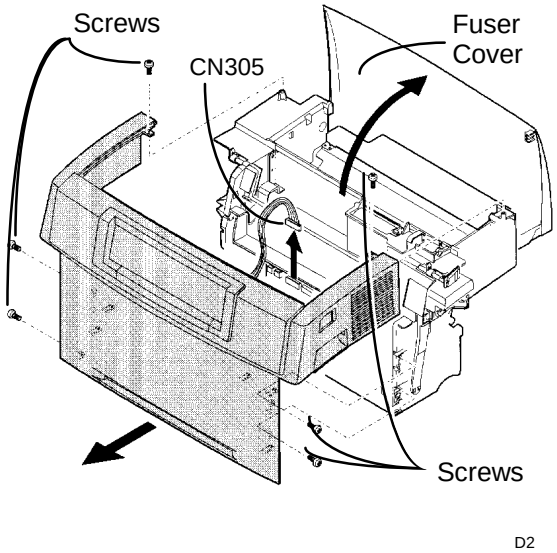


Figure 1. Removing the Front Cover

REP 2.1 TOP FRONT COVER

PARTS LIST ON PL 2.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Open the Transfer Drum Assembly.
2. Release and open the Fuser Cover.
3. (Figure 1): Remove five screws and remove the Top Front Cover.

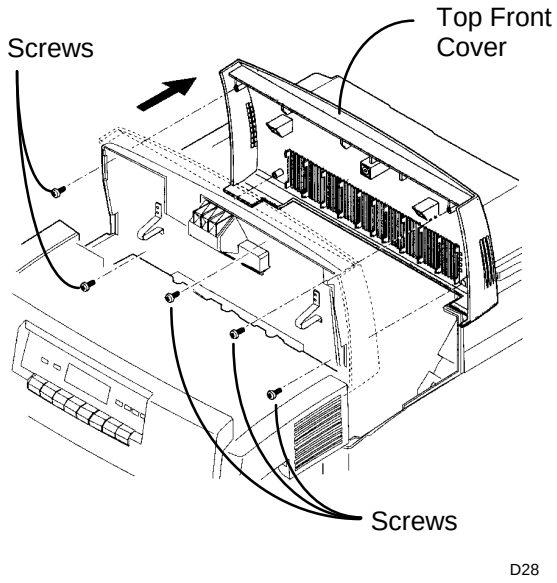


Figure 1. Removing the Top Front Cover

REP 3.1 LOW VOLTAGE POWER SUPPLY ASSEMBLY

PARTS LIST ON PL 3.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Top Rear Cover (REP 1.1).
   b. Rear Cover (REP 1.2).
   c. Right Side Cover (REP 1.3).
   d. Paper Cassette
   e. Photoreceptor Module.
   f. Color Developer Module.
   g. Black Developer Module.
2. (Figure 1): Remove screws and remove the Black Developer Connector Cover.
3. Disconnect CN201, CN702, CN703, CN704, CN707 and FT701 from the Low voltage Power Supply.

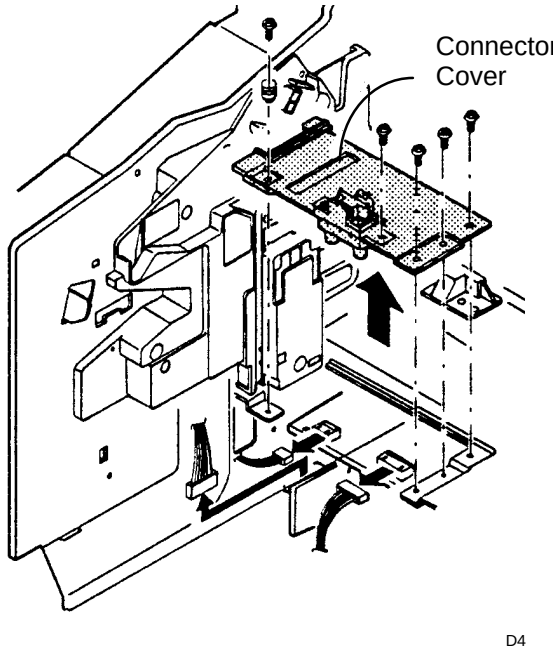


Figure 1. Removing the Connector Cover

4. (Figure 2): Disconnect CN1004 (AC connector next to PCU PWB). Remove the wiring from the harness.
5. Disconnect CN202 from the Cassette PWB.
6. Remove screws and remove the Low Voltage Power Supply.
7. If you are installing a new Low Voltage Power Supply Assembly, remove the Cassette PWB and install it on the new Power Supply.

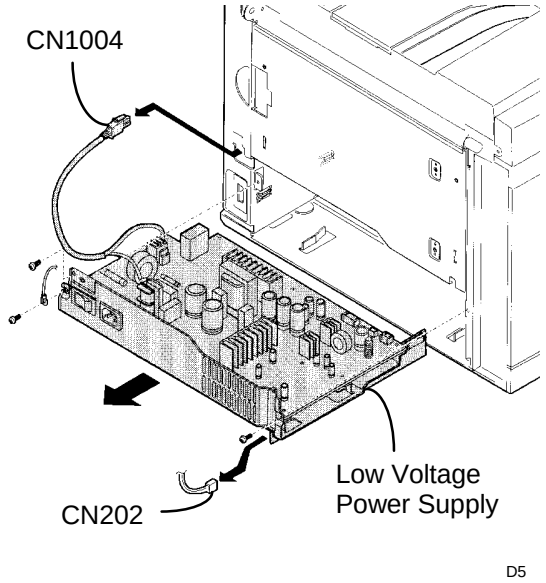


Figure 2. Removing the Low Voltage Power Supply

REP 3.2 CASSETTE PWB

PARTS LIST ON PL 3.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Low Voltage Power Supply (REP 3.1).
2. (Figure 1): Remove screws and remove cassette PWB.

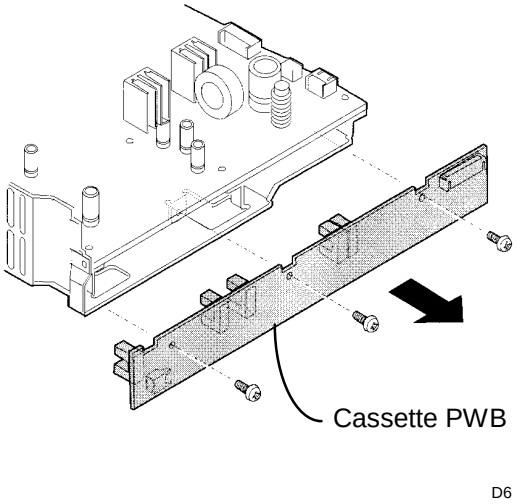


Figure 1. Removing the Cassette PWB

REP 3.3 PCU PWB

PARTS LIST ON PL 4.2

NOTE: Before removing the PCU PWB you must obtain some of the old NVM values. These values will then be entered in the new PWB NVM.

Refer to ADJ. 3.3A, and perform the following:

DETERMINING THE CONSUMABLE USAGE AND TONER CONCENTRATION VALUES, steps 1 through 6.

NOTE: If these steps cannot be performed because of a PCU PWB problem, use the values from the Diagnostic Test Pattern.

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the PCU PWB Cover.
2. Disconnect all of the Connectors.
3. Remove 4 screws and remove the PCU PWB.

REPLACEMENT

1. Install the new PWB.
2. Reconnect the Connectors.
3. Refer to ADJ. 3.3B, and perform the following:

   INITIALIZING THE NVM
   steps 1 through 7.
4. Reinstall the PCU PWB Cover.

REP 3.4 ESS PWB

PARTS LIST ON PL 3.1

NOTE: If the ESS PWB is being replace with one from another printer rather than a new PWB, the serial number from the other printer may still be stored in the ESS memory. If this is the case, refer to the replacement notes in this procedure.

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Disconnect all of the Connectors.
2. Loosen the two thumb screws.
3. Remove the ESS PWB.
4. Remove any customer RAM and reinstall in the new PWB.

REPLACEMENT

1. Install the new PWB.
2. Notify the customer so that they can setup the network values.

NOTE 1: If the customer is using CentreWare have the customer write their printer serial number over any existing serial number.

NOTE 2: If this printer is connected as a parallel printer you cannot enter the serial number, use GP 3.5 to perform a factory reset. This will erase any existing serial number.

REP 4.1 MAIN DRIVE MOTOR

PARTS LIST ON PL 4.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Right Side Cover (REP 1.3).
   b. Top Cover (REP 1.1).
   c. Rear Cover (REP 1.2).
2. (Figure 1): Remove the two screws and the E-ring and remove the Harness Cover.

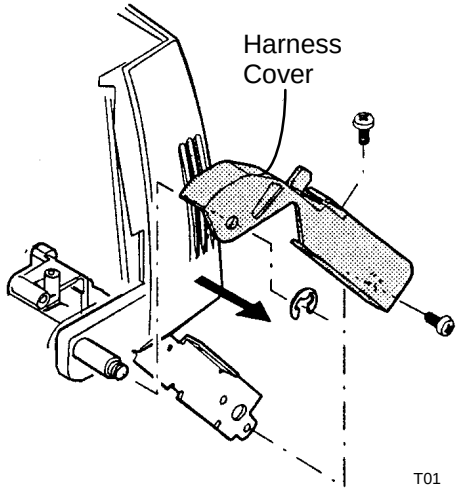


Figure 1. Removing the Harness Cover

3. (Figure 2): Loosen the Idler, if required.
4. Disconnect CN112 and remove from the harness.
5. Remove the screws and remove the Main Drive Motor Assembly.

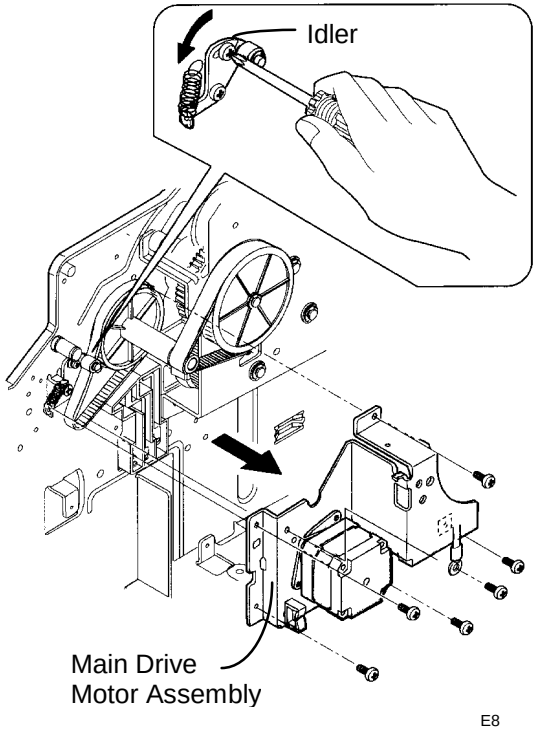


Figure 2. Removing the Main Drive Motor Assembly

6. (Figure 3): Remove the Main Drive Motor and Motor Spacers.

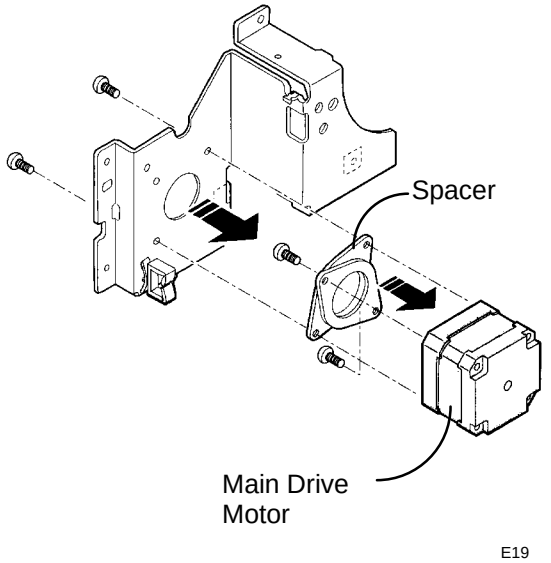


Figure 3. Removing the Main Drive Motor

REP 4.2 MAIN DRIVE MOTOR BELTS

PARTS LIST ON PL 4.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Right Side Cover (REP 1.3).
   b. Top Cover (REP 1.1).
   c. Rear Cover (REP 1.2).
2. (Figure 1): Loosen the Idler, if required.
3. Disconnect CN112 and remove from the harness.
4. Remove the screws and remove the Main Drive Motor Assembly.

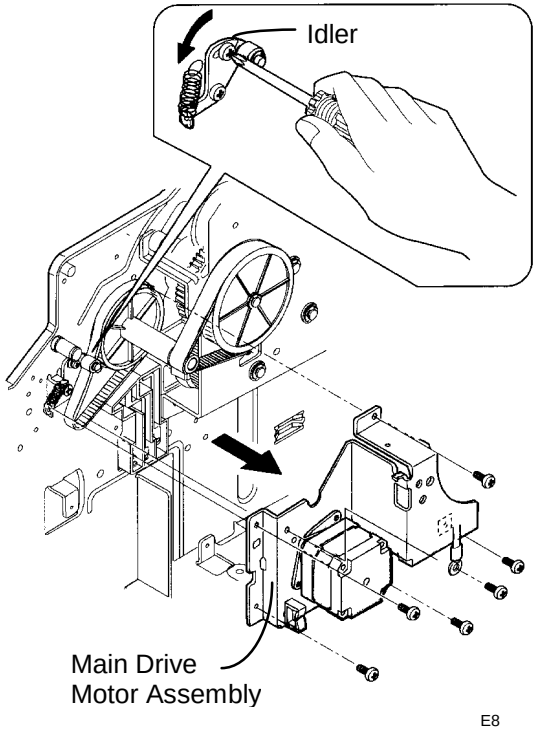


Figure 1. Removing the Main Drive Motor Assembly

5. (Figure 2): Remove the Main Drive Motor Belts.

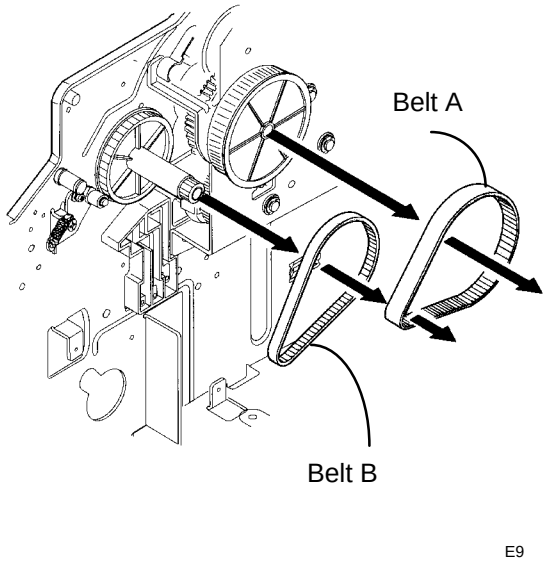


Figure 2. Removing the Main Drive Belts

REP 4.3 DEVELOPER DRIVE MOTOR BELTS

PARTS LIST ON PL 4.5

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2).
3. (Figure 1): Remove the Outer Drive Frame.
   a. Remove the Pulley.
   b. Remove the 4 Clutch Covers
   c. Remove the E Rings and Screws and then remove the Outer Drive Frame.

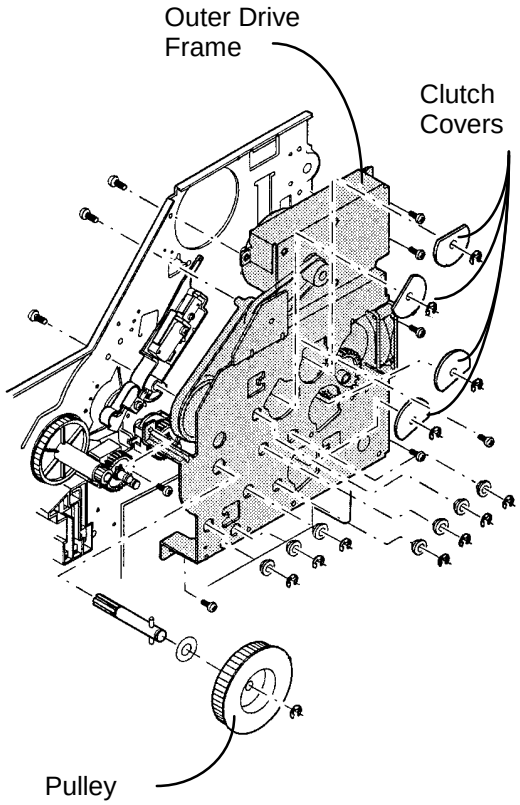


Figure 1. Removing the Outer Drive Frame

4. (Figure 2): Remove Developer Drive Belt C.

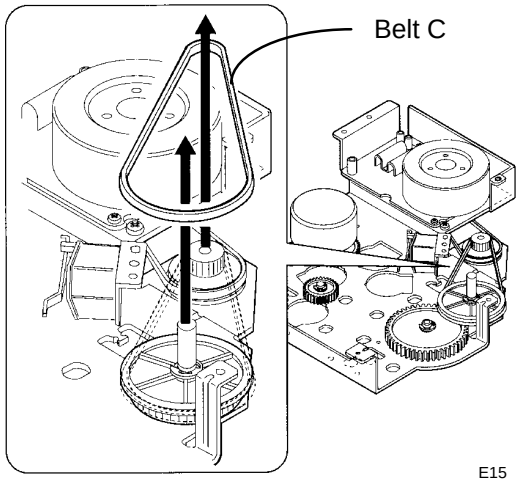


Figure 2. Removing Developer Drive Belt C

5. (Figure 3): Remove Developer Drive Belt D.

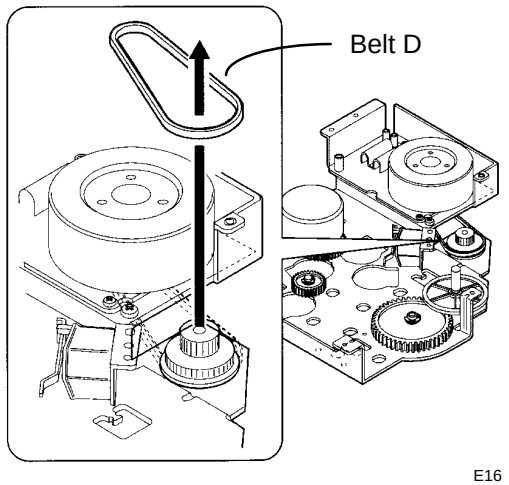


Figure 3. Removing Developer Drive Belt D

REP 4.4 INTERLOCK SWITCHES

PARTS LIST ON PL 4.5

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2)
3. (Figure 1): Remove the Outer Drive Frame.
   a. Remove the Pulley.
   b. Remove the 4 Clutch Covers
   c. Remove the E Rings and Screws and then remove the Outer Drive Frame.

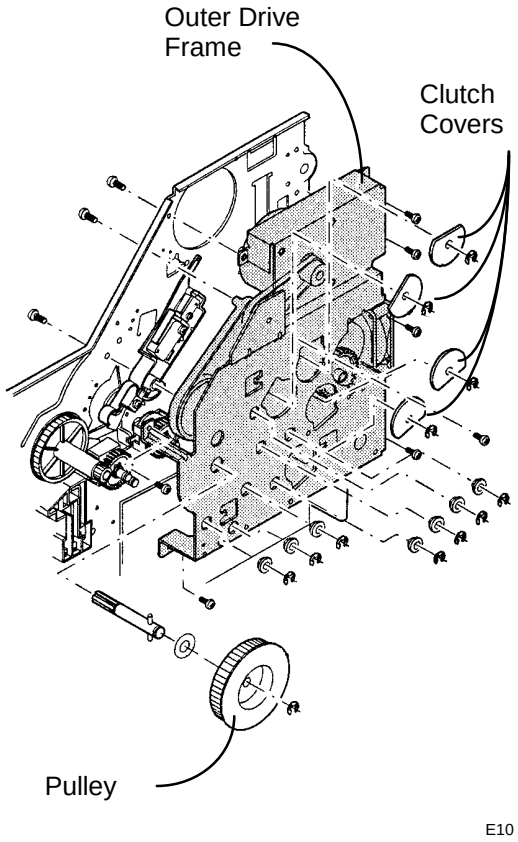


Figure 1. Removing the Outer Drive Frame

4. (Figure 2): Remove the Interlock Return Spring.
5. Remove the Interlock Switches.

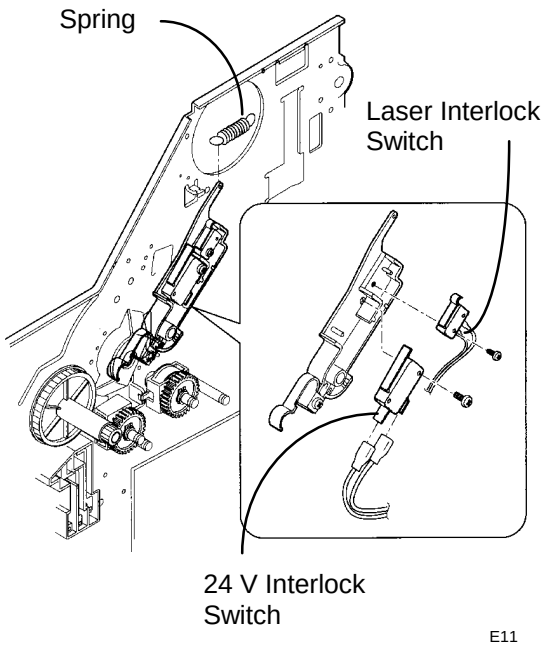


Figure 2. Removing the Interlock Switches

REP 4.5 COLOR TONER MOTOR

PARTS LIST ON PL 4.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2)
3. (Figure 1): Remove the Outer Drive Frame.
   a. Remove the Pulley.
   b. Remove the 4 Clutch Covers
   c. Remove the E Rings and Screws and then remove the Outer Drive Frame.

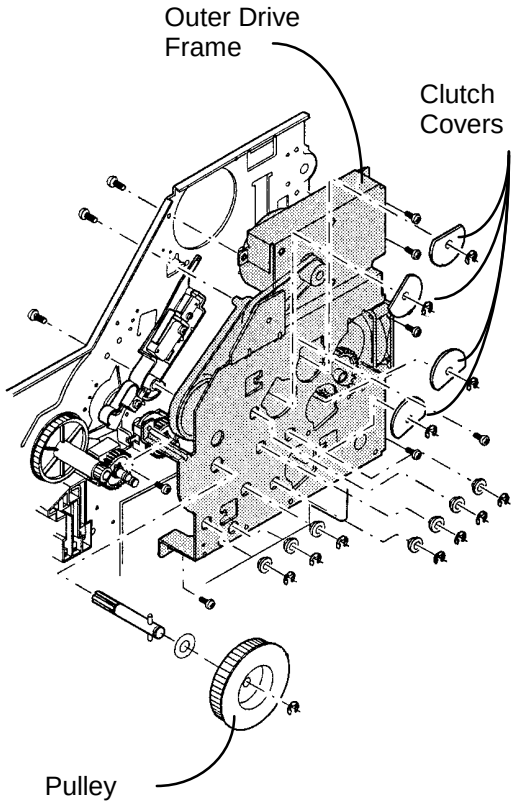


Figure 1. Removing the Outer Drive Frame

4. (Figure 2): Remove the Color Toner Motor.

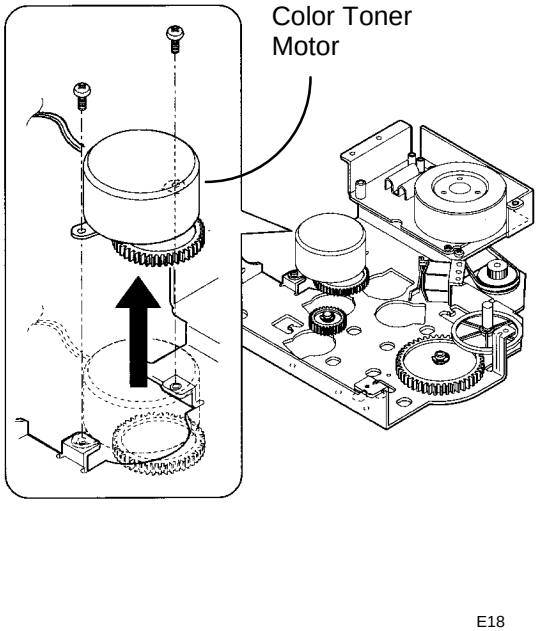


Figure 2. Removing the Color Toner Motor

REP 4.6 DEVELOPER MOTOR

PARTS LIST ON PL 4.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2)
3. Remove the Developer Drive Motor Belts (REP 4.3)
4. (Figure 1): Disconnect the connector and remove the Developer Motor.

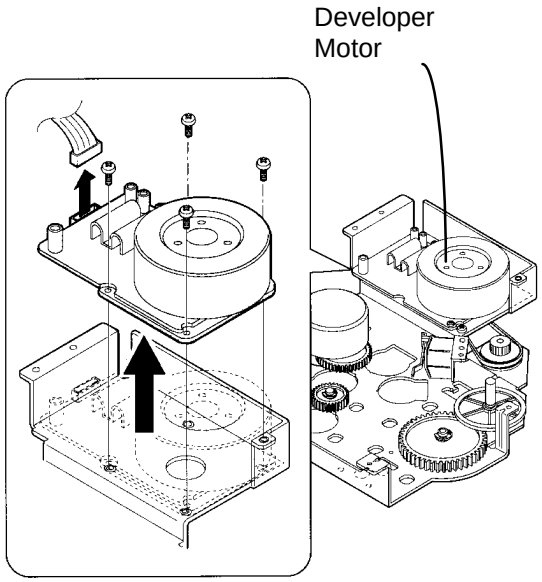


Figure 1. Removing the Developer Motor

REP 4.7 TONER SOLENOIDS

PARTS LIST ON PL 4.6

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).

2. (Figure 1): Remove the Drive Cover.

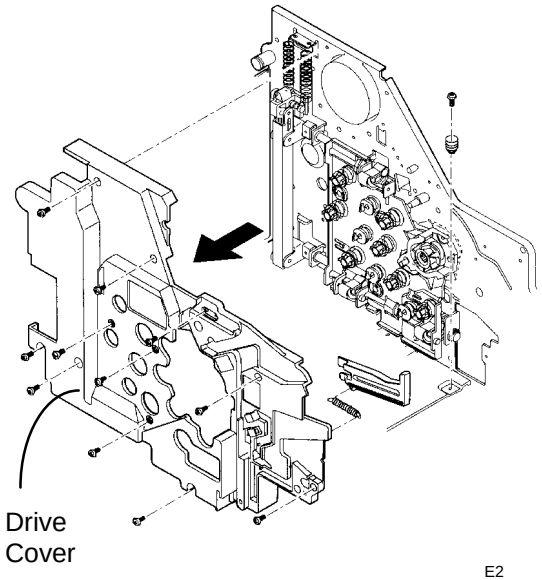


Figure 1. Removing the Drive Cover

3. (Figure 2): Loosen the Tension springs.

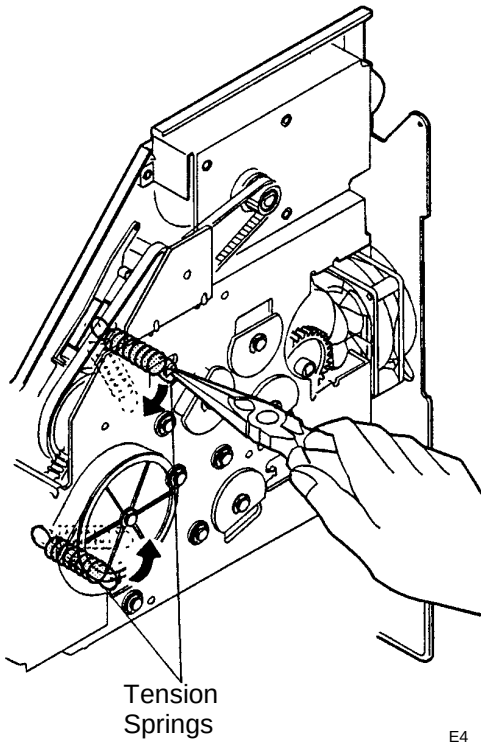


Figure 2. Removing the Springs

4. (Figure 3): Remove the 3 pins and the Block.

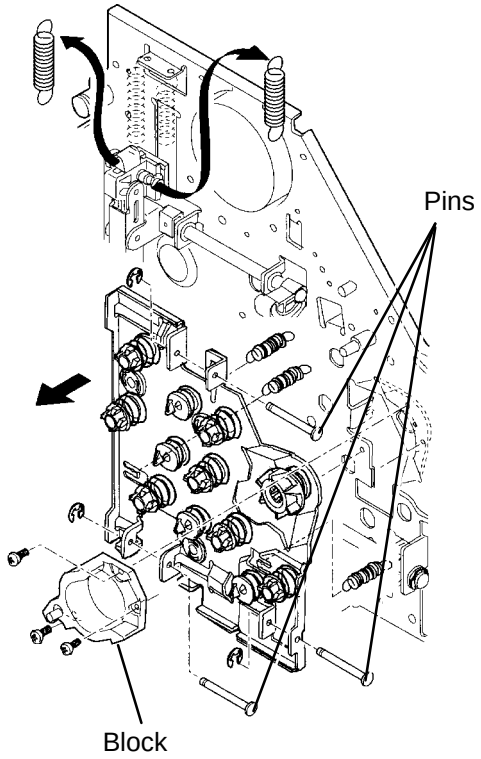


Figure 3. Removing the Pins and Block

5. (Figure 4): Remove the Inner Drive Frame.

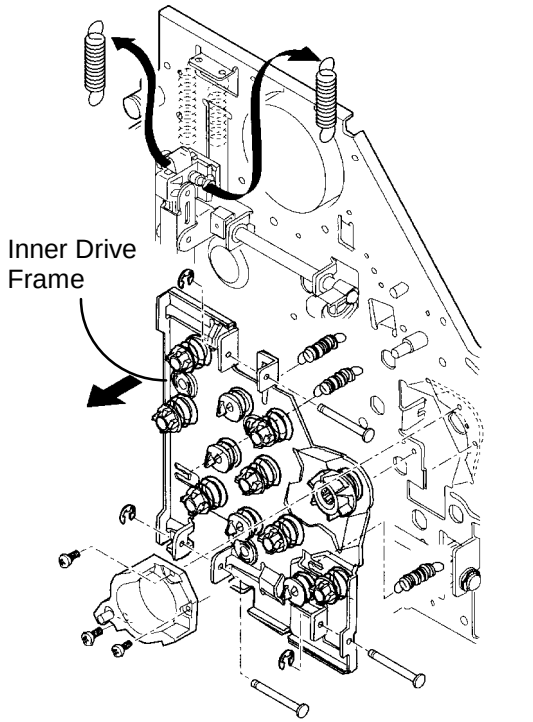


Figure 4. Removing the Inner Frame

6. (Figure 5): Remove the appropriate Toner Solenoid.

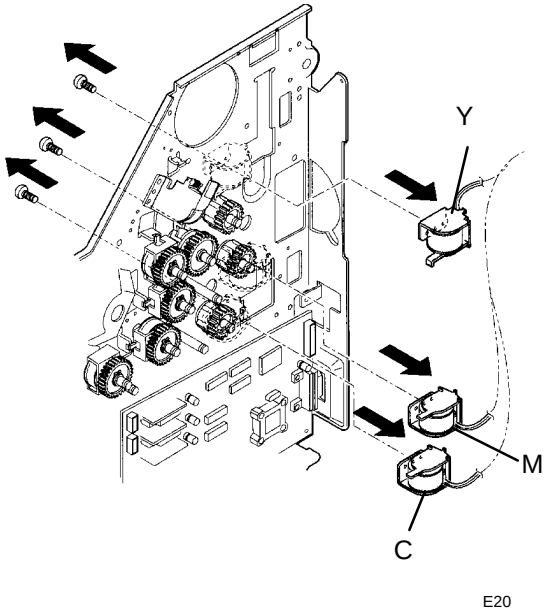


Figure 5. Removing the Toner Solenoid

REP 4.8 MAGNETIC ROLLER CLEANING SOLENOID

PARTS LIST ON PL 4.6

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2)
3. (Figure 1): Remove the Outer Drive Frame.
   a. Remove the Pulley.
   b. Remove the 4 Clutch Covers
   c. Remove the E Rings and Screws and then remove the Outer Drive Frame.

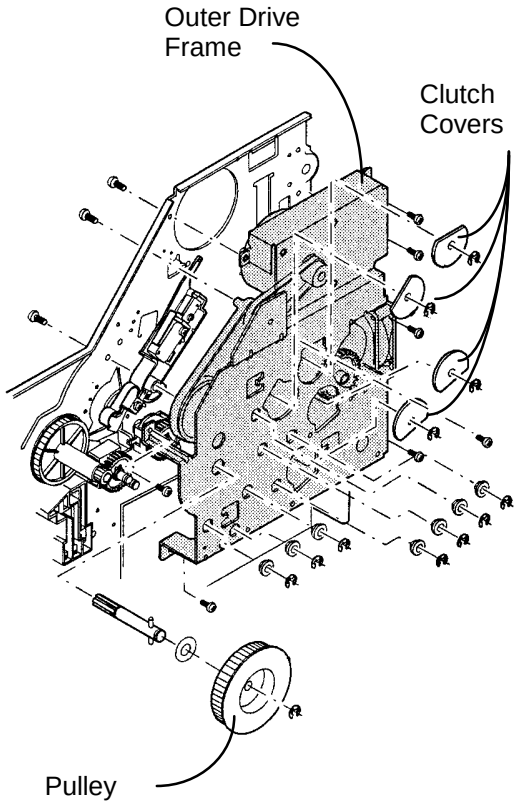


Figure 1. Removing the Outer Drive Frame

4. (Figure 2): Remove the Magnetic Roller Cleaning Solenoid.

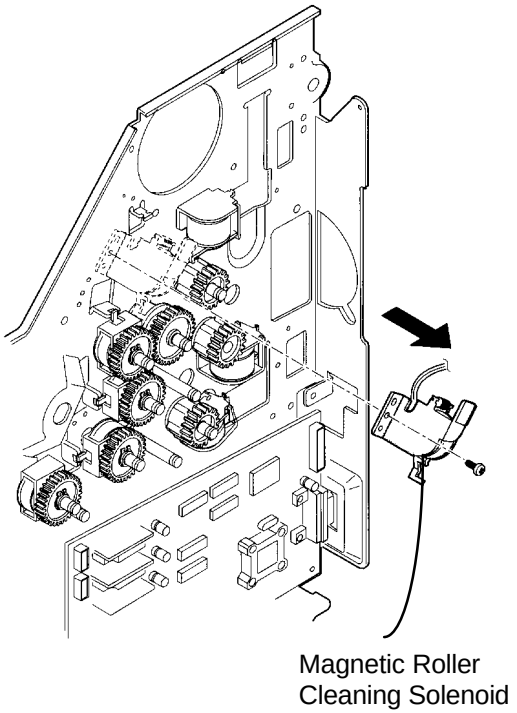


Figure 2. Removing the Magnetic Roller Cleaning Solenoid

REP 5.1 C, M, Y, TONER CLUTCHES AND MAGNETIC ROLLER CLEANER CLUTCH

PARTS LIST ON PL 5.5

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. (Figure 1): Remove the appropriate Clutch Cover and remove the Clutch.

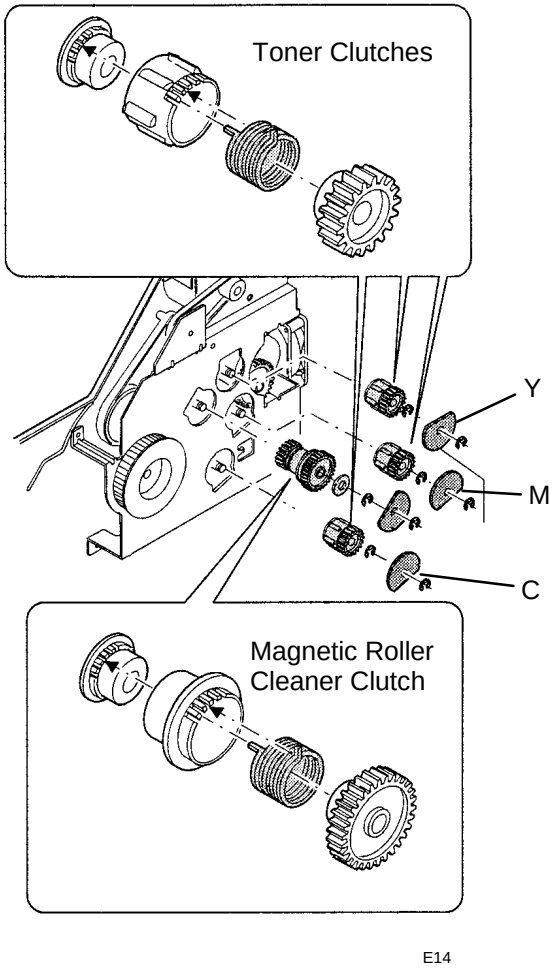


Figure 1. Removing the Clutches

REPLACEMENT

NOTE: When installing a new clutch, put the spring in the center of the 5 notches.

REP 5.2 MAGNETIC ROLLER CLUTCHES

PARTS LIST ON PL 5.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. Remove the Main Drive Motor Belts (REP 4.2).
3. (Figure 1): Remove the Drive Cover.

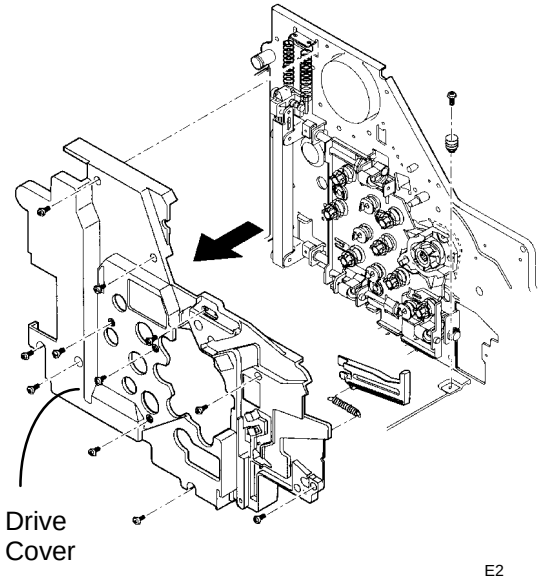


Figure 1. Removing the Drive Cover

4. (Figure 2): Remove the Tension springs.

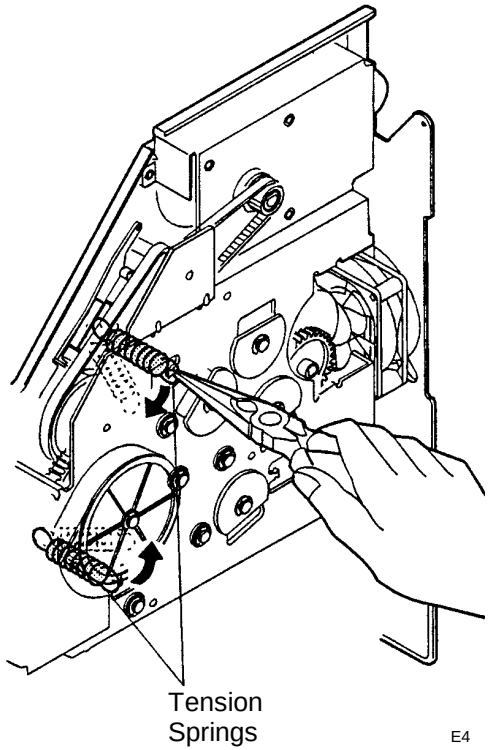


Figure 2. Removing the Springs

5. (Figure 3): Remove the 3 pins and the Block.

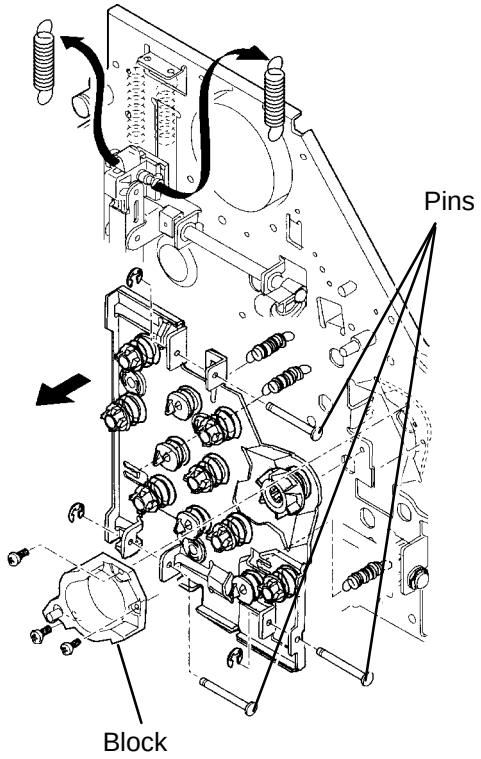


Figure 3. Removing the Pins and Block

6. (Figure 4): Remove the Inner Drive Frame.

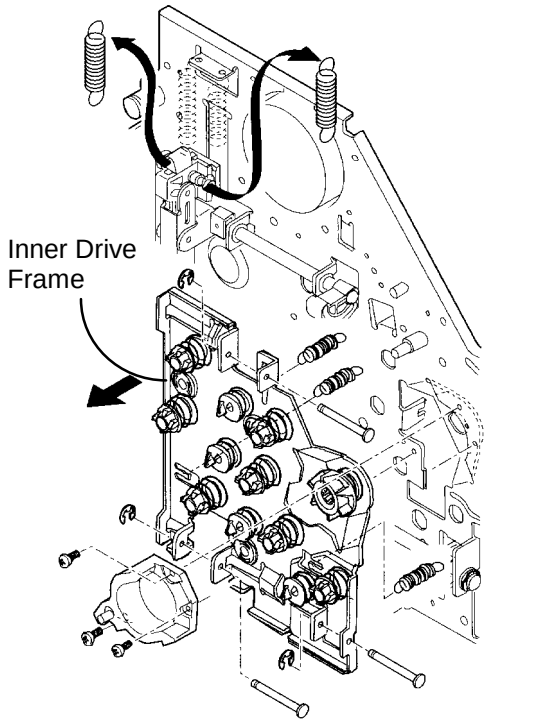


Figure 4. Removing the Inner Drive Frame

7. (Figure 5): Remove the Outer Drive Frame.
   a. Remove the Pulley.
   b. Remove the Clutch Covers
   c. Remove the Outer Drive Frame.

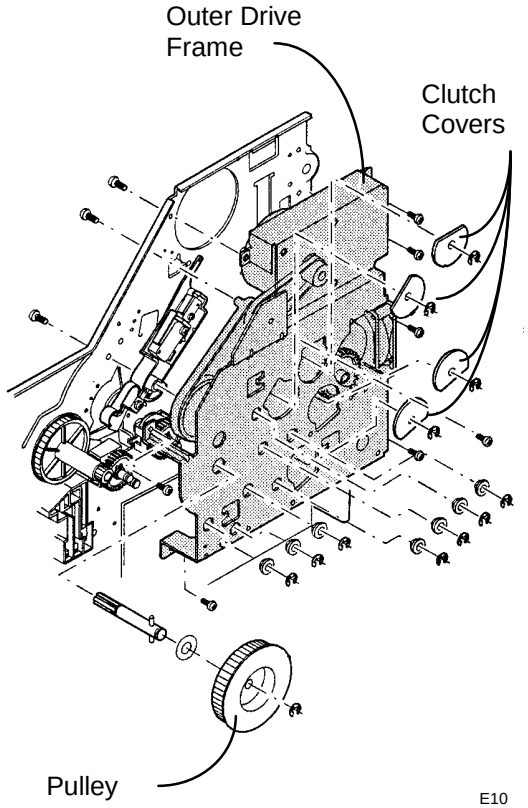


Figure 5. Removing the Outer Drive Frame

8. (Figure 6): Remove the Magnetic Roller Clutch.

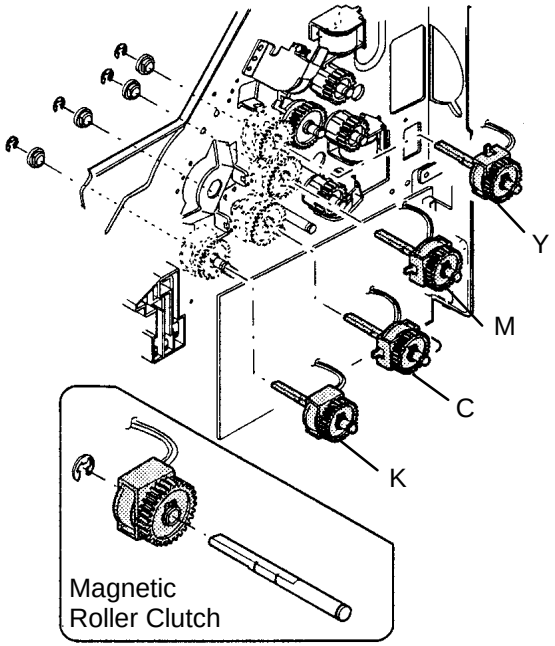


Figure 6. Removing the Magnetic Roller Clutch

REP 6.1 DRUM TERMINALS

PARTS LIST ON PL 6.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. (Figure 1): Remove the screws and remove the Transfer, Charge, and Grid leads.

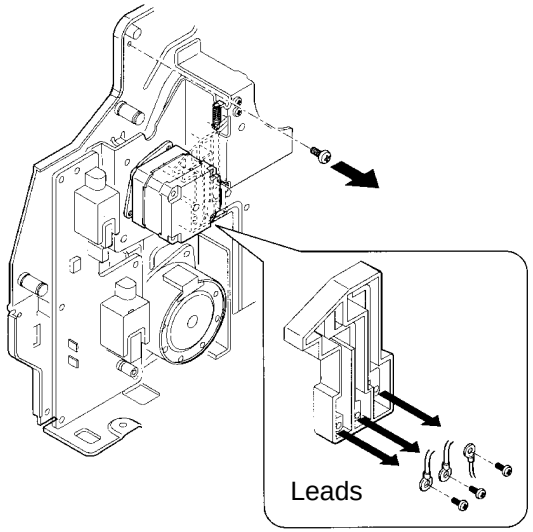


Figure 1. Removing the High Voltage Leads

3. (Figure 2): Remove the Drive Cover.

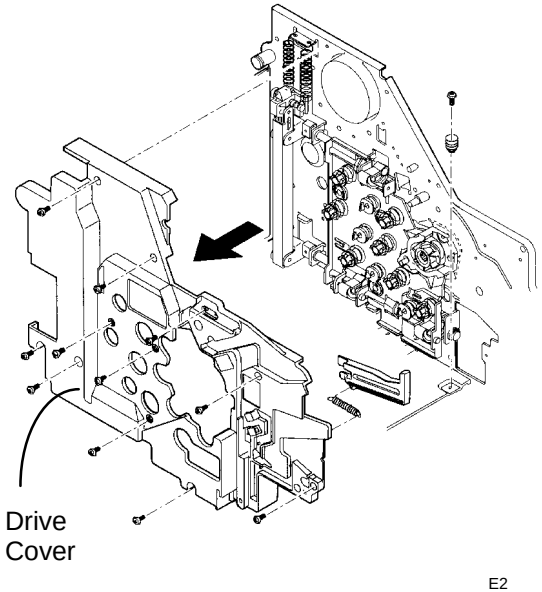


Figure 2. Removing the Drive Cover

4. (Figure 3): Remove the Drum Terminals.

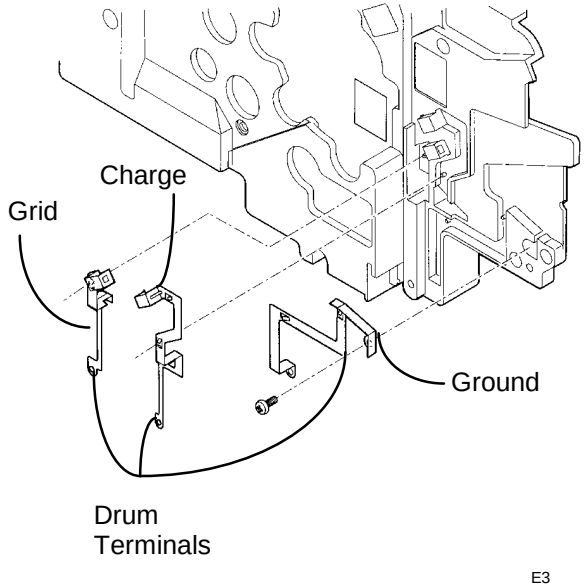


Figure 3. Removing the Drum Terminals

REP 6.2 SLIDE CAMS

PARTS LIST ON PL 6.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Remove the following:
   a. Print Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.
   d. Right Side Cover (REP 1.3).
   e. Top Cover (REP 1.1).
   f. Rear Cover (REP 1.2).
2. (Figure 1): Remove the Drive Cover.

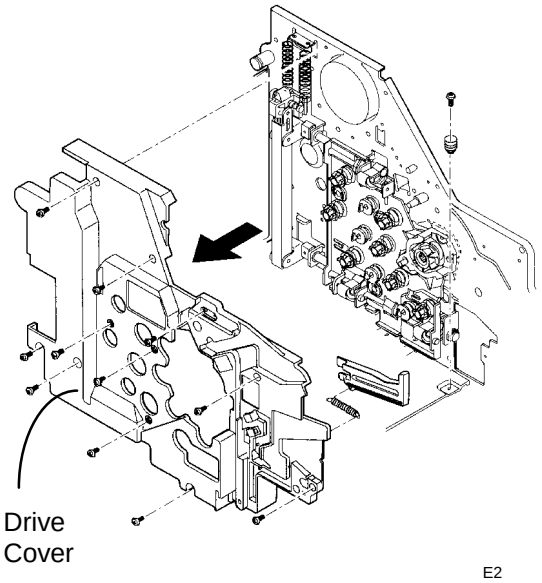


Figure 1. Removing the Drive Cover

3. (Figure 2): Remove the Tension springs.

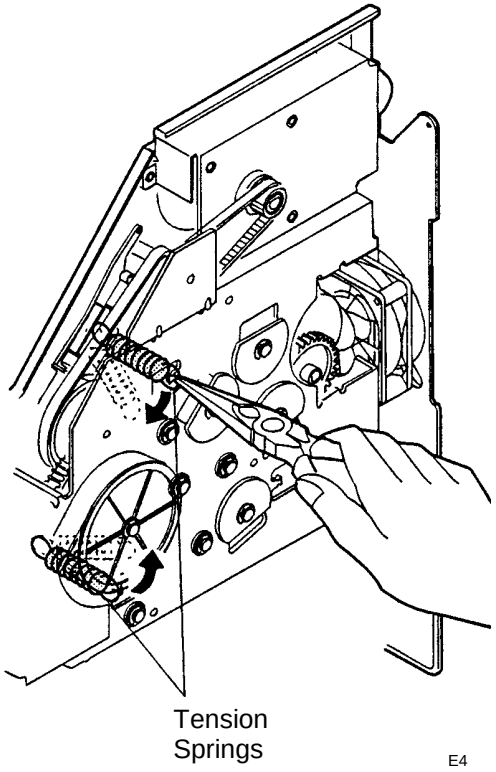


Figure 2. Removing the Springs

4. (Figure 3): Remove the 3 pins and the Block.

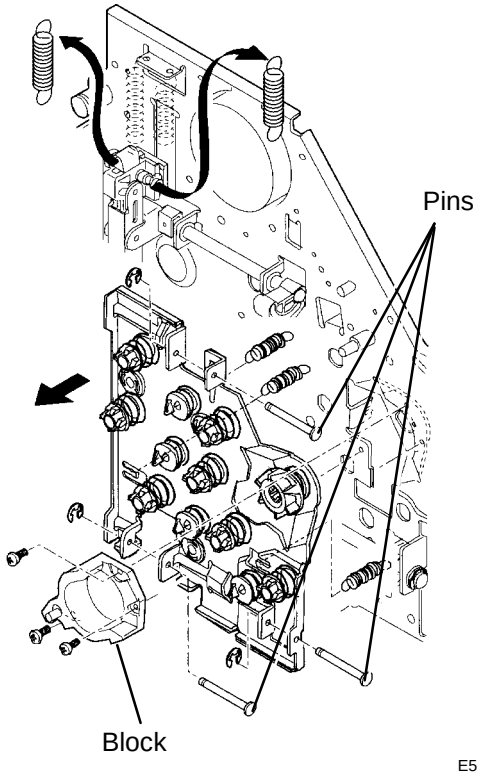


Figure 3. Removing the Pins and Block

5. (Figure 4): Remove the Inner Drive Frame and the Slide Lever Springs.

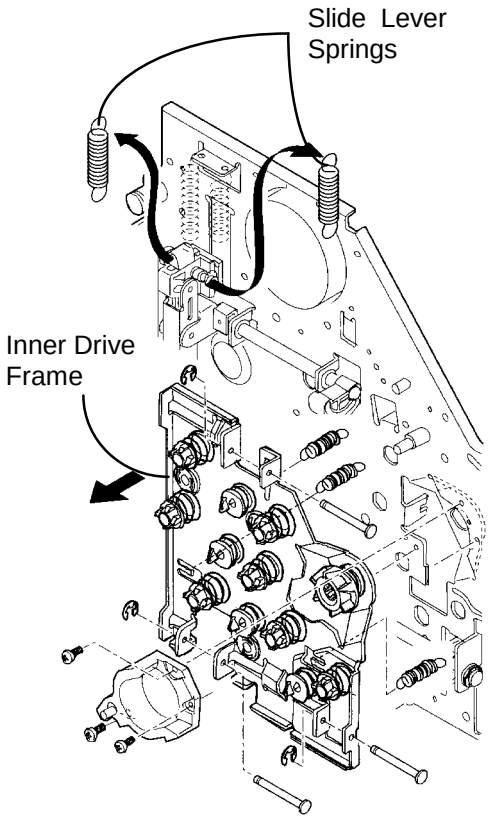


Figure 4. Removing the Inner Frame and Springs

6. (Figure 5): Remove the pin and Slide Cam Lever.

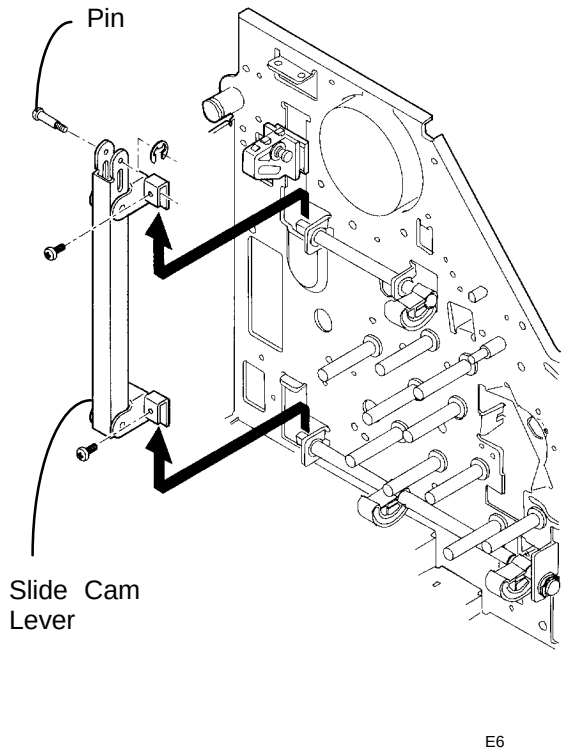


Figure 5. Removing the Slide Cam Lever

7. (Figure 6): Remove the Shafts and Cams.

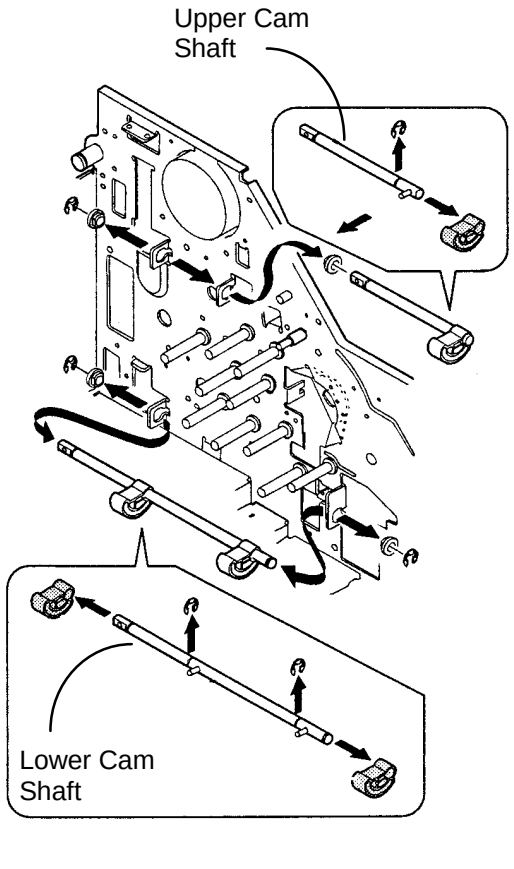


Figure 6. Removing the Shafts and Cams

REP 8.1 PAPER GUIDE (U-SHAPED)

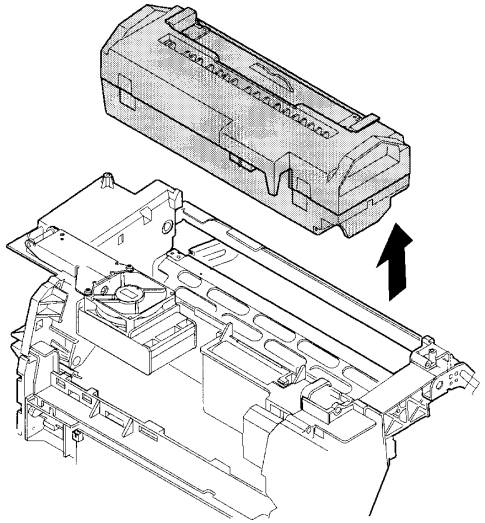
PARTS LIST ON PL 8.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

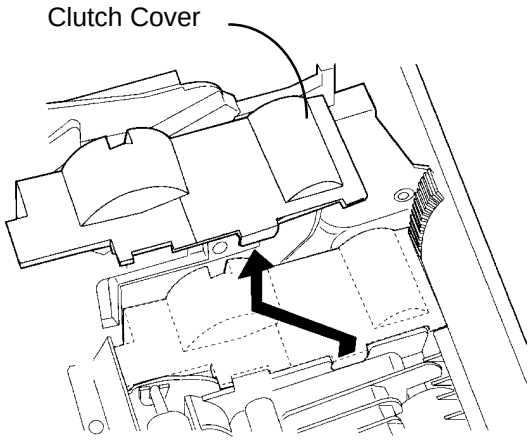
1. Remove the Paper Cassette.
2. Remove the Front Cover (REP 1.4).
3. (Figure 1) Open the Transfer Drum Assembly and remove the Fuser.



A41

Figure 1. Removing the Fuser

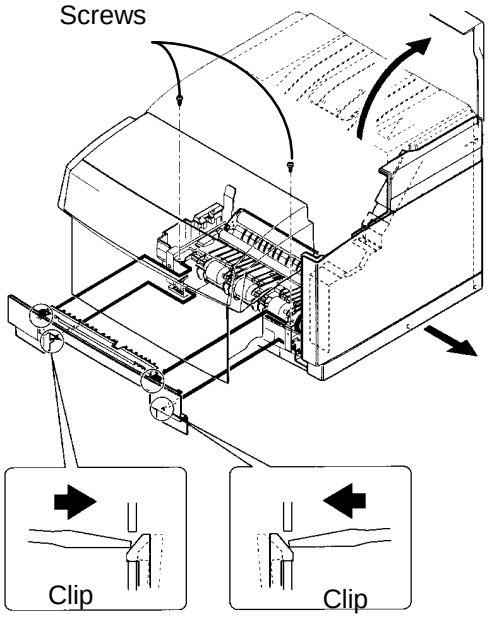
4. (Figure 2): Remove the Clutch Cover.



D7

Figure 2. Removing the Clutch Cover

5. (Figure 3): Remove two screws and release the two clips.
6. Remove the U-shaped Paper Guide.



D8

Figure 3. Removing the Paper Guide

REP 8.2 PAPER FEED ASSEMBLY

PARTS LIST ON PL 8.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Toner Waste Bottle
   b. Right Side Cover (REP 1.3)
   c. Paper Guide (REP 8.1)
2. (Figure 1): Remove the Connector Cover.

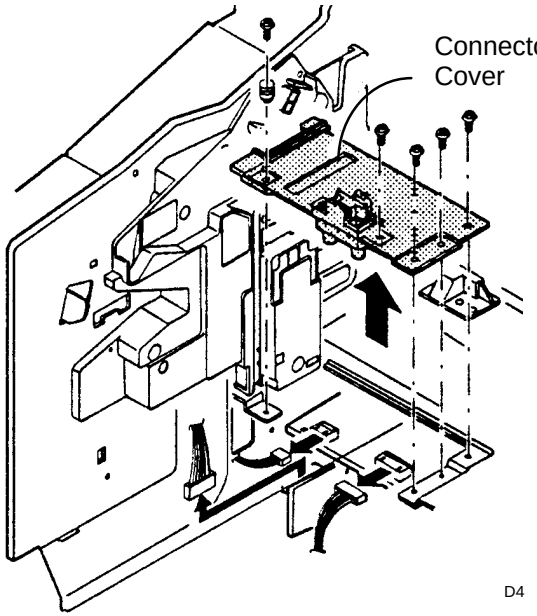


Figure 1. Removing the Connector Cover

3. (Figure 2): Remove the screws, disconnect the connector and remove the Paper Feed Motor.

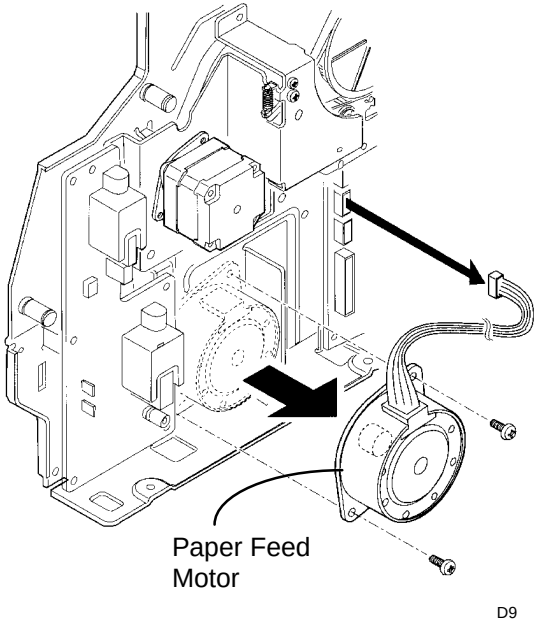


Figure 2. Removing the Paper Feed Motor

4. (Figure 3): Remove the four screws and disconnect the connectors (CN101, 102, 105).
5. Pull the printer forward until it is resting on the edge of the work surface.

Note: During the removal of the Paper Feeder Assembly it will be necessary to pivot the Transfer Drum Assembly.

6. While feeding the wires through the hole, remove the Paper Feed Assembly.

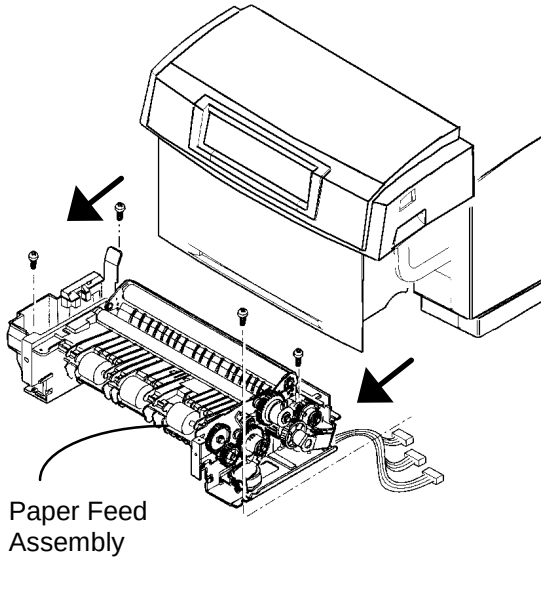


Figure 3. Removing the Paper Feed Assembly

REP 8.3 TRAY EMPTY SENSOR

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Unclip and carefully remove the Tray Empty Sensor in the direction shown.

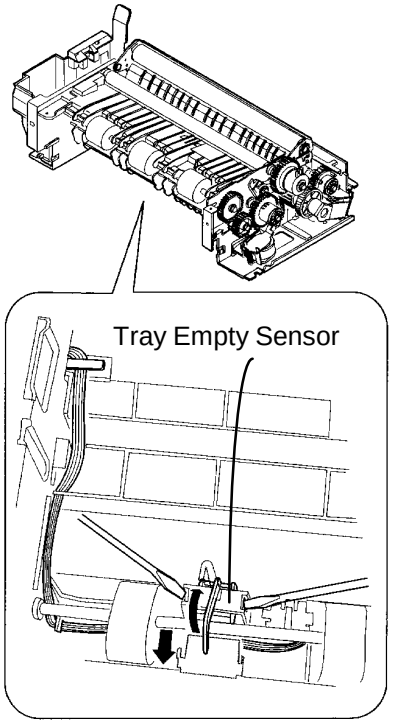


Figure 1. Removing the Tray Empty Sensor

REP 8.4 REGISTRATION SENSOR

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
   c. Tray Empty Sensor (REP 8.3).
2. (Figure 1): Unclip and carefully remove the Registration Sensor.

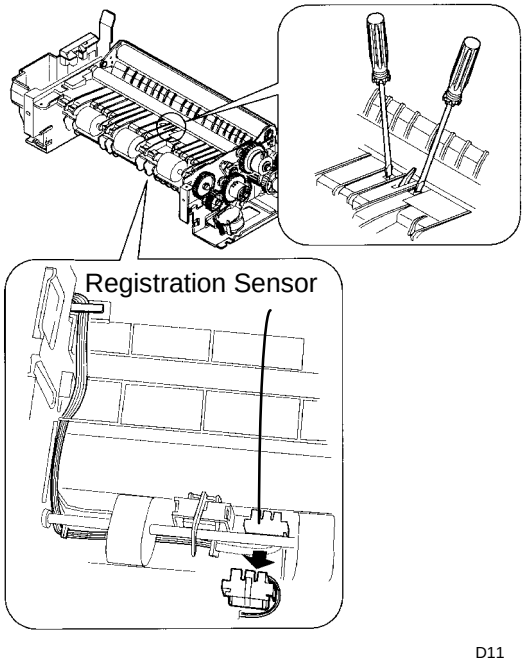


Figure 1. Removing the Registration Sensor

REPLACEMENT

NOTE: When replacing the Registration Sensor, make sure that it is snapped securely in place and the actuator moves freely.

REP 8.5 FEED CLUTCH & SOLENOID

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Feed Clutch and Feed Solenoid.

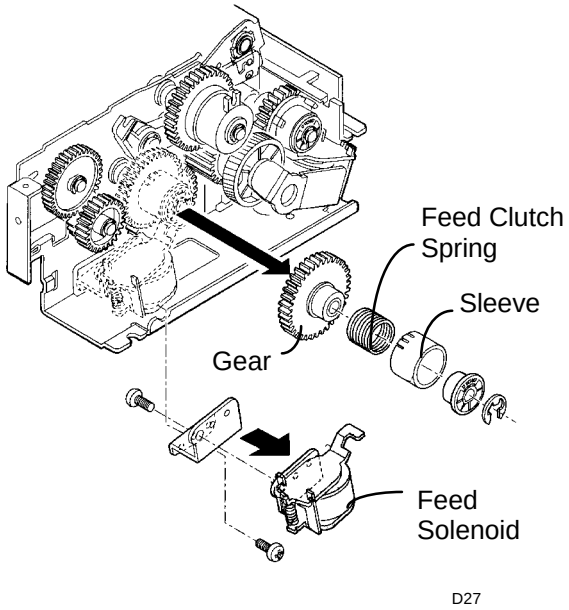


Figure 1. Removing the Feed Solenoid and Feed Clutch

REPLACEMENT

NOTE: After assembling the components, hand crank the feeder through several cycles. Energize the Feed Solenoid several times by hand and check that the Feed Solenoid engages the Feed Clutch and stops the rollers in the "flat down" position.

REP 8.6 REGISTRATION CLUTCH

PARTS LIST ON PL 8.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Grounding Roller Solenoid, Lower Registration Roller Gear and the Registration Clutch.

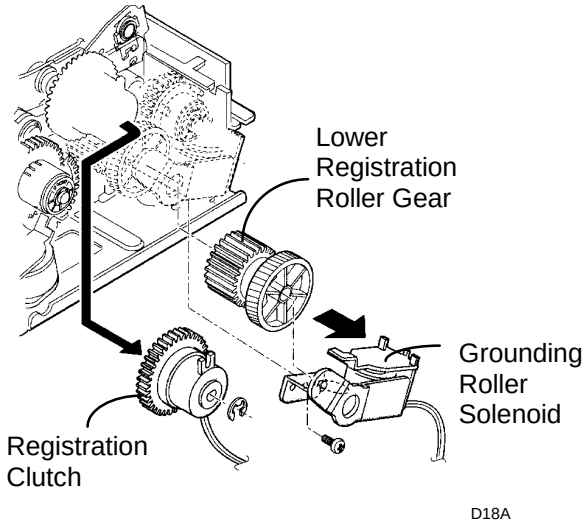


Figure 1. Removing the Registration Clutch

REPLACEMENT

NOTE: After assembling the components, hand crank the feeder through several cycles. Energize the Grounding Roller Solenoid several times by hand and check that the Grounding Roller Solenoid engages the Grounding Roller Clutch and stops the Grounding Roller in the down position.

REP 8.7 GROUNDING ROLLER CLUTCH

PARTS LIST ON PL 8.7

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Grounding Roller Clutch.

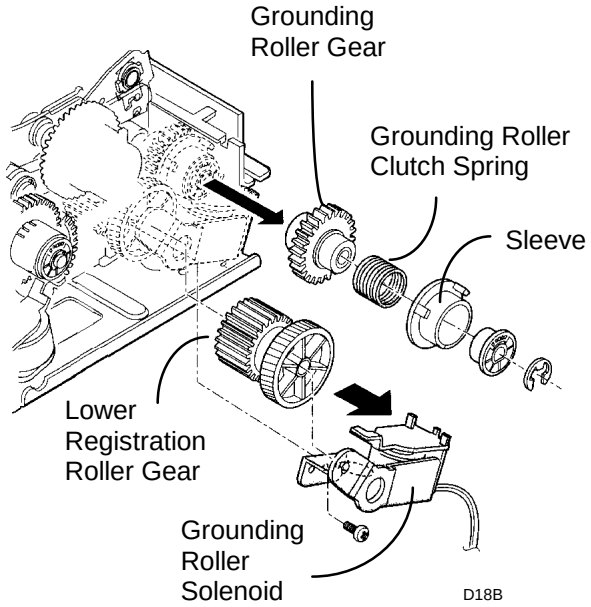


Figure 1. Removing the Grounding Roller Clutch

REPLACEMENT

NOTE: After assembling the components, hand crank the feeder through several cycles. Energize the Grounding Roller Solenoid several times by hand and check that the Grounding Roller Solenoid engages the Grounding Roller Clutch and stops the Grounding Roller in the down position.

REP 8.8 PAPER DRIVE ROLLER

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.
3. Unhook the spring, slide it out the bottom, and remove the Waste Toner Box from the Paper Feed Assembly.

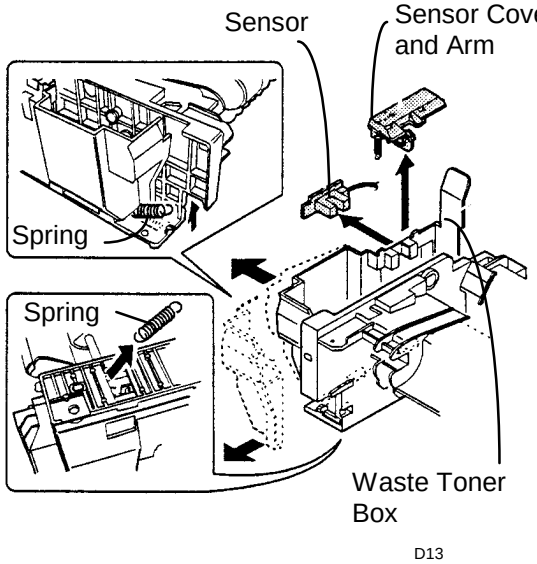


Figure 1. Removing the Toner Box

4. (Figure 2): Remove the E-Rings, Gears, and Bearings. Remove the Paper Drive Roller.

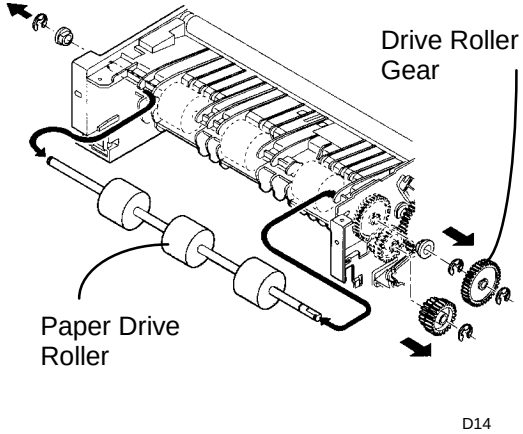


Figure 2. Removing the Paper Drive Roller

REPLACEMENT

NOTE: When reassembling the Waste Toner Box, make sure it slides back and forth smoothly.

REP 8.9 GROUNDING ROLLER

PARTS LIST ON PL 8.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.
3. Unhook the spring, slide it out the bottom, and remove the Waste Toner Box from the Paper Feed Assembly.

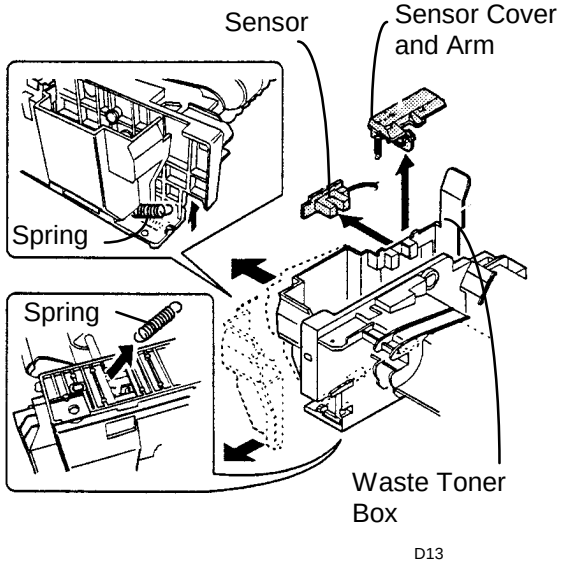


Figure 1. Removing the Toner Box

4. (Figure 2): Remove E-Ring and remove the Grounding Roller Assembly.

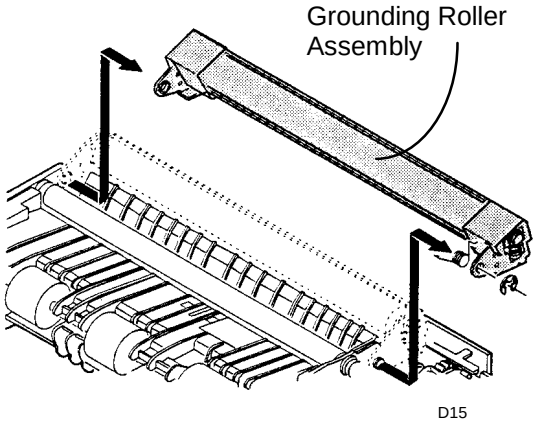


Figure 2. Removing the Grounding Roller Assembly

5. (Figure 3): Remove E-Rings and springs and remove the Grounding Roller.

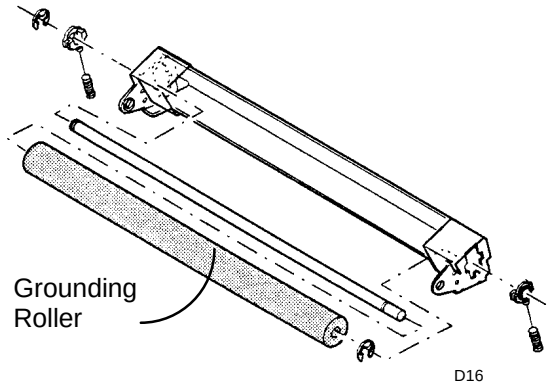


Figure 3. Removing the Grounding Roller

REPLACEMENT

NOTE: When reassembling the Grounding Roller Assembly, make sure it moves freely.

NOTE: When reassembling the Waste Toner Box, make sure it slides back and forth smoothly.

REP 8.10 UPPER REGISTRATION ROLLER

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.
3. Unhook the spring, slide it out the bottom, and remove the Waste Toner Box from the Paper Feed Assembly.

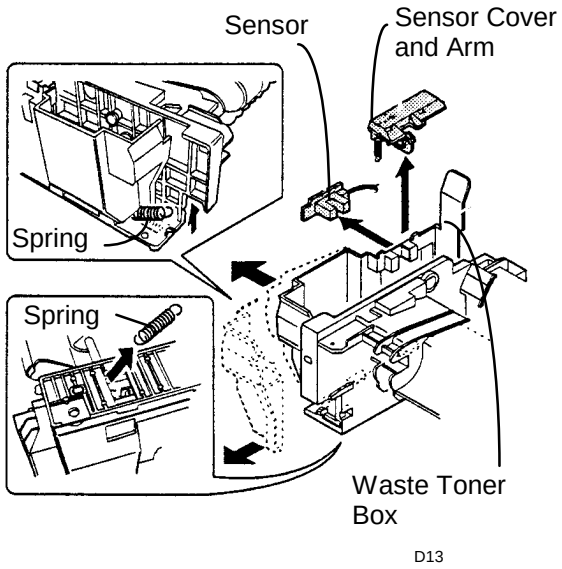


Figure 1. Removing the Toner Box

4. (Figure 2): Remove the Solenoids and Clutches shown. Keep the parts together. Be especially careful with the springs they are different.

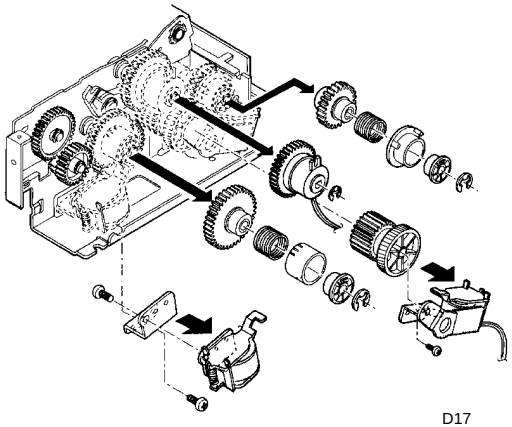


Figure 2. Removing the Clutches and Solenoids

5. (Figure 3): Remove the remaining hardware and remove the Right Feeder Frame.

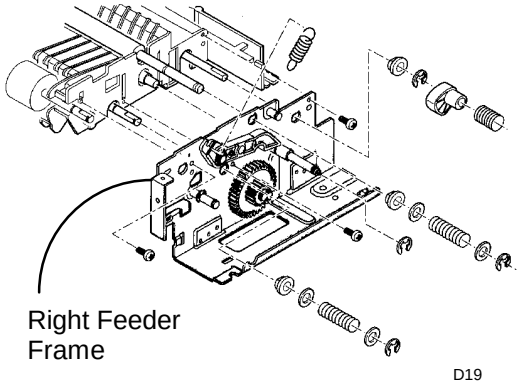


Figure 3. Removing the Feeder Frame

6. (Figure 4): Remove the E-Ring and Upper Registration Roller.

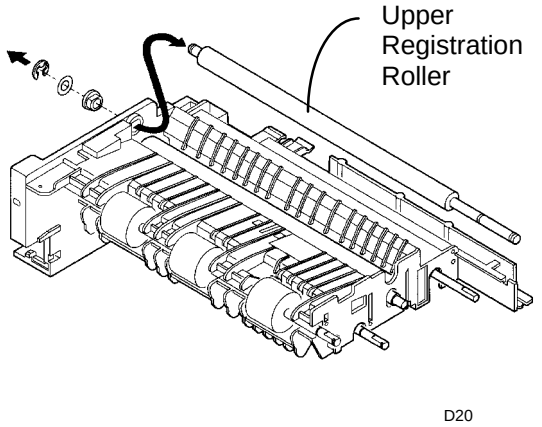


Figure 4. Removing the Upper Registration Roller

REPLACEMENT

NOTE: When reassembling the Waste Toner Box make sure it slides back and forth smoothly.

REP 8.11 LOWER REGISTRATION ROLLER

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.
3. Unhook the spring, slide it out the bottom, and remove the Waste Toner Box from the Paper Feed Assembly.

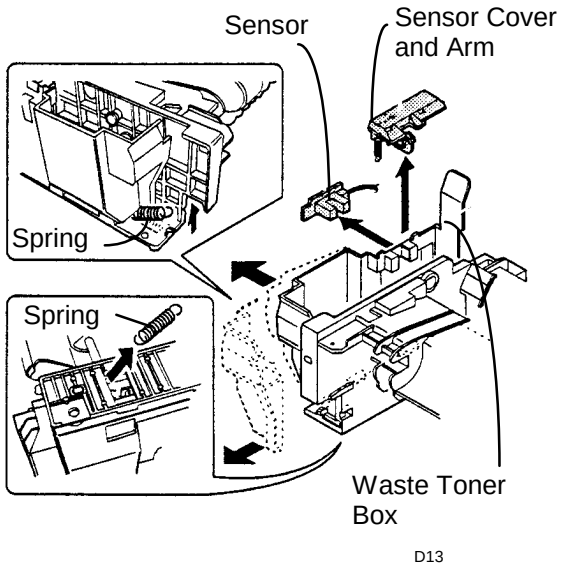


Figure 1. Removing the Toner Box

4. (Figure 2): Remove the Solenoids and Clutches shown. Keep the parts together. Be especially careful with the springs they are different.

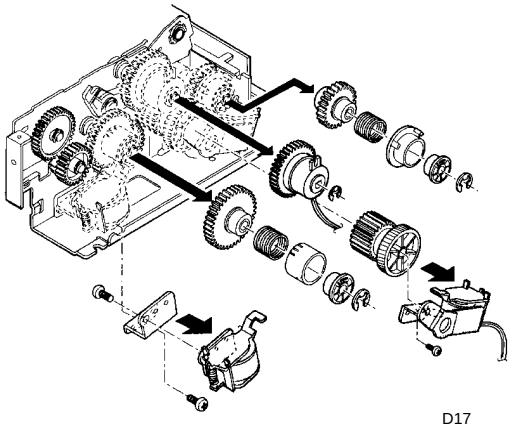


Figure 2. Removing the Clutches and Solenoids

5. (Figure 3): Remove the remaining hardware and remove the Right Feeder Frame.

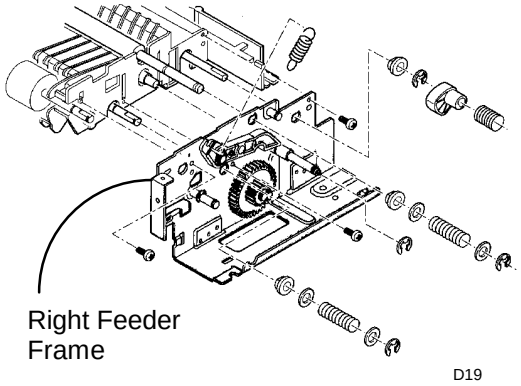


Figure 3. Removing the Feeder Frame

6. (Figure 4): Remove the Tension Lever and Remove the Lower Registration Roller.

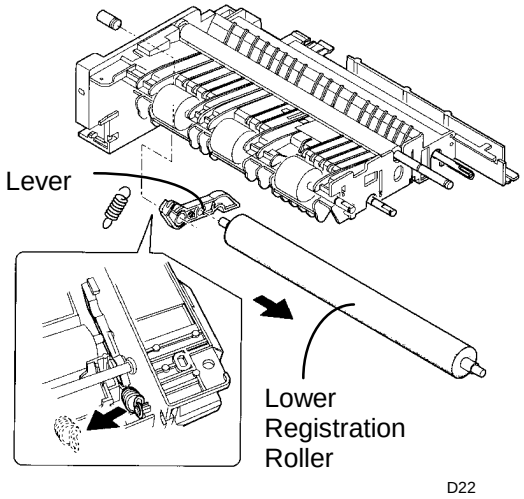


Figure 4. Removing the Lower Registration Roller

REPLACEMENT

NOTE: When reassembling the Waste Toner Box make sure it slides back and forth smoothly.

REP 8.12 FEED ROLLER

PARTS LIST ON PL 8.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.
3. Unhook the spring, slide it out the bottom, and remove the Waste Toner Box from the Paper Feed Assembly.

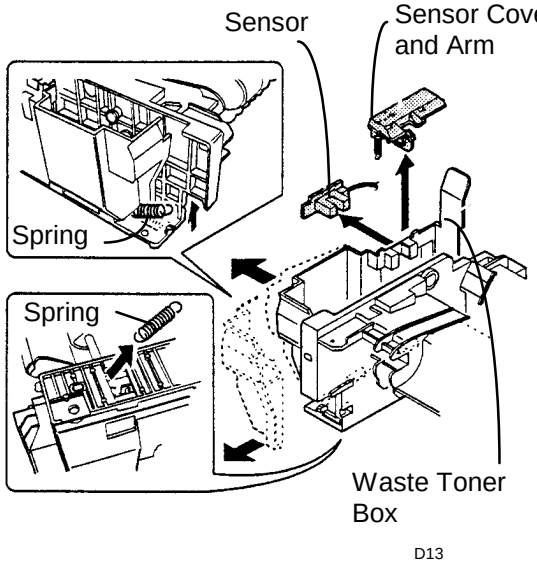


Figure 1. Removing the Toner Box

4. (Figure 2): Remove the Solenoids and Clutches shown. Keep the parts together. Be especially careful with the springs they are different.

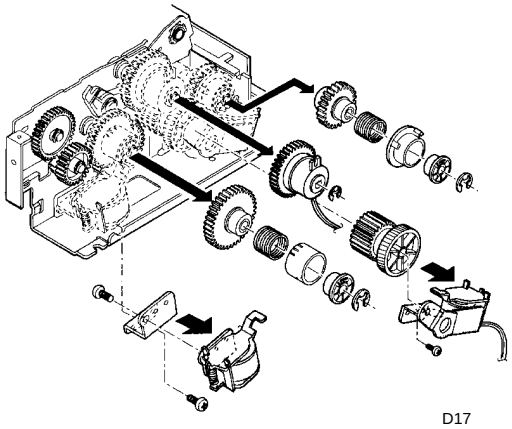


Figure 2. Removing the Clutches and Solenoids

5. (Figure 3): Remove the remaining hardware and remove the Right Feeder Frame.

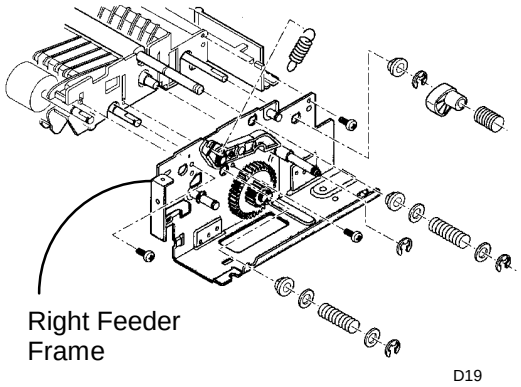


Figure 3. Removing the Feeder Frame

6. (Figure 4): Remove the E-Ring and Feed Roller.

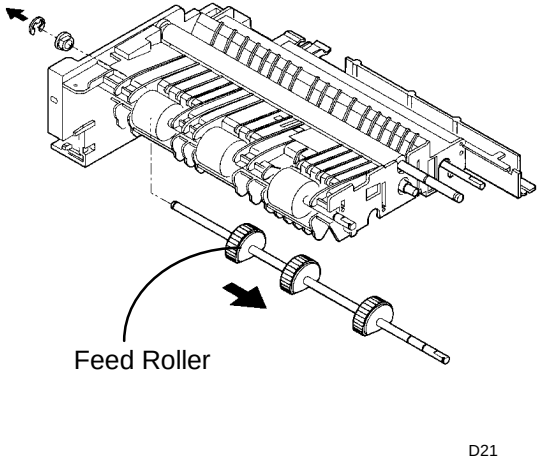


Figure 4. Removing the Feed Roller

REPLACEMENT

NOTE: When reassembling the Waste Toner Box make sure it slides back and forth smoothly.

REP 8.13 WASTE TONER SENSOR

PARTS LIST ON PL 8.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the following:
   a. Paper Guide (REP 8.1)
   b. Paper Feed Assembly (REP 8.2).
2. (Figure 1): Remove the Waste Toner Sensor cover and the Waste Toner Sensor.

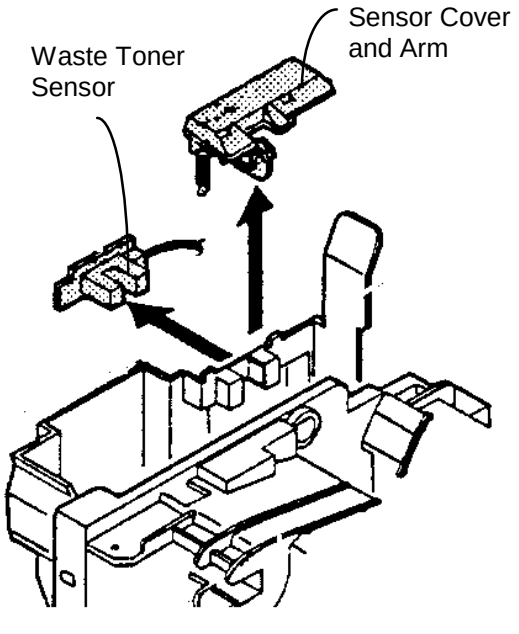


Figure 1. Removing the Waste Toner Sensor

REPLACEMENT

NOTE: When reassembling the Waste Toner Sensor and Cover make sure the arm slides back and forth smoothly

REP 9.1 STRIPPER FINGER ASSEMBLY

PARTS LIST ON PL 9.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Open the Printer.
2. (Figure 1): Remove the Fuser Assembly.
3. Place a sheet of paper between the Stripper Fingers and the Transfer Drum.

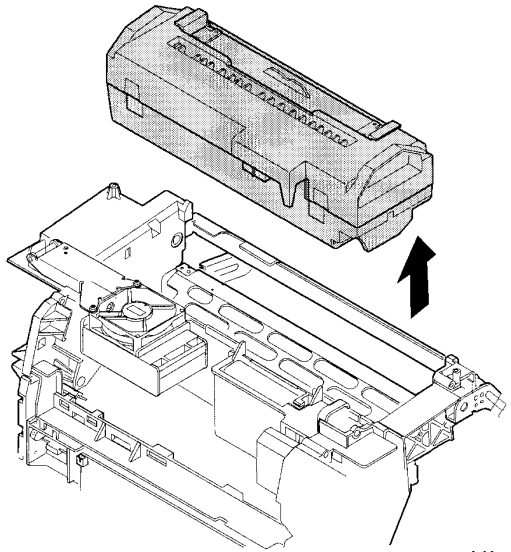


Figure 1. Removing the Fuser Assembly

4. (Figure 2): Remove the screw and remove the Spring Clip.
5. Remove the screw and remove the Stripper Arm.
6. Remove the Stripper Finger Assembly and the Transparency Jam Sensor Actuator.

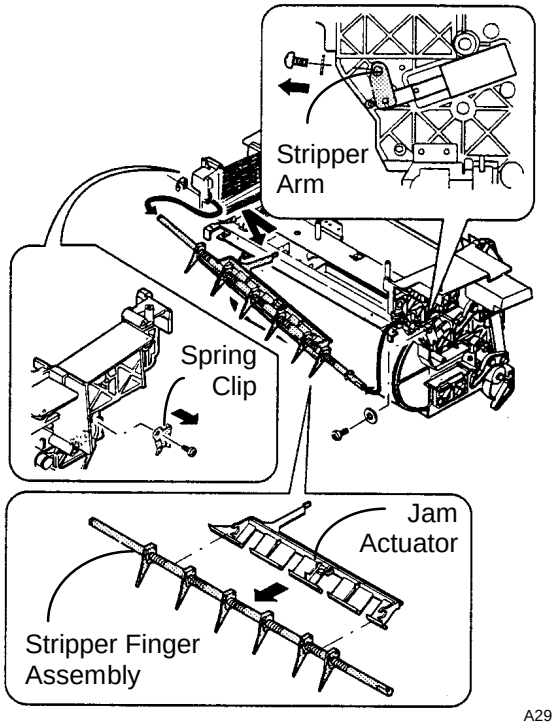


Figure 2. Removing the Stripper Finger Assembly

REPLACEMENT

NOTE: If the Transparency Sensor Jam Actuator comes off of the Stripper Finger Assembly, rotate the Stripper Arm and reinstall the actuator over the flats on the Stripper Shaft. Do not attempt to "snap" the actuator onto the shaft.

NOTE: When replacing the Transparency Sensor Jam Actuator, make sure it is blocking the Jam Sensor and moves freely.

NOTE: If you have difficulty reinstalling the Stripper Finger Assembly because of the Transparency Jam Sensor Actuator, remove the Transparency Jam Sensor, reinstall the Stripper Finger Assembly then reinstall the Transparency Jam Sensor. When reinstalling the Transparency Jam Sensor, raise the actuator and make sure the Transparency Jam Sensor Actuator is blocking the Transparency Jam Sensor. If you do not install the sensor correctly, a Drum Jam will occur at power on.

NOTE: Operate the Stripper Solenoid several times by hand and check the operation of the Stripper Fingers.

REP 9.2 TRANSFER DRUM CLEANING SOLENOID

PARTS LIST ON PL 9.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. (Figure 1): Remove the large E-Ring securing the Transfer Drum Assembly latch and slide the latch off the pin. This will allow access to the screw securing the Transfer Drum Cleaning Solenoid.

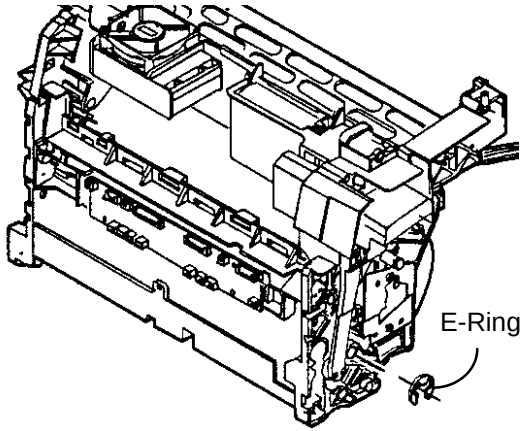


Figure 1. Removing the E-Ring

3. (Figure 2): Remove the screw and remove the Transfer Drum Cleaning Solenoid.

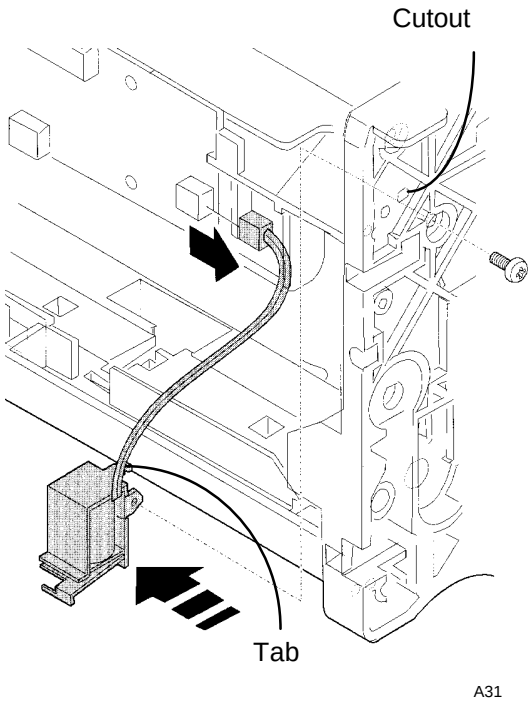


Figure 2. Removing the Transfer Drum Cleaning Solenoid

REPLACEMENT

NOTE: When reinstalling the Transfer Drum Cleaning Solenoid, make sure the tab on the solenoid is located in the cutout in the frame.

NOTE: Observe the Cleaner Assembly during the copy quality setup. When the Cleaning Solenoid is energized, the Cleaning Assembly should be cammed forward. When the Solenoid is deenergized, the Cleaning Assembly should be cammed away.

REP 9.3 TRANSFER DRUM CLEANER CLUTCH

PARTS LIST ON PL 9.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Remove the Transfer Drum Cleaning Solenoid (REP 9.2).
3. (Figure 1): Remove the Spring Clip and E-Rings. The right E-Ring is very small.
4. Remove the right and left bearings.
5. Remove the E-Ring and large washer from the lower belt idler. Slide the lower belt off of the idler.
6. The Connector PWB is mounted to a plastic frame. This frame has a V-shaped extrusion which is mounted over the Cam Shaft. Push the V-shaped extrusion to the rear, pull the Cam Shaft toward the front and to the left and remove the Cam Shaft Assembly.
7. Remove the Transfer Drum Cleaning Clutch.

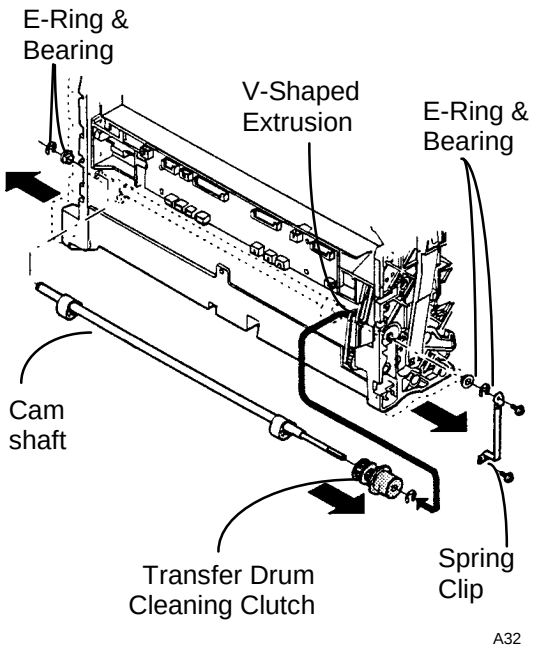


Figure 1. Removing the Transfer Drum Cleaner Clutch

REPLACEMENT

NOTE: (Figure 2): When reassembling the clutch, position the tab opposite the flat, then be sure to engage the spring in the sleeve cutout. If you are not sure of how to assemble the clutch or suspect a problem, replace the clutch with a new Transfer Drum Cleaner Clutch Assembly.

NOTE: Observe the Cleaner Assembly during the copy quality setup. When the Cleaning Solenoid is energized, the Cleaning Assembly should be cammed forward and the high point of the cam shaft should be pressing on the cleaner assembly. When the Solenoid is deenergized, the Cleaning Assembly should be cammed away and the low point of the cam shaft should be pressing on the cleaner assembly.

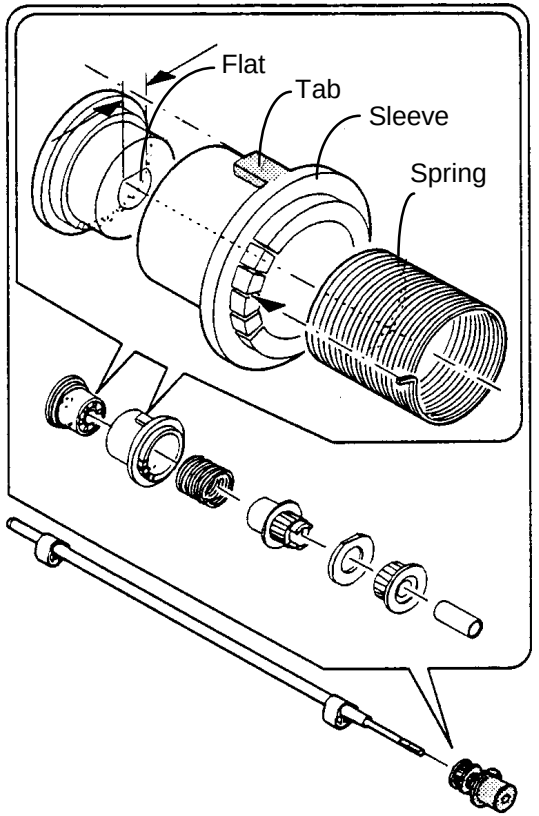


Figure 2. Assembling the Clutch

REP 9.4 TRANSFER DRUM CLEANER ASSEMBLY

PARTS LIST ON PL 9.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Unhook the Transfer Drum cleaner return spring.
3. (Figure 1): Remove six screws.
4. Carefully pry the Transfer Drum Frame away from the lower frame and remove the Transfer Drum Lower Frame.

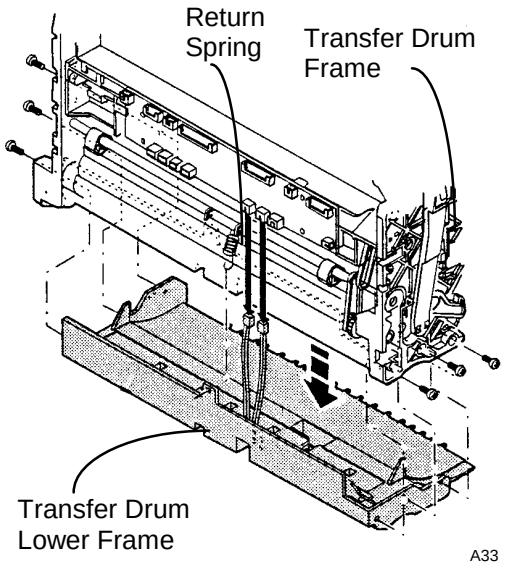


Figure 1. Removing the Transfer Drum Lower Frame

5. (Figure 2): Remove the Toner Shutter.
6. Remove the Transfer Drum Cleaner E-Ring.
7. Remove the E-Ring from the Cam Shaft.
8. Carefully pry the Transfer Drum Frames apart and remove the Transfer Drum Cleaner Assembly.

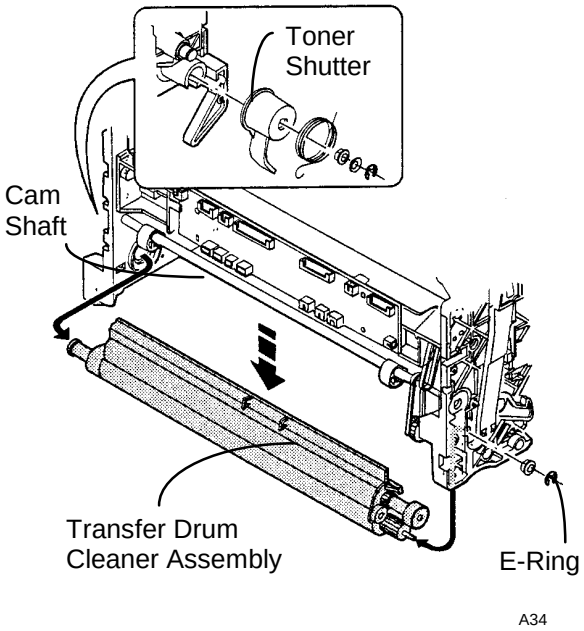


Figure 2. Removing the Transfer Drum Cleaner Assembly

REPLACEMENT

NOTE: When reinstalling the Transfer Drum Cleaner into the left frame be sure it is seated correctly. If it is not seated properly , you will not be able to install the E-Ring.

NOTE: (Figure 3): When Reinstalling the Transfer Drum Lower Frame, rotate the Transfer Drum Flange until the V-Shaped cutouts on the Transfer Drum Flanges are inserted in the V of the Lower Transfer Frame. The Transfer Drum Flanges do NOT rotate. When the Lower Frame is installed properly, the Transfer Drum Gear can be rotated in either direction and the Nip Adjustment Wheels will not rotate.

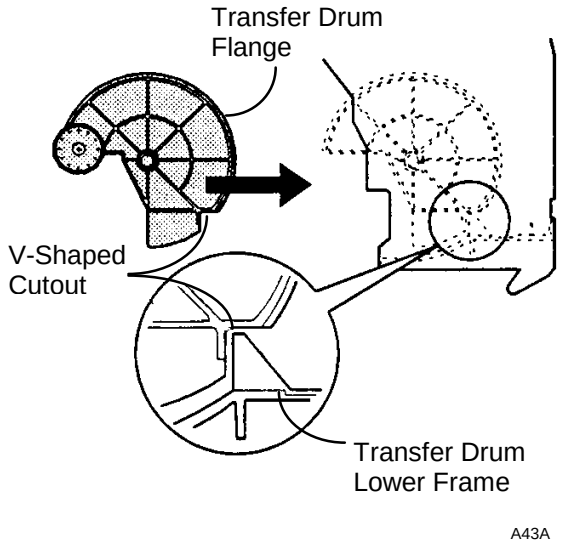


Figure 3. Reinstalling the Transfer Drum Lower Frame

REP 9.5 TRANSFER DRUM CLEANER BRUSH CLUTCH

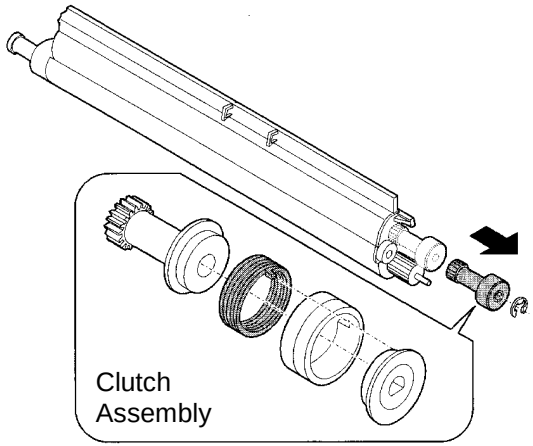
PARTS LIST ON PL 9.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Remove the Transfer Drum Cleaner (REP 9.4).
3. (Figure 1): Remove the Transfer Drum Cleaner Brush Clutch.



A35

Figure 1. Removing the Transfer Drum Cleaner Brush Clutch

REPLACEMENT

NOTE: When reassembling the clutch, be sure to engage the spring in the sleeve cutout.

REP 9.6 TRANSFER DRUM CLEANING BLADE

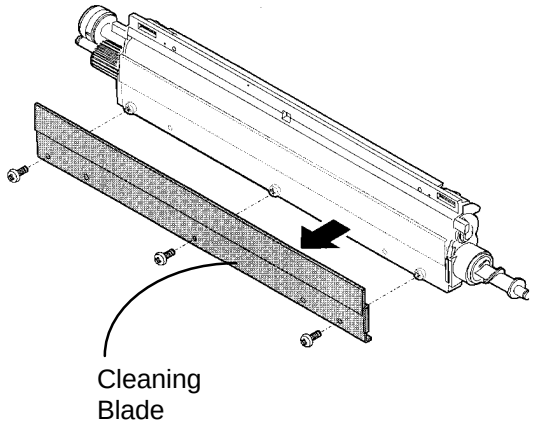
PARTS LIST ON PL 9.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Remove the Transfer Drum Cleaner (REP 9.4).
3. (Figure 1): Remove the Transfer Drum Cleaning Blade.



A36

Figure 1. Removing the Transfer Drum Cleaning Blade

REP 9.7 TRANSFER DRUM CLEANING BRUSH

PARTS LIST ON PL 9.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Remove the Transfer Drum Cleaner (REP 9.4).
3. (Figure 1): Remove the Transfer Drum Cleaner Brush Clutch.

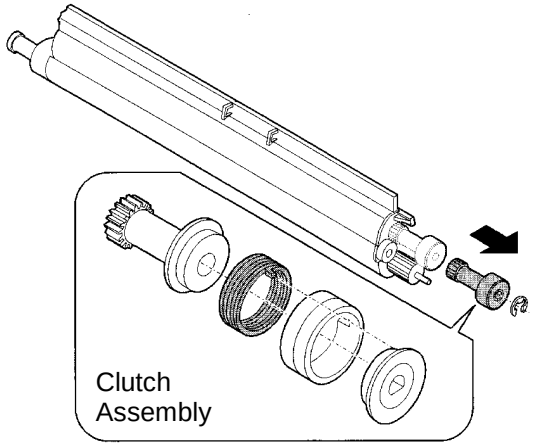


Figure 1. Removing the Transfer Drum Cleaner Brush Clutch

4. (Figure 2): Remove the Transfer Drum Cleaning Brush.

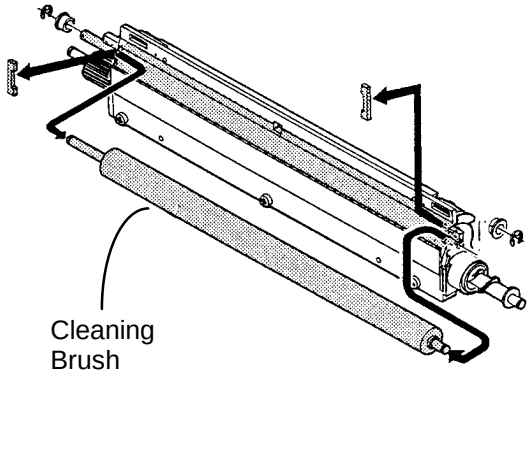


Figure 2. Removing the Transfer Drum Cleaning Brush

NOTES:

REP 9.8 TRANSFER DRUM

PARTS LIST ON PL 11.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

NOTE: You must replace the Transfer Drum Cleaning Blade when installing a new Transfer Drum. The blade can be easily accessed when the Transfer Drum is removed.

1. Remove the Front Cover (REP 1.4).
2. Remove the Drum Module.
3. Place several sheets of paper over the Paper Feeder.
4. Remove the Stripper Finger Assembly (REP 9.1).
5. (Figure 1): Remove the left side Arm and Spring.
6. Remove the Transfer Drum Mounting Plates.

NOTE: The left plate is spring loaded.

7. Slide the Transfer Drum Bearings out and remove the Transfer Drum.
8. Remove the Flanges and disassemble the Transfer Drum as required.

NOTE: When reinstalling the transfer drum be sure to reinstall the washer between the spring and E-Ring on the left side.

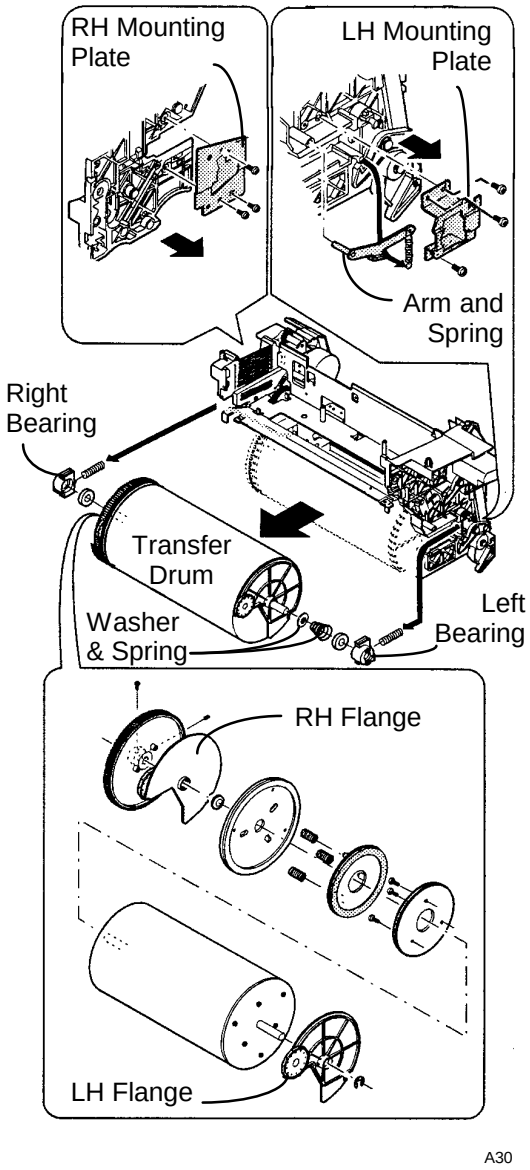


Figure 1. Removing the Transfer Drum

REPLACEMENT

NOTE: Before replacement, locate the V-Shaped cutouts on the transfer drum flanges and the V in the Transfer Drum Lower Frame.

NOTE: (Figure 2): When Reinstalling the Transfer Drum, rotate the Transfer Drum Flange until the V-Shaped cutouts on the Transfer Drum Flanges are inserted in the V of the Lower Transfer Drum Frame. The Transfer Drum Flanges do NOT rotate. When the Transfer Drum is installed properly, the Transfer Drum Gear can be rotated in either direction and the Nip Adjustment Wheels will not rotate.

1. Perform the Transfer Drum Nip check (ADJ 11.1).

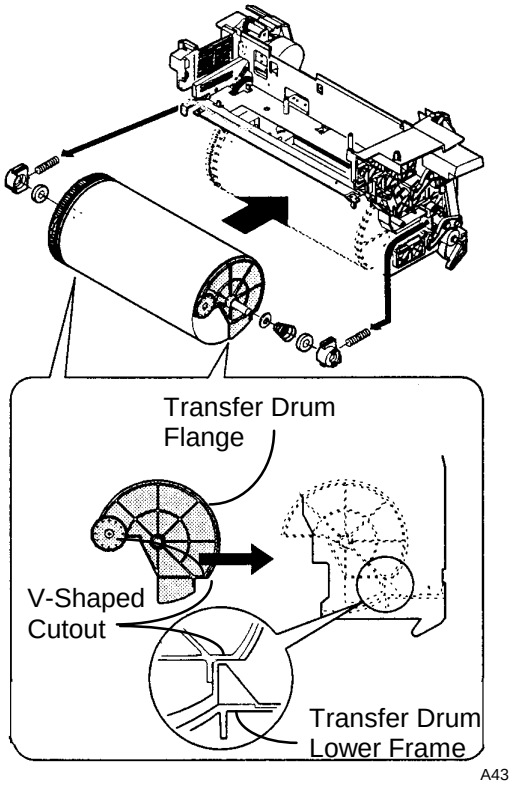


Figure 2. Reinstalling the Transfer Drum

REP 9.9 TRANSFER ASSEMBLY (TRANSFER CLAMSHELL)

PARTS LIST ON PL 10

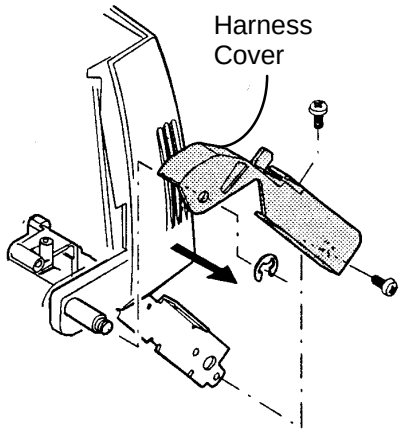
REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

NOTE: Be careful not to scratch the Transfer Drum.

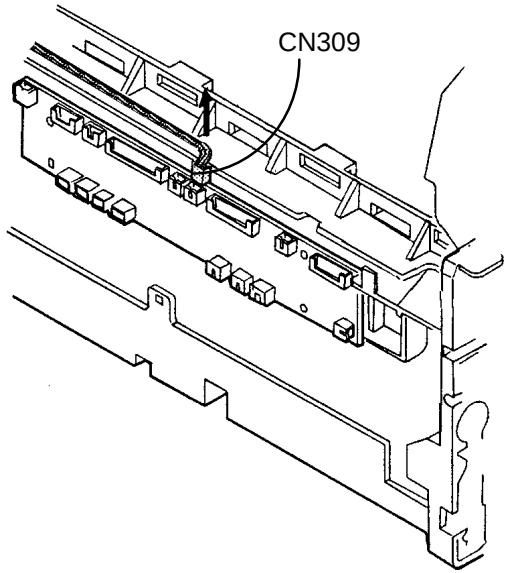
1. Remove the following:
   a. Front Cover (REP 1.4).
   b. Right and Left Side covers (REP 1.3).
   c. Print Drum (GP 1).
   d. Color Developer Assembly (GP 2).
   e. Black Developer Assembly (GP 3).
   f. Fuser (GP 5).
2. (Figure 1): Remove the two screws and the E-Ring and remove the Harness Cover.



T01

Figure 1. Removing the Harness Cover

3. Locate and disconnect the following:
   a. Fuser Motor Harness. This is a five wire harness which connects to the PCU PWB (CN110). You will have to pry open the Noise Suppressor around this harness and free the harness from the standoffs.
   b. Main Connector PWB Harness. This is a 28 wire harness which connects to the PCU PWB (CN103). You will have to free the harness from the standoffs.
   c. Fuser Connector. This is a two wire harness (White & Black, heavy gauge) which supplies AC to the Fuser. You will have to free the harness from the standoffs.
   d. Ground Wire. This wire provides a frame ground to the Transfer Assembly. Remove the Screw securing the wire to the Main Motor frame.
4. (Figure 2): Disconnect the three wire Oil Sensor connector (CN309) from the Connector PWB. Free the harness from wiring clips and cut any cable ties.



T02

Figure 2. Disconnecting the Oil Sensor

5. (Figure 3): Disconnect the three wire Exit Sensor connector (CN308) from the Connector PWB. Free the harness from the wiring clips and cut any cable ties.

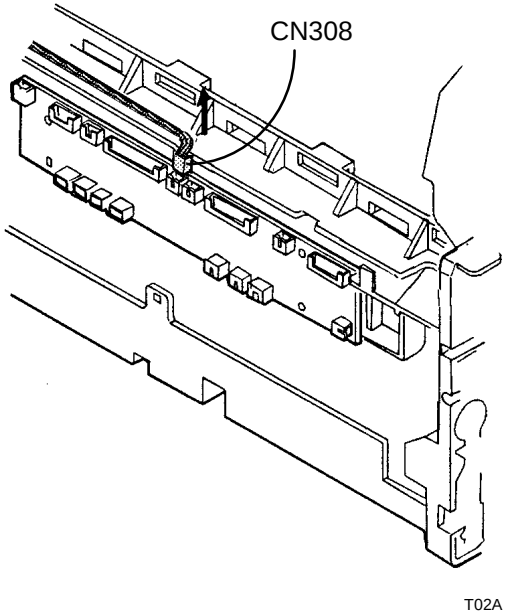


Figure 3. Disconnecting the Exit Sensor

6. (Figure 4): Remove the Right Pivot Arm:
   a. Remove the two E-Rings.
   b. Carefully close the Transfer Assembly and remove the spring.
   c. Carefully support the bottom of the Transfer Assembly and remove the Right Pivot Arm.

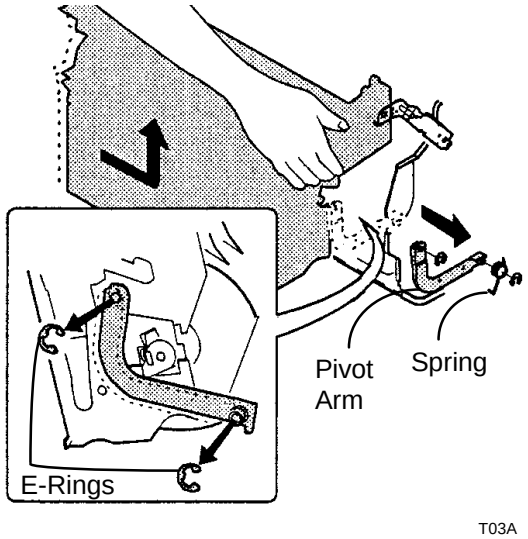


Figure 4. Removing the Right Pivot Arm

7. (Figure 5): Disconnect the Left Pivot Arm:
   a. Remove the E-Ring.
   b. Carefully support the bottom of the Transfer Assembly and Disconnect the Left Pivot Arm from the Pin.

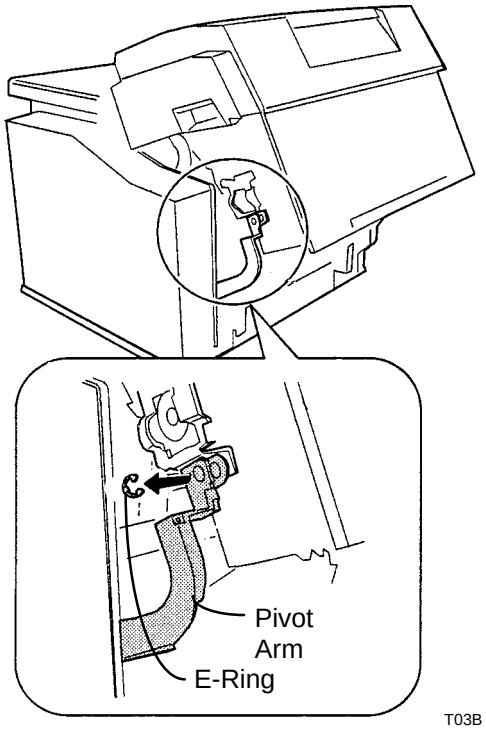


Figure 5. Disconnecting the Left Pivot Arm

8. (Figure 6): Remove the inner and outer E-Rings from the left side of the left transfer drum Pivot Pin.
9. Push the pin in slightly until you can remove the left side of the Exit assembly. Do not remove the pin at this time.
10. Locate the ground wire between the Exit Assembly and the Oil Sensor bracket. Remove the screw securing the ground wire to the Oil Sensor bracket.

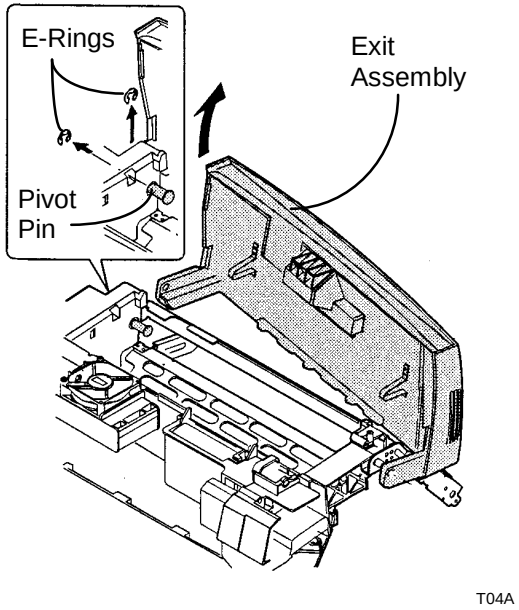


Figure 6. Removing the Left E-Rings

11. (Figure 7): Remove the outer E-Ring from the right side of the right transfer drum Pivot Pin.
12. Move the Exit Assembly to the right and remove the Inner E-Ring.
13. Push the pin in slightly until you can remove the right side of the Exit Assembly. Do not remove the pin at this time. Set the Exit Assembly aside.

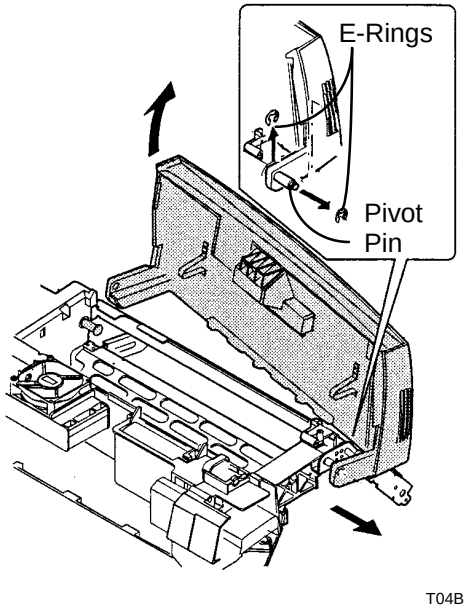


Figure 7. Removing the Right E-Rings

14. (Figure 8): Support the Transfer Drum Assembly and remove the two pins. Remove the Transfer Assembly.

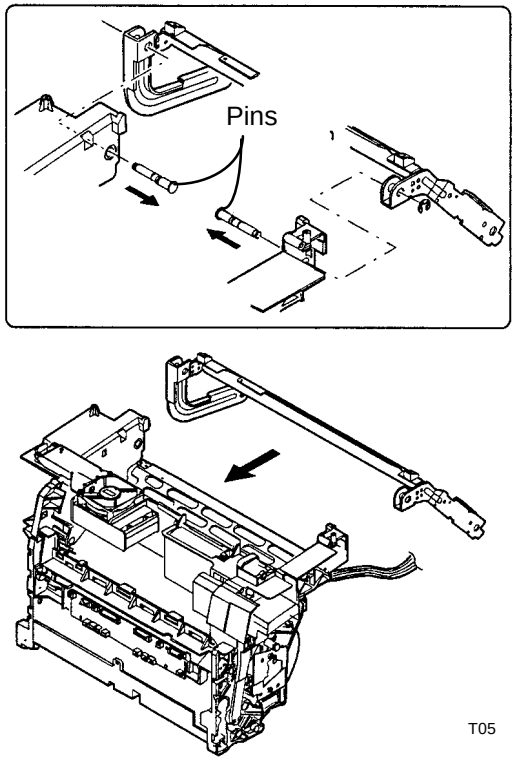


Figure 8. Removing the Pins and Transfer Assembly

REPLACEMENT

NOTE: The longer pin goes on the left side. The large E-Rings are used on the inside.

REP 10.1 BYPASS SWITCH

PARTS LIST ON PL 10.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. (Figure 1): Disconnect the connector and remove the Bypass Switch.

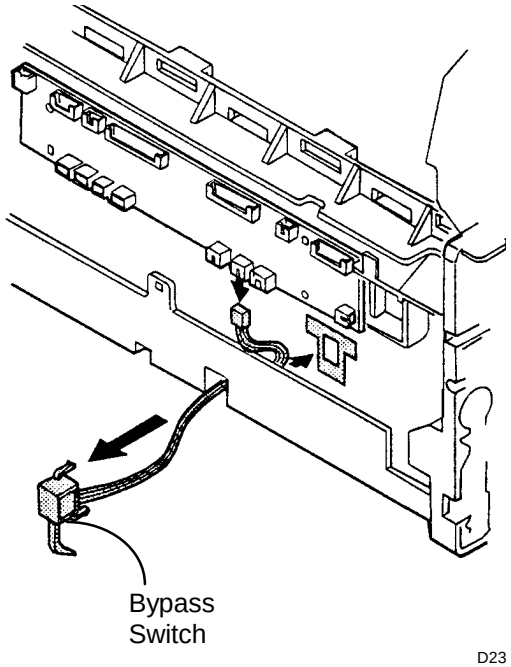


Figure 1. Removing the Bypass Switch

REP 10.2 TRANSFER DISCHARGE POWER SUPPLY

PARTS LIST ON PL 10.4

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. (Figure 1): Disconnect the connector, remove the screws, and remove the Transfer Discharge Power Supply.

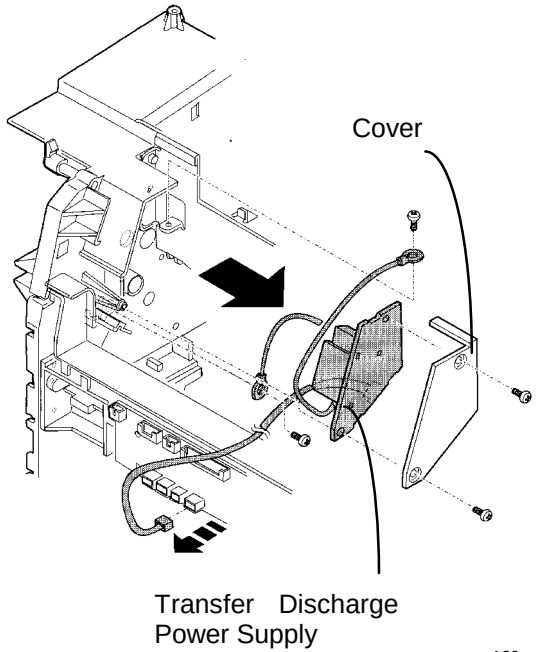


Figure 1. Removing the Transfer Discharge Power Supply

REP 10.3 TRANSPARENCY SENSOR

PARTS LIST ON PL 10.4 HARNESS

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. (Figure 1): Remove six screws.
3. Carefully pry the Transfer Drum Frame away from the lower frame and remove the Transfer Drum Lower Frame.

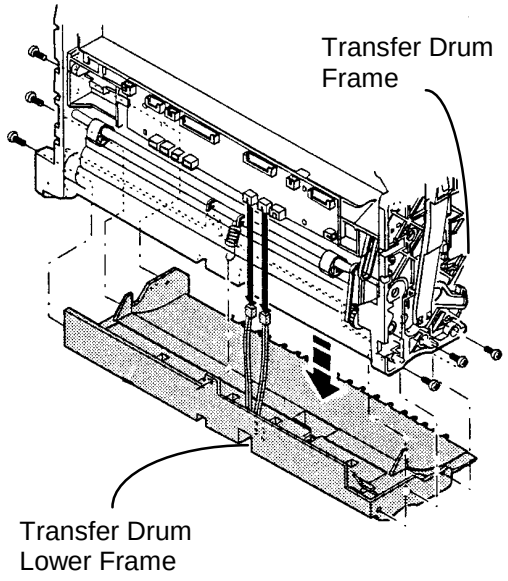


Figure 1. Removing the Transfer Drum Lower Frame

4. (Figure 2): Disconnect the connector and remove the Transparency Sensor.

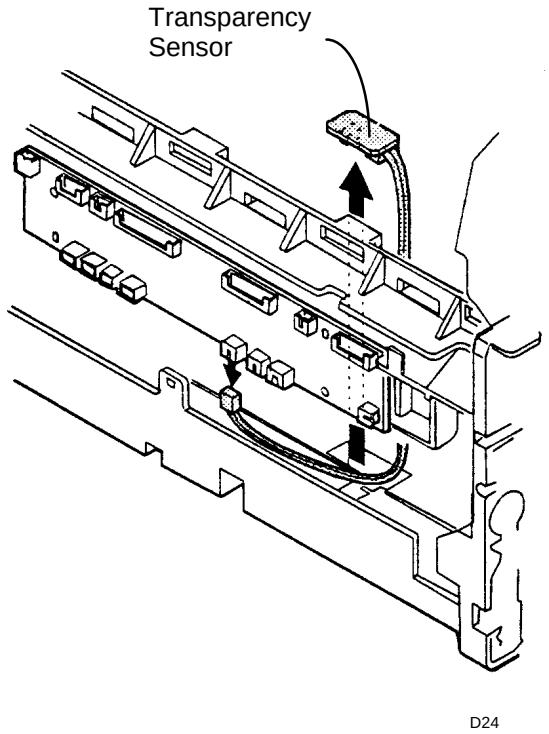


Figure 2. Removing the Transparency Sensor

REPLACEMENT

NOTE: (Figure 3): When Reinstalling the Transfer Drum Lower Frame, rotate the Transfer Drum Flange until the V-Shaped cutouts on the Transfer Drum Flanges are inserted in the V of the Lower Transfer Frame. The Transfer Drum Flanges do NOT rotate. When the Lower Frame is installed properly, the drum gear can be rotated in either direction and the nip adjustment wheels will not rotate.

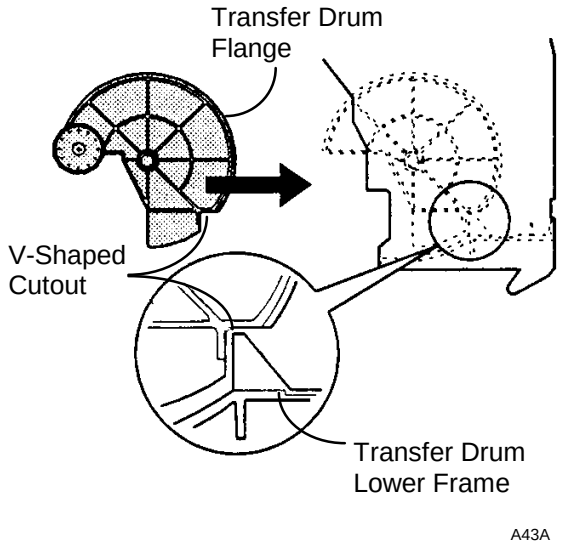


Figure 3. Reinstalling the Transfer Drum Lower Frame

REP 10.4 FUSER HARNESS

PARTS LIST ON PL 10.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Front Cover (REP 1.4).
2. Remove the Right Side Cover (REP 1.3)
3. (Figure 1): Remove the Fuser Assembly.

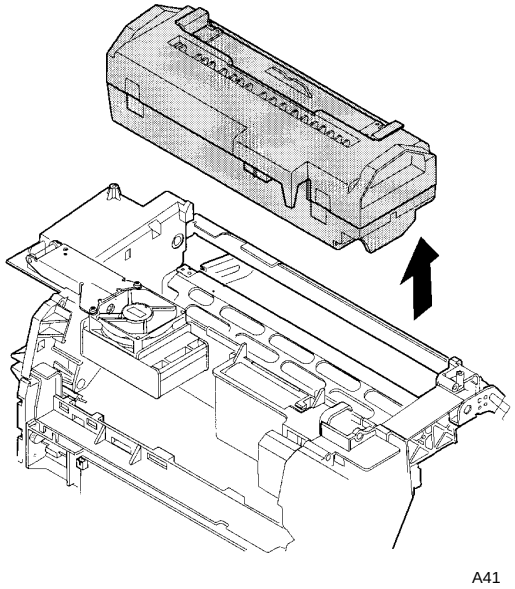


Figure 1. Removing the Fuser Assembly

4. (Figure 2): Remove the Harness Cover.
5. Disconnect the connectors and remove the Fuser Harness

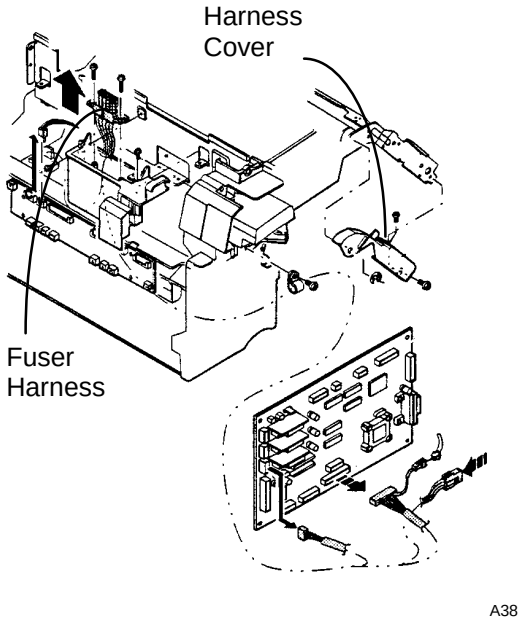


Figure 2. Removing the Fuser Harness

REP 12.1 ROS ASSEMBLY

PARTS LIST ON PL 12.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Top Rear Cover (REP 1.1)
2. (Figure 1): Disconnect the connectors, remove the screws, and remove the ROS Assembly.

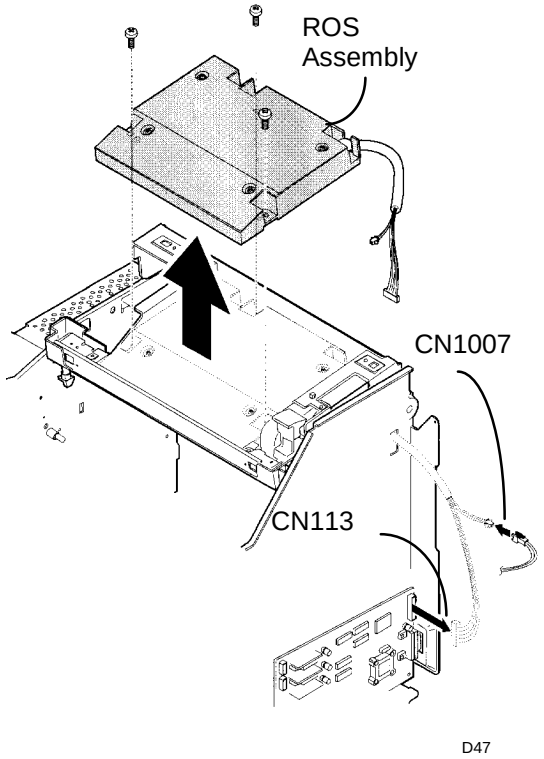


Figure 1. Removing the ROS

REP 13.1 BLACK TONER MOTOR

PARTS LIST ON PL 13.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. (Figure 1): Remove the following:
   a. Drum Module.
   b. Color Developer Module.
   c. Black Developer Module.

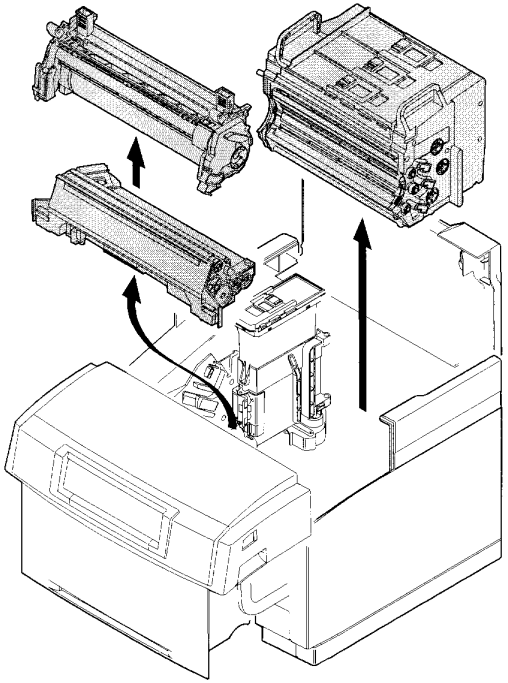


Figure 1. Removing the Modules

2. (Figure 2): Remove connectors, lift and remove the Black Toner Hopper.

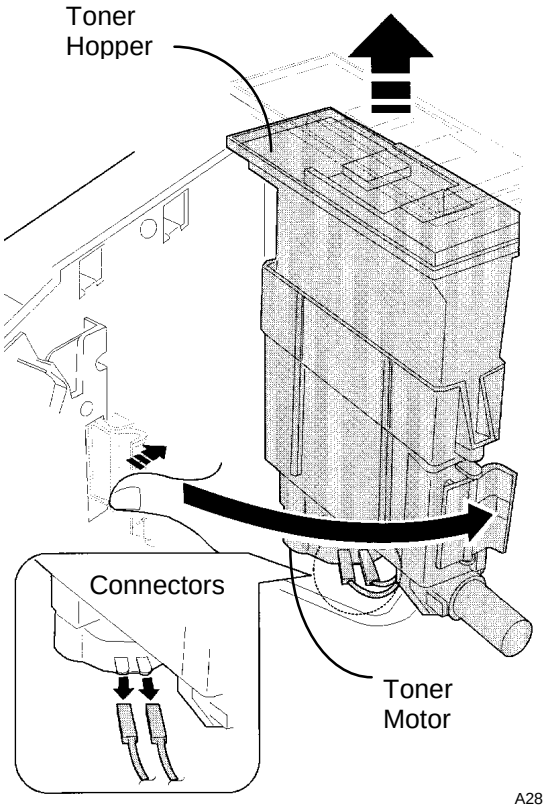


Figure 2. Removing the Toner Hopper

3. (Figure 3): Remove the screws and remove the Toner Motor.

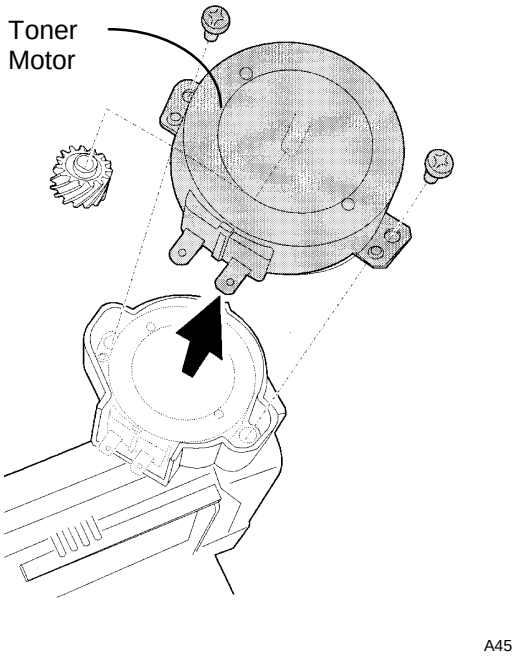


Figure 3. Removing the Toner Motor

REP 27.1 TRAY 2 MODULE

PARTS LIST ON PL 27.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

CAUTION

Three people are required to remove the printer from the Tray 2 Module.

1. (Figure 1): Remove the Tray 2 Module.
   a. Remove the Tray 2 Cassette.
   b. Disconnect the connector.
   c. Turn the screw clockwise to release the latches.
   d. Two persons should lift the printer from the Tray 2 Module while one person holds the screw clockwise.

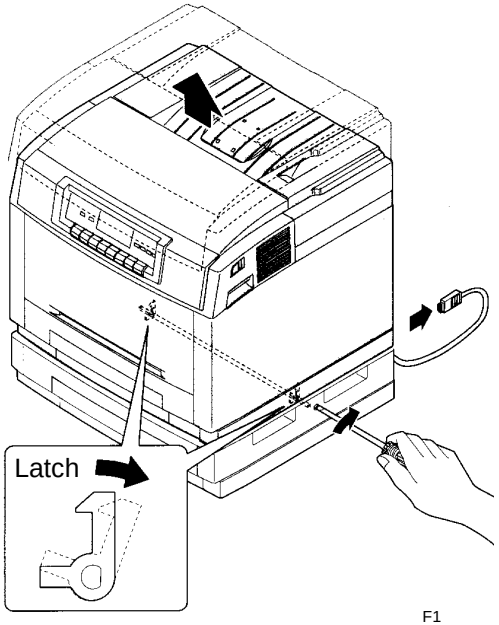


Figure 1. Removing the Tray 2 Module

REPLACEMENT

NOTE: (Figure 2): Before reinstalling the Tray 2 Module, press the lever several times to ensure that the Drive Gear raises when the lever is pressed.

When latching the Tray 2 Module, ensure that both latches are engaged.

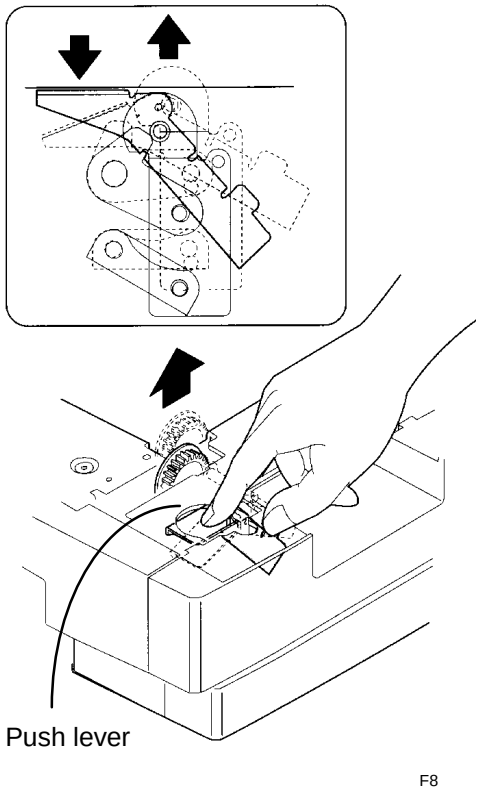


Figure 2. Reinstalling the Tray 2 Module

REP 27.2 TRAY 2 FEEDER ASSEMBLY

PARTS LIST ON PL 27.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. (Figure 1): Remove the Tray 2 Paper Feed Assembly.
   a. Disconnect the connectors.
   b. Remove the screws and remove the Tray 2 Feeder Assembly.

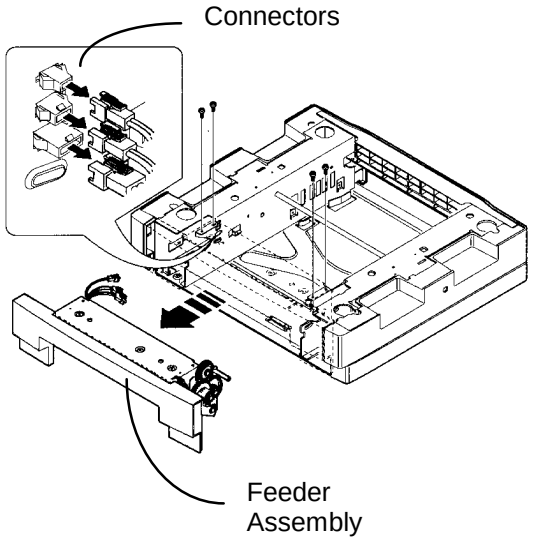


Figure 1. Removing the Tray 2 Feeder Assembly

REP 27.3 TRAY 2 CASSETTE PWB

PARTS LIST ON PL 27.1

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. (Figure 1): Remove the Tray 2 Cassette PWB.
   a. Remove the Tray 2 Rear Cover.
   b. Disconnect the connectors.
   c. Remove the screws and remove the Tray 2 Feeder Assembly.

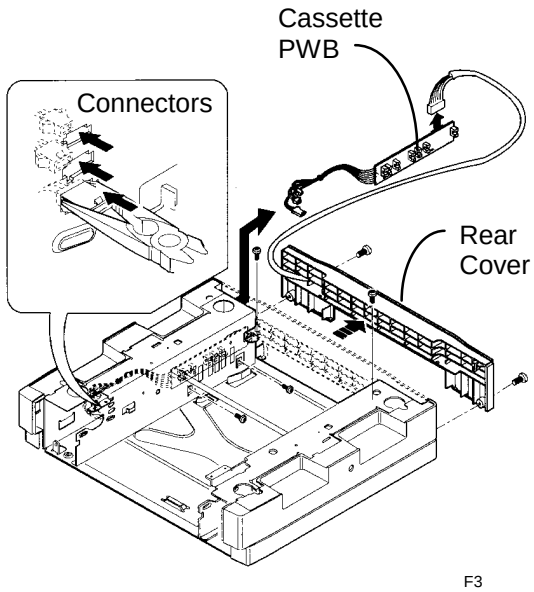


Figure 1. Removing the Tray 2 Cassette PWB

REP 27.4 TRAY 2 TRAY EMPTY SENSOR

PARTS LIST ON PL 27.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. (Figure 1): Remove the screws and remove the Tray 2 Empty Sensor.

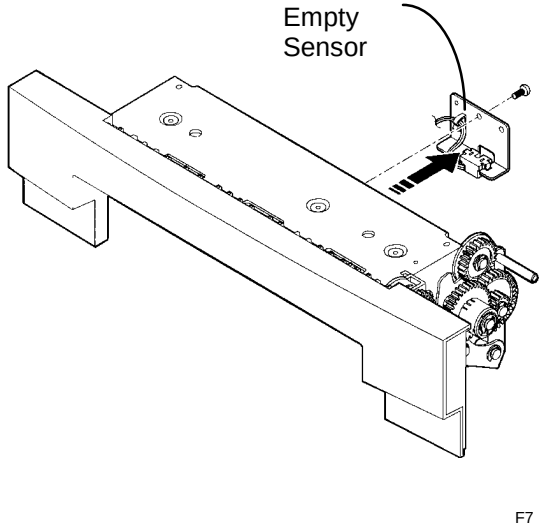


Figure 1. Removing the Tray 2 Empty Sensor

REP 27.5 TRAY 2 FEED SOLENOID AND FEED CLUTCH

PARTS LIST ON PL 27.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. (Figure 1): Remove the Tray 2 Feed Solenoid.
3. Remove the Tray 2 Feed Clutch.

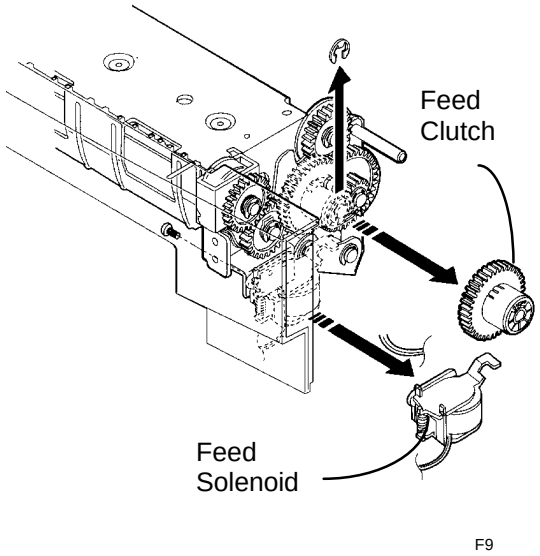


Figure 1. Removing the Tray 2 Feed Solenoid and Feed Clutch

REPLACEMENT

NOTE: After assembling the components, hand crank the feeder through several cycles. Energize the Feed Solenoid several times by hand and check that the Feed Solenoid engages the Feed Clutch and stops the rollers in the "flat down" position.

REP 27.6 TRAY 2 FEED ROLLERS

PARTS LIST ON PL 27.2

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. Remove the Tray 2 Feed Solenoid and Feed Clutch (REP 27.5).
3. (Figure 1): Remove the Tray 2 Feed Rollers.

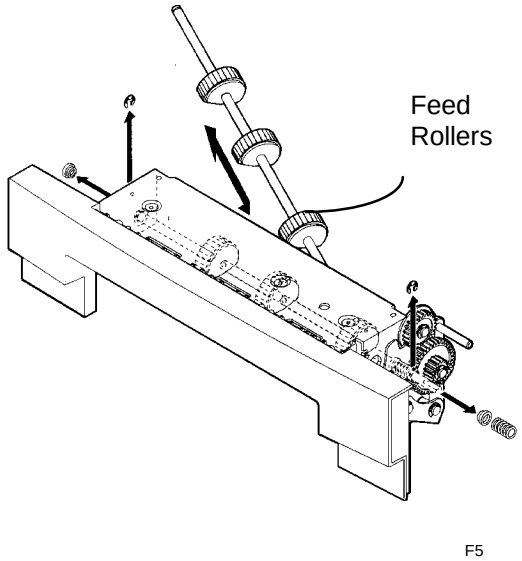


Figure 1. Removing the Tray 2 Feed Rollers

REP 27.7 TRAY 2 DRIVE ROLLER AND DRIVE CLUTCH

PARTS LIST ON PL 27.3

REMOVAL

WARNING

Switch the Main Power off and disconnect the Power Cord.

1. Remove the Tray 2 Module (REP 27.1).
2. Remove the Tray 2 Feed Solenoid and Feed Clutch (REP 27.5).
3. (Figure 1): Remove the Tray 2 Drive Clutch.

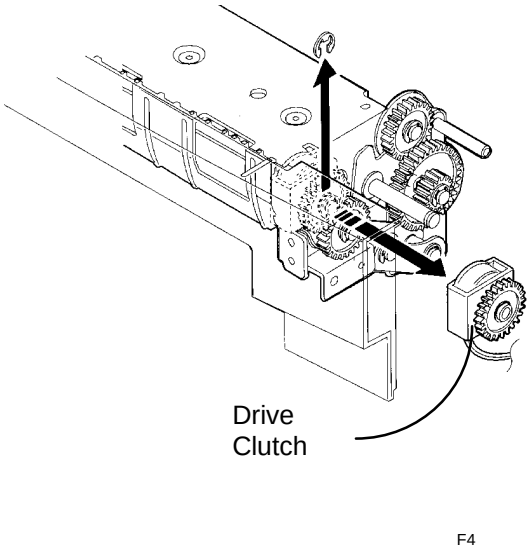


Figure 1. Removing the Tray 2 Drive Clutch

4. (Figure 2): Remove the Tray 2 Drive Roller.

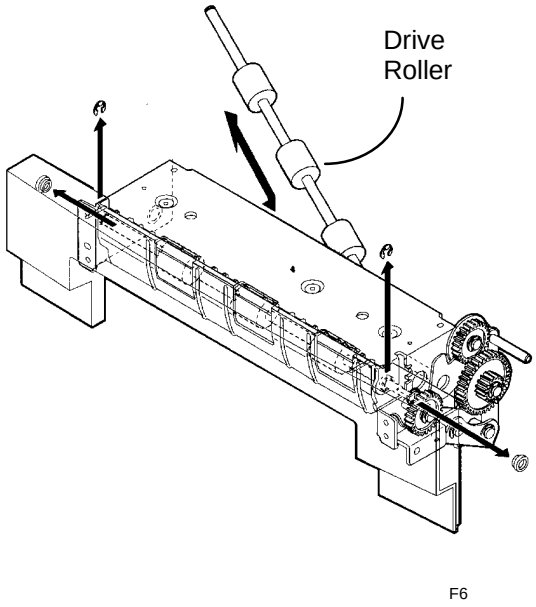


Figure 2. Removing the Tray 2 Drive Roller

ADJ 3.1.1 DENSITY AND COLOR BALANCE (C55/C55mp)

PURPOSE:

To adjust the Density and Color Balance of the print generated by the ESS.

This procedure actually consists of three adjustments.

ADJ 3.1.1A Color Density (C55/C55mp)
ADJ 3.1.1B Black Density (C55/C55mp)
ADJ 3.1.1C Color Balance (C55/C55mp)

CHECK:

NOTE: Do Not make changes in the Density or the Color Balance without first consulting the customer. The customer may have altered the balance in the print drivers to achieve specific results with their documents.

NOTE: It is often difficult to detect changes when performing this procedure. You may find it helpful to first run the Printer Diagnostic test pattern (SERVICE, TEST PATTERNS, DIAGNOSTICS). Once the adjustments have been made, run another diagnostics pattern and compare it to the first. Expect to see the following:

Color Density adjustment; changes the Cyan, Magenta, and Yellow, Density Rate Setpoints and Developer Bias equally.

Black Density adjustment; changes the Black Density Rate Setpoint and Developer Bias.

Color Balance adjustment changes the Cyan, Magenta, and Yellow Density Rate Setpoints and Developer Bias depending on the amount and direction of change.

Run a print of the Color Balance Test Pattern (SERVICE, TEST PATTERNS, PATTERN TYPE, PCL, COLOR BALANCE.

1. (Figure 1): Examine the existing density and color balance with the customer.
2. If adjustment is required, refer to the appropriate procedure.

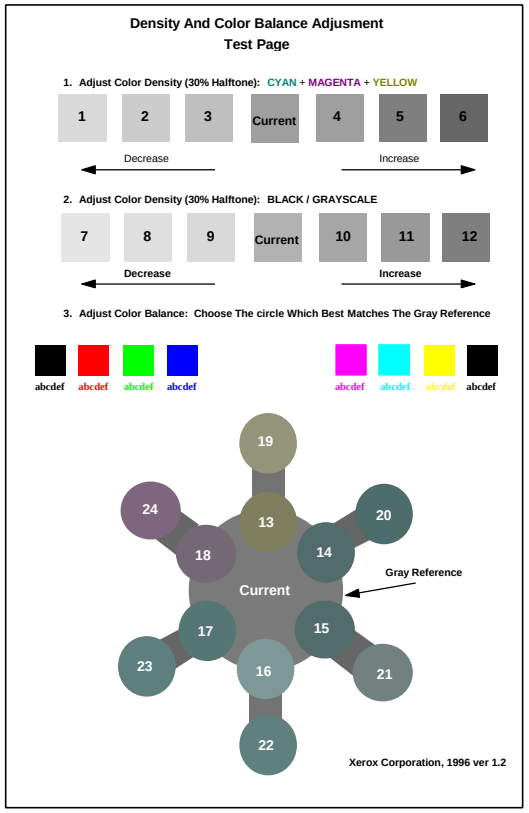


Figure 1. Density and Color Balance Test Pattern

ADJ 3.1.1A Color Density (C55/C55mp)

CHECKING THE COLOR DENSITY

1. Press **On Line** to put the printer in the Off Line mode.
2. Press **Menu**.
3. Press **Next** until <SETUP > is displayed. Press **Enter**.
4. When <COLOR ADJUST> is displayed press **Enter**.
5. Analyze the test page and choose the number which represents the Color Density the customer desires. Keep in mind that this is a 30% gray. Darker is not always better.

ADJUSTING THE COLOR DENSITY

1. Perform the Color Density Check.
2. Press **Next** until <COLOR DENSITY> is displayed. Press **Enter**.
3. When <CHOOSE NUMBER> is displayed, press **Enter**.
4. Use **Next/Previous** to change the numerical setting.
5. Press **Enter**.
6. Confirm the change.
7. Analyze the test page and determine if additional adjustment is required.
8. Press **Next** until OK ALL CHANGES is displayed, then press **Enter**.
9. Press **On Line** to return the printer to the On Line mode.

ADJ 3.1.1B Black Density (C55/C55mp)

CHECKING THE BLACK DENSITY

1. Press **On Line** to put the printer in the Off Line mode.
2. Press **Menu**.
3. Press **Next** until <SETUP > is displayed. Press **Enter**.
4. When <COLOR ADJUST> is displayed press **Enter**.
5. Analyze the test page and choose the number which represents the Black Density the customer desires. Keep in mind that this is a 30% gray. Darker is not always better.

ADJUSTING THE BLACK DENSITY

1. Perform the Black Density Check.
2. Press **Next** until <BLACK DENSITY> is displayed. Press **Enter**.
3. When <CHOOSE NUMBER> is displayed, press **Enter**.
4. Use **Next/Previous** to change the numerical setting.
5. Press **Enter**.
6. Confirm the change.
7. Analyze the test page and determine if additional adjustment is required.
8. Press **Next [6]** until OK ALL CHANGES is displayed, then press **Enter [7]**.
9. Press **On Line [0]** to return the printer to the On Line mode.

ADJ 3.1.1C Color Balance (C55/C55mp)

CHECKING THE COLOR BALANCE

1. Press **On Line** to put the printer in the Off Line mode.
2. Press **Menu**.
3. Press **Next** until <SETUP > is displayed. Press **Enter**.
4. When <COLOR ADJUST> is displayed press **Enter**.
5. Analyze the test page and choose the number which represents the Color Balance the customer desires.

ADJUSTING THE COLOR BALANCE

1. Perform the Color Balance Check.
2. Press **Next** until <COLOR BALANCE> is displayed. Press **Enter**.
3. When <CHOOSE NUMBER> is displayed, press **Enter**.
4. Use **Next/Previous** to change the numerical setting.
5. Press **Enter**.
6. Confirm the change.
7. Analyze the test page and determine if additional adjustment is required.
8. Press **Next** until OK ALL CHANGES is displayed, then press **Enter**.
9. Press **On Line** to return the printer to the On Line mode.

ADJ 3.1.2 DENSITY AND COLOR BALANCE [NC60]

PURPOSE:

To adjust the Density and Color Balance of the print generated by the ESS.

This procedure actually consists of three adjustments.

ADJ 3.1.2A Color Density [NC60]
ADJ 3.1.2B Black Density [NC60]
ADJ 3.1.2C Color Balance [NC60]

CHECK:

NOTE: On the NC60, you must disconnect all input ports from the ESS before performing this adjustment.

NOTE: Do Not make changes in the Density or the Color Balance without first consulting the customer. The customer may have altered the balance in the print drivers to achieve specific results with their documents.

*NOTE: It is often difficult to see changes in the color balance. Changes will show in the values under **Density Rate Setpoints and Developer Bias**.*

Color Density adjustment; changes the Cyan, Magenta, and Yellow, Density Rate Setpoints and Developer Bias equally.

Black Density adjustment; changes the Black Density Rate Setpoint and Developer Bias.

Color Balance adjustment changes the Cyan, Magenta, and Yellow Density Rate Setpoints and Developer Bias depending on the amount and direction of change.

Run a print of the Color Balance Test Pattern (**Menu Down** until Color Adjust then press **Item Down**).

1. (Figure 1): Examine the existing density and color balance with the customer.
2. If adjustment is required, refer to the appropriate procedure.

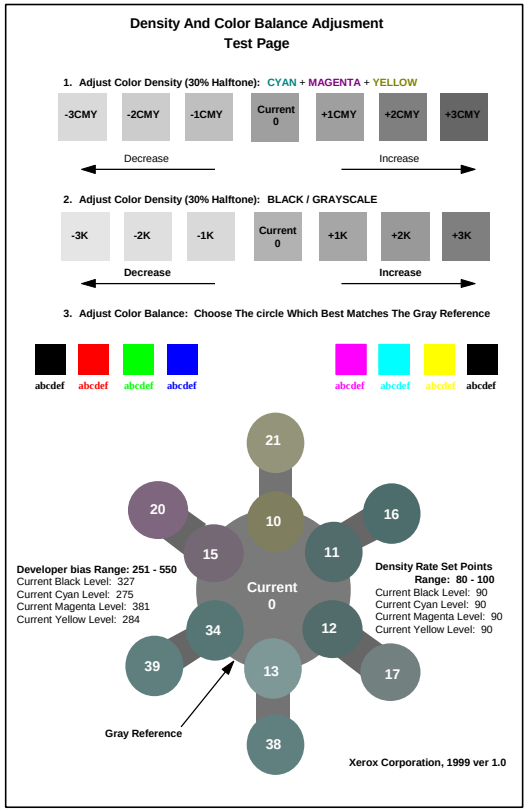


Figure 1. Density and Color Balance Test Pattern NC60

ADJ 3.1.2A Color Density [NC60]

CHECKING THE COLOR DENSITY

1. Run a print of the Color Balance Test Pattern (**Menu Down** until Color Adjust then press **Item Down**).
2. Analyze the test page and choose the number which represents the Color Density the customer desires. Keep in mind that this is a 30% gray. Darker is not always better.

ADJUSTING THE COLOR DENSITY

1. Perform the Color Density Check.
2. Press **Item Up** until Color Density is displayed.
3. Press **Value Up** or **Value Down** to change the numerical setting.
4. Press **Enter**.
5. Analyze the test page and determine if additional adjustment is required.
6. Press **On Line**.

ADJ 3.1.2B Black Density [NC60]

CHECKING THE BLACK DENSITY

1. Run a print of the Color Balance Test Pattern (**Menu Down** until Color Adjust then press **Item Down**).
2. Analyze the test page and choose the number which represents the Black Density the customer desires. Keep in mind that this is a 30% gray. Darker is not always better.

ADJUSTING THE BLACK DENSITY

1. Perform the Black Density Check.
2. Press **Item Up** until Black Density is displayed.
3. Press **Value Up** or **Value Down** to change the numerical setting.
4. Press **Enter**.
5. Analyze the test page and determine if additional adjustment is required.
6. Press **On Line**.

ADJ 3.1.2C Color Balance [NC60]

CHECKING THE COLOR BALANCE

1. Run a print of the Color Balance Test Pattern (**Menu Down** until Color Adjust then press **Item Down**).
2. Analyze the test page and choose the number which represents the Color Balance the customer desires

ADJUSTING THE COLOR BALANCE

1. Perform the Color Balance Check.
2. Press **Item Up** until Color Balance is displayed.
3. Press **Value Up** or **Value Down** to change the numerical setting.
4. Press **Enter**.
5. Analyze the test page and determine if additional adjustment is required.
6. Press **On Line**.

ADJ 3.2.1 MARGINS (SIDE-TO SIDE and TOP-TO-BOTTOM) (C55/C55mp)

PURPOSE:

To adjust the top and left margins (with respect to a portrait page) using the Control Panel.

CHECK:

1. Run a print of Test Pattern A.
   a. Put the printer in the Off Line mode by pressing the **On Line** button.
   b. Press **Menu** and then use the **Previous/Next** buttons to scroll to SERVICE. Press **Enter**.
   c. When TEST PATTERNS is displayed, press **Enter**.
   d. Use **Previous/Next** to scroll to PATTERN TYPE. Press **Enter**.
   e. When PCL is displayed, press **Enter**.
   f. When TEST PATTERN A is displayed, press **Enter**.
   g. Use **Previous/Next** to scroll to RUN TEST JOB. Press **Enter**.
   h. When YES is displayed press **Enter** to print Test Pattern A.
2. Figure 1: Measure the Margins.
   a. The distance from the Lead Edge of the copy paper to the 8 mm line should be 8 mm.
   b. The distance from the Side Edge of the copy paper to the 8 mm line should be 8 mm.

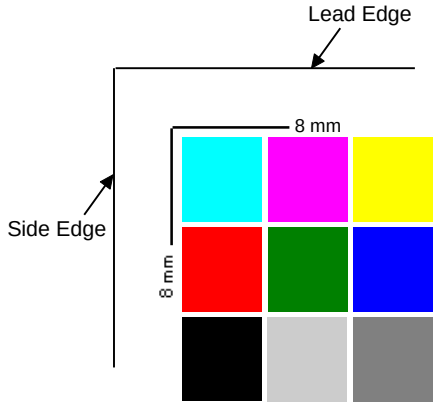


Figure 1. Margins Measurement

ADJUSTMENT:

1. Access the adjustment menu.
   a. Put the printer in the Off Line mode by pressing the **On Line** button.
   b. Press **Menu** and then use the **Previous/Next** buttons to scroll to SERVICE. Press **Enter**.
   c. Use **Previous/Next** to scroll to ADJUSTMENTS. Press **Enter**.
   d. Use **Previous/Next** to scroll to LEFT MARGIN OR TOP MARGIN. Press **Enter**.
   e. Use **Previous/Next** to change the margin value (+) increases the margin (–) decreases the margin. The value can be varied ± 4 mm. Press **Enter** when the adjustment is complete.
2. Perform the CHECK.

ADJ 3.2.2 MARGINS (SIDE-TO-SIDE and TOP-TO-BOTTOM) [NC60]

PURPOSE:

To adjust the top and left margins (with respect to a portrait page) using the Control Panel.

CHECK:

1. Run a print of Test Pattern A.
   a. Press **Menu Up** until Service is displayed.
   b. Press **Item Down** until Test Patterns is displayed.
   c. Press **Value Up** until Pattern A is displayed, press **Enter**.
2. Figure 1: Measure the Margins.
   a. The distance from the Lead Edge of the copy paper to the 8 mm line should be 8 mm.
   b. The distance from the Side Edge of the copy paper to the 8 mm line should be 8 mm.

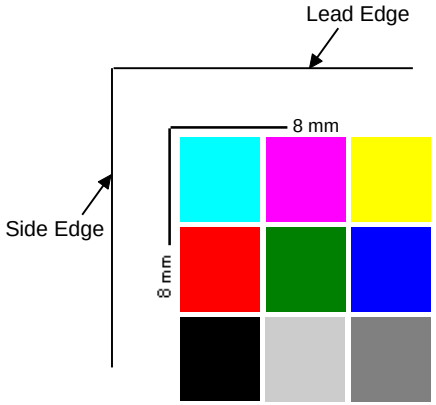


Figure 1. Margins Measurement

ADJUSTMENT:

1. Access the adjustment menu.
   a. Press **Menu Up** until Service is displayed.
   b. Press **Item Down** until Margin Left or Margin Top is displayed.
   c. Press **Value Up** to change the margin value (+) increases the margin (–) decreases the margin. The Left value can be varied +10 to –5 mm. The Top value can be varied +10 to –3. Press **Enter** when the adjustment is complete.
2. Perform the CHECK.

ADJ 3.3 NVM INITIALIZE (U2)

PURPOSE:

To obtain the consumable usage and toner concentration values stored in NVM. These values are needed before initializing the Non-Volatile Memory or installing a new PCU PWB.

NOTE: Before initializing the NVM or replacing the PCU PWB, you must obtain the consumable usage and toner concentration setpoints. The usage and setpoints must be reentered after initializing the NVM or replacing the PWB.

This procedure actually consists of two adjustments.

ADJ 3.3A Determining The Consumable Usage And Toner Concentration Values

ADJ 3.3B Initializing the NVM

ADJ 3.3A DETERMINING THE CONSUMABLE USAGE AND TONER CONCENTRATION VALUES

1. Locate the Service Log and obtain the copy of the Printer Diagnostic Test Pattern. Note the location of the Toner Concentration setpoints, the Consumable Usage Status and the Print Counts. These are the most critical NVM values.
2. Ask the customer if they have replaced any of the CRUs since the last service call.

NOTE 1: If the CRUs have not been replaced since the last service call, the Toner Concentration Setpoints on the Diagnostic sheet are probably correct for the CRUs now in use.

NOTE 2: Make a copy of this page and the next page and fill in the NVM values on the copy.

NOTE 3: If a Diagnostic Sheet is not available continue with this procedure. If the toner concentration values are corrupted, you will have to replace both developer modules.

3. Determine and record the Consumable Usage (COUNTER SET) values now in NVM. Refer to Section 6 if detailed Diagnostic procedures are required.
   a. Enter Normal diagnostics (**Menu [3]** + **Enter [7]**, Power On).
   b. Use **Menu [3]** to scroll to COUNTER SET DRUM.
   c. Press **Enter [7]** and record the Drum usage value.
   d. Press **Media Server [2]** to return to COUNTER SET.
   e. Press **Previous [5]** to select the next Consumable to be checked.
   f. Press **Enter [7]** and record the next Consumable Usage.
   g. Repeat steps d through f until at least the first seven consumables have been recorded. The last five are not critical.

COUNTER SET (Consumables)		
DRUM		Print Drum Images
YDEV		Yellow Developer Images
MDEV		Magenta Developer Images
CDEV		Cyan Developer Images
KDEV		Black Developer Images
PRNT		Total Print Quantity
FSU		Fuser Usage
YTON		Yellow Toner Supply time (sec)
MTON		Magenta Toner Supply time (sec)
CTON		Cyan Toner On time (sec)
KTON		Black Toner On time (sec)
OIL		Oil Usage

4. Determine and record the Print Counts.
   a. Press **Media Server [2]**; then press **Menu [3]** until PCU DIAG MODE is displayed
   b. Enter Special Diagnostics (PCU DIAG MODE displayed, press **On Line [0]**, then press **Enter [7]**, release both at same time).
   c. Use **Menu [3]** to scroll to COUNTER SET2 TTL.
   d. Press **Enter [7]** and record the TTL Count.
   e. Press **Media Server [2]** to return to COUNTER SET2.
   f. Press **Previous [5]** to select the next page count to be checked.
   g. Press **Enter [7]** and record the page count.
   h. Repeat steps e through g until the five page counts have been recorded. The last eight are not critical.

COUNTER SET2 (Print Counts)		
TTL		Total Pages
YPR		Yellow Print Images
MPR		Magenta Print Images
CPR		Cyan Print Images
KPR		Black Print Images
JAM		Jam Counter
OPC		Scan Error Counter
MAM		Main Motor Error Counter
PLM		Polygon Motor Error Counter
HLH		Over Temp Fusing Error Counter
HLL		Under Temp Fusing Error Counter
THO		Thermistor Error Counter
DVM		Developer Motor Error Counter

5. Determine and record the Toner Concentration Setpoints now in NVM.
   a. Press **Media Server [2]**; then press **Menu [3]** until TONER LEVEL YTON is displayed.
   b. Press **Enter [7]** and record the Y Toner Concentration Setpoint.
   c. Press **Media Server [2]** to return to TONER LEVEL.
   d. Press **Previous [5]** to select the next Toner Concentration Setpoint to be checked.
   e. Press **Enter [7]** and record the Toner Concentration setpoint.
   f. Repeat steps c through e until all four toner concentration setpoints have been recorded.

TONER LEVEL (Toner Concentration)		
YTON		Y Toner concentration (default 70)
MTON		M Toner concentration (default 70)
CTON		C Toner concentration (default 70)
KTON		K Toner concentration (default 70)

NOTE: These readings should normally be between 70 and 140. If they are all 70 or out of the 70 to 140 range, they have probably been corrupted. If this is the case, use the toner concentration values from the diagnostic sheet. If a diagnostic sheet is not available and the values are corrupt, both the Black and Color CRU's should be replaced after the PCU is initialized.

6. Compare the values on the Diagnostic sheet with the values stored in NVM. Determine which values to re-enter after the NVM is initialized. As you determine what values are to be used circle them, so you can re-enter them later.
   a. Determining the consumable usage value to use.
      - If the consumable has not been changed since the last call, use the larger of the consumable numbers.
      - If the consumable has been changed since the last call, use the smaller of the consumable numbers.
   b. Determining the Page count value to use:
      - Use the large of the page count numbers.
   c. Determining the Toner Concentration setpoints to use.
      - If the values in NVM agree with the values on the diagnostic sheet, enter these as the setpoints.
      - If the values in NVM do not agree with the values on the diagnostic sheet, and the developer CRU has not been changed, the NVM is corrupt, use the setpoints on the diagnostic sheet.
      - If the values in NVM do not agree with the values on the diagnostic sheet, and the developer CRU has been changed, use the NVM values as the setpoints.

NOTE: The Toner concentration setpoints are critical for good copy quality. These numbers determine the amount of toner in the developer housings.

ADJ 3.3B INITIALIZING THE NVM

CAUTION

Do not continue with the initialization procedure until you have determined the Consumable Usage and Toner Concentration values. Always start at the beginning of this procedure (ADJ 3.3A). Once you have determined the Consumable and Toner Concentration values, continue with the Initialization.

1. Enter Normal diagnostics (**Menu [3]** + **Enter [7]**, Power On). Write down the IOT software version.
2. Initialize the NVM.
   a. Press **Menu [3]** to scroll to NV-RAM INITIAL.
   b. Insert a sheet of paper into the bypass slot to actuate the Bypass Switch, then press the **Form Feed [1]** key. The On Line LED will switch on and then off when the change is stored.
4. Enter the Consumable Usage.
   a. Press **Menu [3]** to scroll to COUNTER SET DRUM.
   b. Press **Enter [7]**.
   c. Use **Menu [3]** to step to the digit to be changed. Use **Next [6]/Previous [5]** to change the value.
   d. Insert a sheet of paper into the bypass slot to actuate the Bypass Switch, then press the **Form Feed [1]** key. The On Line LED will switch on and then off when the change is stored.
   e. Press **Previous [5]** to select the next consumable to be entered.
   f. Repeat steps b through e until all consumable values have been entered.
5. Enter the Page Counts.
   a. Press **Menu [3]** to scroll to PCU DIAG MODE.
   b. Enter Special Diagnostics (PCU DIAG MODE displayed, press **On Line [0]**, then press **Enter [7]**, release both).
   c. Use **Menu [3]** to scroll to COUNTER SET2 TTL.
   d. Press **Enter [7].**
   e. Use **Menu [3]** to step to the digit to be changed. Use **Next [6]/Previous [5]** to change the value.
   f. Insert a sheet of paper into the bypass slot to actuate the Bypass Switch, then press the **Form Feed [1]** key. The On Line LED will switch on and then off when the change is stored.
   g. Press **Previous [5]** to select the next Page Count to be entered.
   h. Repeat steps d through g until all Page Counts have been reentered.
6. Enter the Toner Concentration Setpoints.
   a. Press **Media Server [2]** then use **Menu [3]** to scroll to TONER LEVEL YTON.
   b. Press **Enter [7].**
   c. Use **Next [6]/Previous [5]** to change the value.
   d. Insert a sheet of paper into the bypass slot to actuate the Bypass Switch, then press the **Form Feed [1]** key. The On Line LED will switch on and then off when the change is stored.
   e. Use **Previous [5]** to step to the next setpoint to be changed.
   f. Repeat steps b through e until all four Toner Concentration setpoints have been stored.
7. If the IOT software level is version 66, go Section 6 in the service manual and perform the Fuser Speed adjustment (GP 3.1).
8. Exit from Diagnostics by switching the power off waiting 10 seconds and switching the power back on.

ADJ 4.1 MAGNETIC ROLLER CLEANER SOLENOID

PURPOSE

The purpose of this adjustment is to ensure that the Magnetic Roller Cleaner Solenoid arm stops the Magnetic Roller Clutch when the solenoid is energized

CHECK

Switch the power off. Locate the 4 (K, C, M, Y) Magnetic Roller Cam Shafts (Figure 1). Switch the power on while observing the 4 Cam Shafts. The Shafts should rotate 180° when the Magnetic Roller Cleaning Solenoid is energized and another 180 ° when the solenoid deenergizes. If the shafts rotate continuously when the solenoid is energized, perform the adjustment.

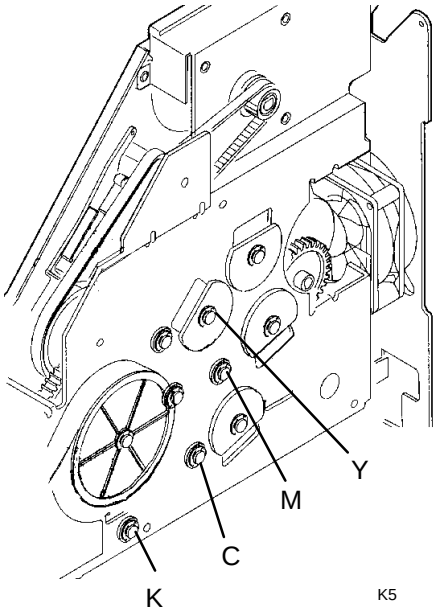


Figure 1. Checking the Shafts

ADJUSTMENT

1. (Figure 2): Insert a screwdriver in the hole just above the Yellow Toner Clutch and manually energize the Magnetic Roller Cleaning Solenoid.
2. Turn the Developer motor counterclockwise while watching the Magnetic Roller Cam Shafts.

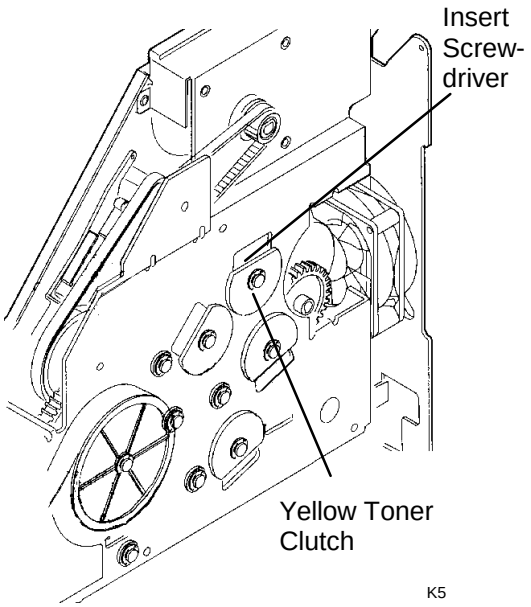


Figure 2. Energizing the Solenoid

3. Figure 3): Loosen the screws and move the solenoid until the arm stops the clutch when the solenoid is energized.

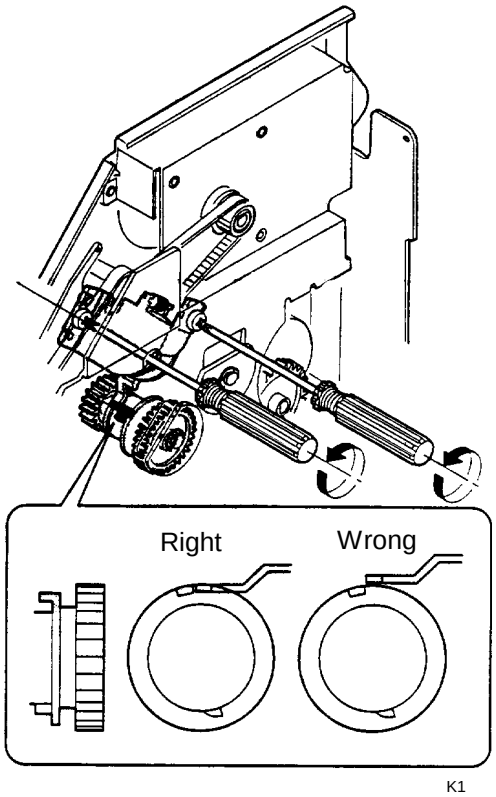


Figure 3. Adjusting the Solenoid

ADJ 6.1 MAGNETIC ROLLER CLEANER CAMS

PURPOSE

The purpose of this adjustment is to ensure that the Magnetic Roller Cleaner Cams raise the Cleaner Blades when the Magnetic Roller Solenoid is energized and lower the Cleaner Blades when the solenoid is deenergized.

CHECK

Switch the power off. Open the printer and remove the Print Drum, Color Developer Module, and Black Developer Module. Observe the four (Y, M, C, K) Magnetic Roller Cams (Figure 1). The M, C, and K cam lobes should be in the same radial position as the Y cam lobe. If they are not the same, perform the adjustment.

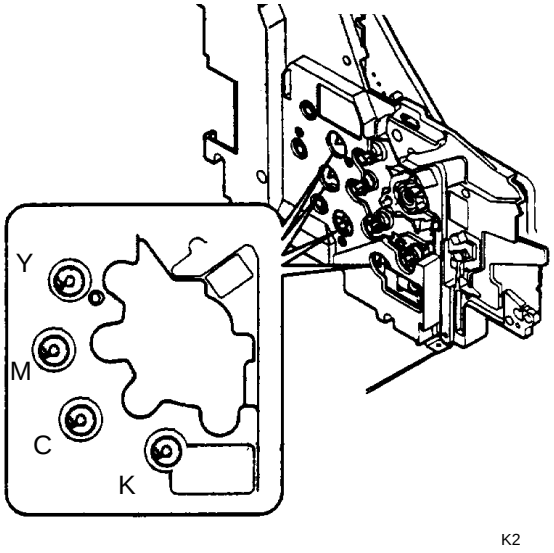


Figure 1. Checking the Shafts

ADJUSTMENT

1. Remove the Outer Drive Frame (REP 4.8 steps 1, 2, and 3)
2. (Figure 2): Remove the three idler gears.
3. Rotate the M, C, and K cams until they are aligned with the Y Cam.
4. Reinstall the three idler gears.
5. Perform the ADJ 4.1 check.

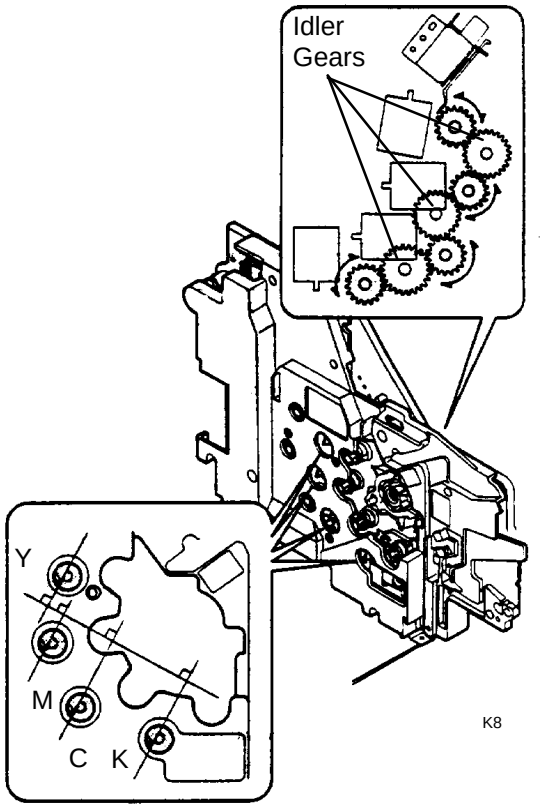


Figure 2. Aligning the Cams

ADJ 9.1 EA "TONE DOWN" PROCEDURE

PURPOSE

The purpose of this procedure is to "Tone Down" the color developer. It is also used to put the printer back in operation after an EA fault.

INITIAL ACTION

Refer to GP 3.2 in Section 6 and make sure that the Patch Control is switched off.

CHECK

1. Enter Normal diagnostics. Scroll to the TEST PRINT program and press **Form Feed [1]** to run a test print. While the print is running, observe the KT=__, CT=__, MT=__, YT=__ values.
2. If any of the three color (C, M, Y) toner concentration values are below 10, that color is overtoned. Continue with Step 3 to correct the overtoned condition.
3. With TEST PRINT displayed press **Enter [7]**.
4. Use the **Menu [3]** key to scroll to MULTI OFF. Press **Next [6]** until the display indicates MULTI ON. (This will put the TEST PRINT program in the multicopy mode.)
5. Use the **Menu [3]** key to scroll to TONER ON. Press **Next [6]** until the display indicates TONER OFF. (This will shut off all toner dispensing.)
6. Press **Media Server [2]** to return to TEST PRINT, then press **Form Feed [1]** to make multiple Test Prints.
7. Observe the KT=__, CT=__, MT=__, YT=__ values. The values should begin to "count up" as toner is used and not replenished.
8. When the lowest value reaches 10, press **Media Server [2]** to stop the Test Prints.
9. Switch the Printer off and then on.
10. If the Printer Boots without the EA fault, continue with step 11. If the printer still has the EA fault, repeat steps 3 through 10 and run multiple test prints with the toner off until the toner concentration value in question increases and the EA fault no longer occurs.
11. Print a diagnostic sheet.
    a. **(C55/C55mp) Off Line**, Service, Test Patterns, Diagnostics.
    b. **[NC60] Menu Up**, to Service, **Value Up** to Diag Summary, **Enter**.
13. Compare the Toner Concentration Control Point with the Toner Concentration Value. If any of the C, M, Y Values are 15 points below the Control Point this color is overtoned, continue with this procedure.
14. Run the color step pattern for the color that is overtoned
    a. **(C55/C55mp) Off Line**, Service, Test Patterns, Pattern Type, PCL, (overtoned color) Step. Run at least 25 prints.
    b. **[NC60] Menu Up** to Service, **Item Up** to test Patterns, **Value Up** to (overtoned color) Step. Run at least 25 prints.
15. Repeat steps 11 through 13 until the Toner Concentration Value is within 10 to 15 points of the Control Point.

NOTE: This procedure puts the toner concentration back within the controlling range. If the problem reoccurs, refer to GP 3.2 in section 6 to verify that Patch Control is off and the refer to the EA RAP if necessary.

ADJ 11.1 TRANSFER DRUM NIP

PURPOSE

The purpose of this adjustment is to ensure that the nip between the Transfer Drum and Print Drum is within specification. Too large a nip may cause paper jams or registration problems. Too small a nip may cause copy quality problems.

CHECK

1. Run an IOT Test Pattern and panic stop the printer with the Cyan strip on the drum.
   a. Enter Normal diagnostics (**Menu [3]** + **Enter [7]**, Power On).
   b. Use **Menu [3]** to scroll to TEST PRINT.
   c. Press **Form Feed [1]** and observe the toner concentration (T=) indication on the Message Display.
   d. Wait until the paper feeds, then be prepared to switch the printer off.
   e. Observe the Message Display. When the display indicates CT=XX, wait approximately 2 seconds then switch the power off.
2. Open the printer and remove the Print Drum module.
3. (Figure 1): Rotate the Print Drum up until there is a Cyan color bar in the position shown.

NOTE: Be sure to rotate the gear in the direction shown. If the drum is rotated in the reverse direction the Cleaning blade or Drum may be damaged.

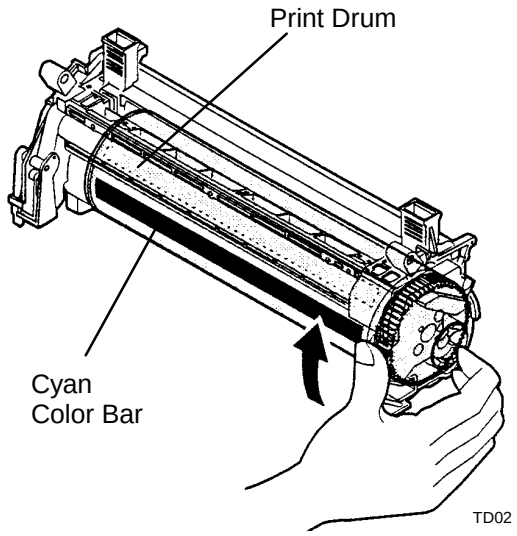


Figure 1. Rotating the Print Drum

4. Reinstall the Print Drum Module.
5. (Figure 2): Rotate the Transfer drum until the paper is positioned with a blank area opposite the Print Drum as shown.

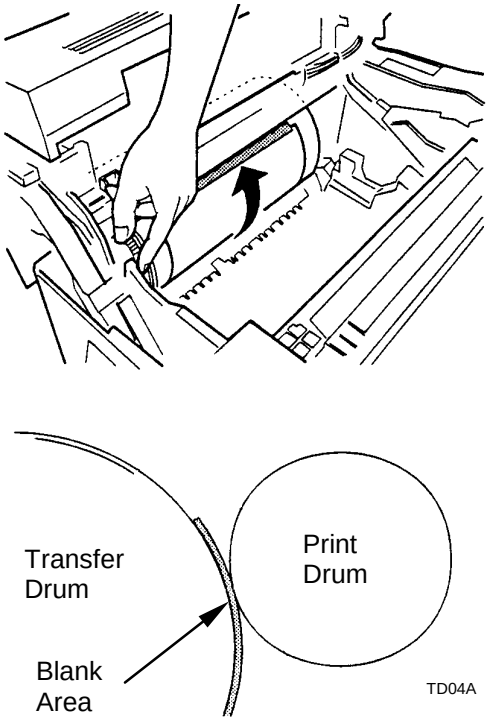


Figure 2. Positioning the Transfer Drum

6. Close then open the Transfer Assembly. This will transfer the Cyan image to the paper.
7. Repeat steps 2 through 6 until you have three transfers from three different areas of the transfer drum.
8. (Figure 3): Remove the paper and measure the width (Nip) of the Image on the paper. Make the measurement 35 MM from the edge of the paper.

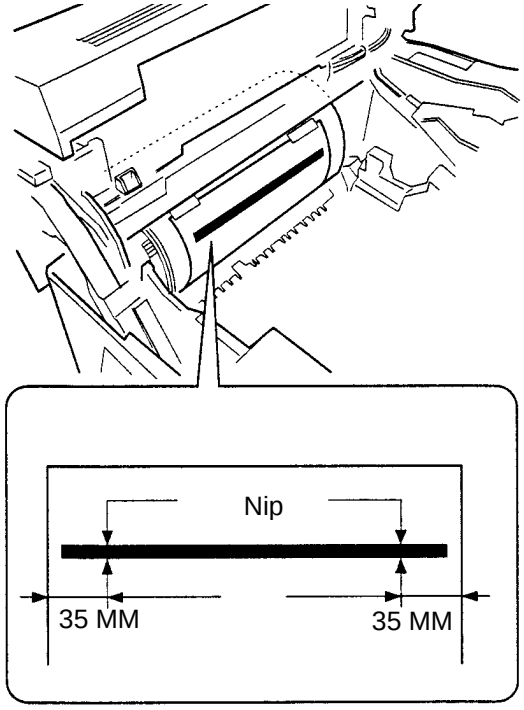


Figure 3. Measuring the Nip

9. The Nip should be 2 ±.5 MM.
10. If the Nip is not within specification, perform the adjustment.

ADJUSTMENT

1. (Figure 4): Locate the two adjustment cams on the left and right side of the Transfer Drum. You will need to rotate the Transfer Drum Gear until the adjustment screw and cam are visible through the cutout on the right side.

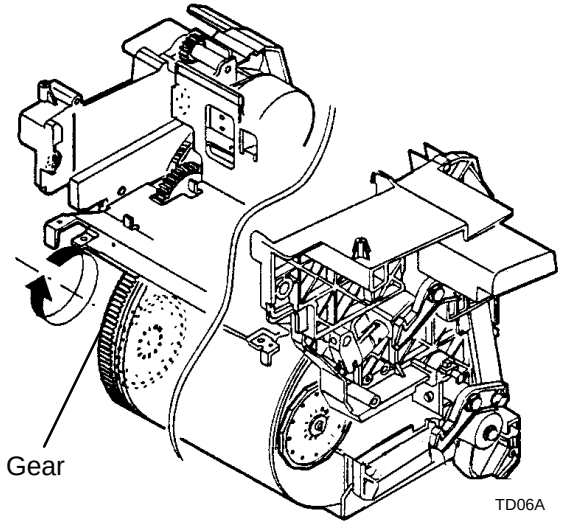


Figure 4. Rotating the Gear

2. (Figure 5): Note the number of the flat that is close to the Print Drum. Then loosen the two screws securing the left and right adjustment plates
3. A higher number will decrease the Nip. A lower number will increase the Nip.
4. Move the plate as required.
5. Repeat the check.

NOTE: You may be able to re-use the Cyan image on the Print Drum by rotating it slightly. If not, create another image.

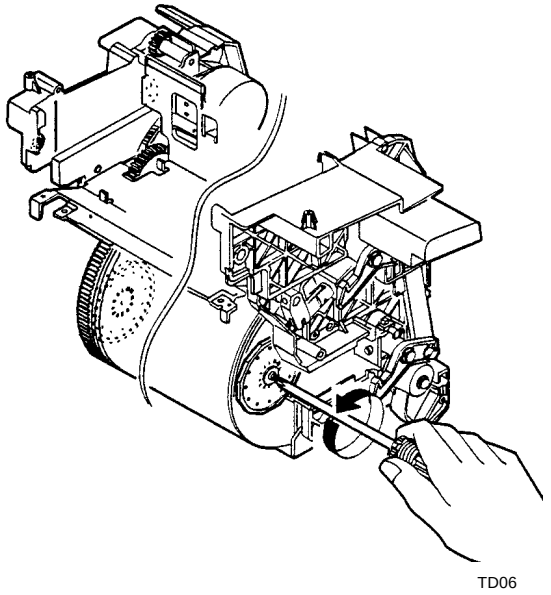


Figure 5. Adjusting the Nip

ADJ 12.1 ROS POSITIONING

PURPOSE

The purpose of this adjustment is position the ROS assembly so that the image is placed on the Print Drum properly.

CHECK

Print test pattern A. Fold the print and check the registration lines in the corners of the print to ensure that they are square. If the lines are not square, perform the adjustment.

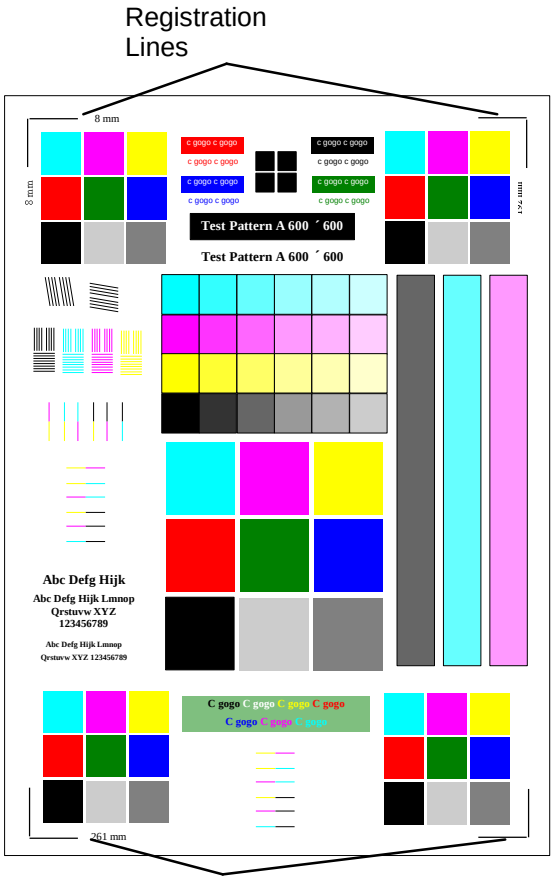


Figure 1. Test Pattern A

ADJUSTMENT

1. Loosen the screws and move the ROS assembly as shown.
2. Tighten the screws and repeat the Check.

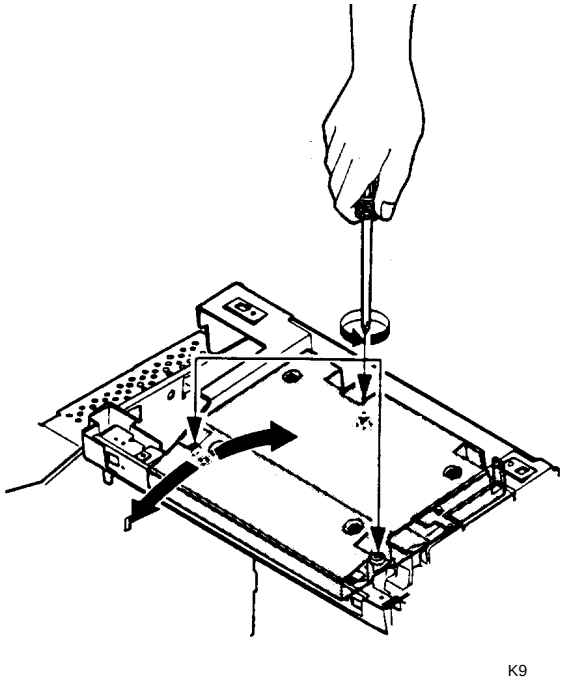


Figure 2. Moving the ROS