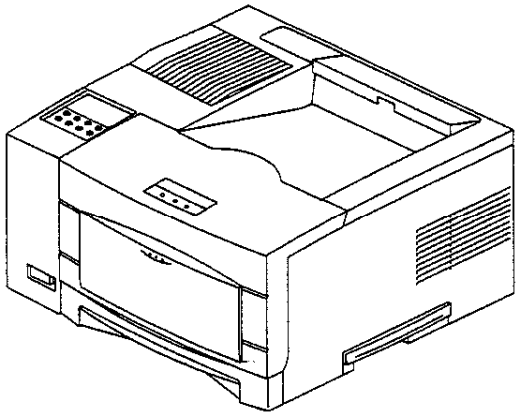
XEROX

Xerox DocuPrint 4517/4517mp Network Laser Printers Service Manual



This service manual contains information that applies to the Xerox DocuPrint 4517/4517mp Network Laser Printers.

NOTICE

This manual is for use by Xerox Technicians and Xerox trained technicians only.

NOTICE

While every care has been taken in the preparation of this manual, no liability will be accepted by Xerox arising out of any inaccuracies or omissions.

All service documentation is supplied to Xerox external customers for informational purposes only. Xerox service documentation is intended for use by certified, product trained service personnel only. Xerox does not warrant or represent that such documentation is complete. Nor does Xerox represent or warrant that it will notify or provide to such customer any future changes to this documentation. Customer's service of equipment, or modules, components, or parts of such equipment may void any otherwise applicable Xerox warranties. If Customer services such equipment, modules, components, or parts thereof, Customer releases Xerox from any and all liability for Customer's actions, and Customer agrees to indemnify, defend, and hold Xerox harmless from any third party claims which arise directly or indirectly from such service.

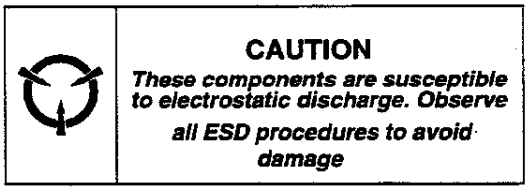
Prepared by:
Printing Systems Documentation & Education
701 South Aviation Boulevard
El Segundo, CA 90245

Warning

This equipment complies with the requirements in Part 15 of FCC rules for a class A computing device. Operation of the equipment in a residential area may cause unacceptable interference to radio and TV reception, requiring the operator to take whatever steps are necessary to correct the interference.

Electrostatic Discharge

This caution indicates that there are components which are sensitive to damage caused by electrostatic discharge.



Shock Hazard

This symbol indicates the presence of potentially hazardous voltages.

CLASS 1 LASER PRODUCT

The Xerox DocuPrint 4517/4517mp Network Laser Printers are certified to comply with Laser Product Performance Standards, set by the U.S. Department of Health and Human Services, as a Class 1 Laser Product. This means that this is a class of laser product that does not emit hazardous laser radiation; this is possible only because the laser beam is totally enclosed during all modes of customer operation.

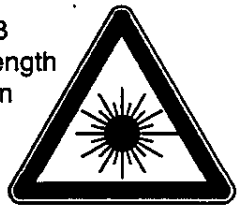
The laser and output of the laser scanner unit produces a beam that, if looked into, could cause eye damage. Service procedures must be followed exactly as written without change.

When servicing the machine or laser module, follow the procedures specified in the manual and there will be no hazards from the laser.

Laser (FDA): Any laser label visible to service must be reproduced in the service manual with location shown or indicated. Safe working procedures and clear warnings concerning precautions to avoid possible exposure must also be included.

The following laser symbol will be displayed at the start of any procedure where possible exposure to the laser beam exists.

Laser Class 3B
780nm Wavelength
5mW Maximum



WARNING
Invisible laser radiation when cover open and interlocks defeated. Avoid exposure to beam.

VARO!
Avattaessa ja suojalukitus ohitettaessa olet alttiina näkymättömälle lasersäteilylle. Älä katso säteeseen.

VARNING!
Osynlig laserstrålning när denna del är öppnad och spärren är urkopplad. Betrakta ej strålen.

Each Xerox DocuPrint 4517/4517mp Network Laser Printer has three laser warning labels. The first label is located on top of the Right Cover. The second label is located on the top of the Laser Unit. The third is located behind the right-hand cover. These labels are visible when the Top Cover is removed. See the illustrations on the next page for the location of the labels.

CLASS 3B
780nm
5mWmax

危険　開いたりインターロックを無効にすると不可視のレーザ放射を受けます。直接放射や散乱放射に、目や皮膚が、さらされないこと。

DANGER　INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

CAUTION　INVISIBLE LASER RADIATION WHEN OPEN AND INTERLOCKS DEFEATED. AVOID EXPOSURE TO BEAM.

PRECAUCIÓN　RADIACIÓN LASÉRICA INVISIBLE CUANDO SE ABRA Y ANULE EL INTERBLOQUEO EVITE LA EXPOSICIÓN DIRECTA AL HAZ

VARNING　OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD OCH SPÄRRAR ÄR URKOPPLADE. STRÅLEN ÄR FARLIG.

ADVARSEL　USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES OG SIKKERHETSLÅS BRYTES. UNNGÅ EKSPONERING FOR STRÅLEN.

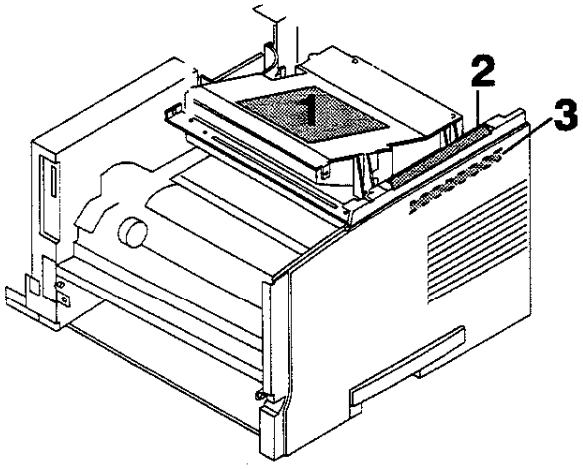
ADVARSEL　USYNLIG LASERSTRÅLING VED ÅBNING. NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDSAETTELSE FOR STRÅLING.

VARO!　NÄKYMÄTÖN AVATTAESSA JA SUOJALUKITUS OHITETTAESSA OLET ALTTIINA LASERSÄTEILYLLE ÄLÄ KATSO SÄTEESEN.

VORSICHT!　UNSICHTBARE LASERSTRAHLUNG. WENN ABDECKUNG GEÖFFNET UND SICHERHEITSVERRIEGELUNG ÜBERBRÜCKT. NICHT IN DER STRAHL BLICKEN.

ATTENTION　EMISSION DE RADIATION LASER INVISIBLE QUAND L'APPAREIL EST OUVERT ET LORSQUE LA SÉCURITÉ EST NEUTRALISÉE EVITER DE S'EXPOSER AU RAYON LASER

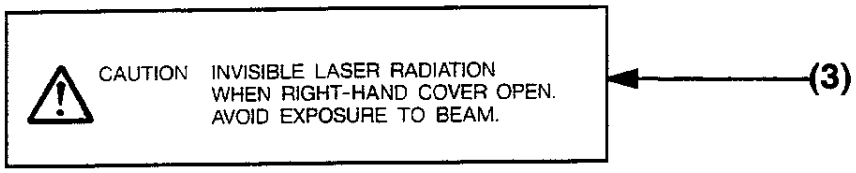
(1)



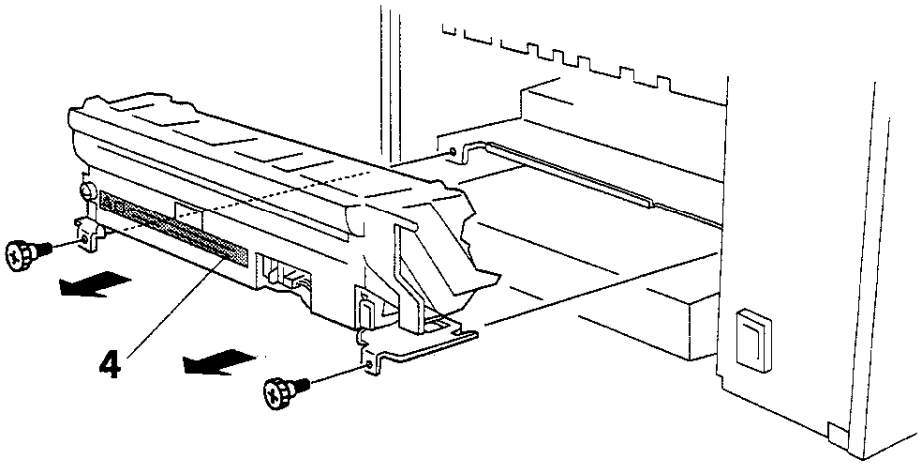
CAUTION　INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVERSEL　USYNLIG LASERSTRÅLING VED ÅBNING. UNDGÅ UDSÆTTELSE FOR STRÅLING.
VARNING　OSYNLIG LASERSTRÅLNING NÄR DENNA DEL ÄR ÖPPNAD. STRÅLEN ÄR FARLIG.
ADVERSEL　USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPENS. UNNGÅ EKSPONERING FOR STRÅREN.
VARO!　NÄKYMÄTÖNTÄ AVATTAESSA OLET ALTTIINA LASERSÄTEILYLLE. ÄLÄ KATSO SÄTEESEEN.
VOSICHT!　UNSICHTBARE LASERSTRAHL UNG. WENN ABDECKUNG GEÖFFNET. NICHT IN DER STRAHL BLICKEN.
ATTENTION　EMISSION DE RADIATION LASER INVISIBLE QUAND L'APPAREIL EST OUVERT. EVITER DE S'EXPOSER AU RAYON LASER.
注意　開くと不可視のレーザ放射を受けます。直接放射や散乱放射に目や皮膚がさらされないこと。

(2)

The Laser warning label illustrated below is affixed to the area identified with **(3)**.



The warning sticker illustrated below is affixed to the area identified with **(4)**.



This page intentionally blank.

Revision Control List

Product	Title	Part Number	Date
4517/4517MP	4517/4517mp Service Manual	720P53120	September 1997

Page	Rev.
Cover	9/95
ii	**9/97**
iii	**9/97**
iv	**9/97**
v	**9/97**
vi	**9/97**
vii	**9/97**
viii	**9/97**
ix	**9/97**
x	**9/97**
xi	**9/97**
xii	**9/97**
1-1	9/95
1-2	9/95
1-3	3/96
1-4	3/96
2-1	9/95
2-2	9/95
2-3	9/95
2-4	9/95
2-5	9/95
2-6	9/95
2-7	9/95
2-8	9/95
3-1	9/95
3-2	9/95
3-3	9/95
3-4	9/95
3-5	**9/97**
3-6	9/95
3-7	**9/97**
3-8	9/95
3-9	**9/97**
3-10	**9/97**
3-11	**9/97**
3-12	9/95
3-13	**9/97**
3-14	9/95
3-15	**9/97**
3-16	9/95
3-17	9/95
3-18	9/95
3-19	**9/97**
3-20	9/95
3-21	**9/97**
3-22	9/95
3-23	9/95
3-24	9/95
3-25	**9/97**
3-26	**9/97**
3-27	**9/97**

Page	Rev.
3-28	9/95
4-1	9/95
4-2	9/95
4-3	9/95
4-4	9/95
4-5	9/95
4-6	9/95
4-7	9/95
4-8	9/95
4-9	9/95
4-10	9/95
4-11	9/95
4-12	9/95
4-13	9/95
4-14	9/95
4-15	9/95
4-16	9/95
4-17	9/95
4-18	9/95
4-19	9/95
4-20	9/95
4-21	9/95
4-22	9/95
4-23	9/95
4-24	9/95
4-25	9/95
4-26	9/95
4-27	9/95
4-28	9/95
4-29	9/95
4-30	9/95
4-31	9/95
4-32	9/95
4-33	9/95
4-34	9/95
4-35	9/95
4-36	9/95
4-37	9/95
4-38	9/95
4-39	9/95
4-40	9/95
4-41	9/95
4-42	9/95
4-43	9/95
4-44	9/95
4-45	9/95
4-46	9/95
4-47	9/95
4-48	9/95
4-49	9/95
4-50	9/95

Page	Rev.
4-51	9/95
4-52	9/95
4-53	9/95
4-54	9/95
4-55	9/95
4-56	9/95
4-57	9/95
4-58	9/95
4-59	9/95
4-60	9/95
4-61	9/95
4-62	9/95
5-1	9/95
5-2	9/95
5-3	9/95
5-4	9/95
5-5	9/95
5-6	9/95
5-7	9/95
5-8	9/95
5-9	9/95
5-10	9/95
5-11	9/95
5-12	9/95
5-13	9/95
5-14	9/95
5-15	**9/97**
5-16	**9/97**
5-17	9/95
5-18	9/95
5-19	3/96
5-20	3/96
5-21	9/95
5-22	9/95
5-23	9/95
5-24	9/95
5-25	9/95
5-26	9/95
5-27	9/95
5-28	9/95
5-29	9/95
5-30	9/95
5-31	9/95
5-32	9/95
5-33	9/95
5-34	9/95
5-35	9/95
5-36	9/95
5-37	9/95
5-38	9/95
5-39	9/95

Page	Rev.
5-40	9/95
5-41	9/95
5-42	9/95
5-43	9/95
5-44	9/95
5-45	9/95
5-46	9/95
5-47	9/95
5-48	9/95
5-49	9/95
5-50	9/95
5-51	9/95
5-52	9/95
5-53	9/95
5-54	9/95
5-55	9/95
5-56	9/95
5-57	9/95
5-58	9/95
5-59	9/95
5-60	9/95
5-61	9/95
5-62	9/95
5-63	9/95
5-64	9/95
5-65	9/95
5-66	9/95
5-67	9/95
5-68	9/95
5-69	9/95
5-70	9/95
5-71	9/95
5-72	9/95
5-73	9/95
5-74	9/95
5-75	9/95
5-76	9/95
5-77	9/95
5-78	9/95
5-79	9/95
5-80	9/95
5-81	9/95
5-82	9/95
5-83	9/95
5-84	9/95
5-85	9/95
5-86	9/95
6-1	9/95
6-2	9/95
6-3	9/95
6-4	9/95

Revision Control List

Product	Title	Part Number	Date
4517/4517MP	4517/4517mp Service Manual	720P53120	September 1997

Page	Rev.
6-5	9/95
6-6	9/95
6-7	9/95
6-8	9/95
6-9	9/95
6-10	9/95
6-11	9/95
6-12	9/95
6-13	9/95
6-14	9/95
6-15	9/95
6-16	9/95
6-17	9/95
6-18	9/95
6-19	9/95
6-20	9/95
6-21	9/95
6-22	9/95
6-23	9/95
6-24	9/95
6-25	9/95
6-26	9/95
6-27	9/95
6-28	9/95
6-29	9/95
6-30	9/95
6-31	9/95
6-32	9/95
6-33	9/95
6-34	9/95
6-35	9/95
6-36	9/95
6-37	9/95
6-38	9/95
6-39	9/95
6-40	9/95
6-41	9/95
6-42	9/95
6-43	9/95
6-44	9/95
6-45	9/95
6-46	9/95
6-47	9/95
6-48	9/95
6-49	9/95
6-50	9/95
6-51	9/95
6-52	9/95
6-53	9/95
6-54	9/95

Page	Rev.
6-55	9/95
6-56	9/95
6-57	9/95
6-58	9/95
7-1	9/95
7-2	9/95
7-3	**9/97**
7-4	9/95
7-5	9/95
7-6	9/95
7-7	3/96
7-8	3/96
7-9	9/95
7-10	9/95
7-11	9/95
7-12	9/95
7-13	9/95
7-14	9/95
7-15	9/95
7-16	9/95
7-17	9/95
7-18	9/95
7-19	9/95
7-20	9/95
7-21	9/95
7-22	9/95
7-23	9/95
7-24	9/95
7-25	9/95
7-26	9/95
7-27	9/95
7-28	9/95
7-29	9/95
7-30	9/95
7-31	9/95
7-32	9/95
7-33	9/95
7-34	9/95
7-35	9/95
7-36	9/95
7-37	9/95
7-38	9/95
7-39	9/95
7-40	9/95
7-41	9/95
7-42	9/95
7-43	9/95
7-44	9/95
7-45	9/95
7-46	9/95

Page	Rev.
7-47	9/95
7-48	9/95
7-49	9/95
7-50	9/95
7-51	9/95
7-52	9/95
7-53	9/95
7-54	9/95
7-55	9/95
7-56	9/95
7-57	9/95
7-58	9/95
7-59	9/95
7-60	9/95
7-61	9/95
7-62	9/95
7-63	9/95
7-64	9/95
7-65	9/95
7-66	9/95
7-67	9/95
7-68	9/95
7-69	9/95
7-70	9/95
7-71	9/95
7-72	9/95
7-73	9/95
7-74	9/95
7-75	9/95
7-76	9/95
7-77	9/95
7-78	9/95
7-79	9/95
7-80	9/95
7-81	9/95
7-82	9/95
7-83	9/95
7-84	9/95
7-85	9/95
7-86	9/95
7-87	9/95
7-88	9/95
7-89	9/95
7-90	9/95
7-91	9/95
7-92	9/95
7-93	9/95
7-94	9/95
7-95	9/95
7-96	9/95

Page	Rev.
7-97	9/95
7-98	9/95
7-99	9/95
7-100	9/95
7-101	9/95
7-102	9/95
7-103	9/95
7-104	9/95
7-105	9/95
7-106	9/95
7-107	9/95
7-108	**9/97**
7-109	**9/97**
7-110	9/95
7-111	9/95
7-112	9/95
7-113	9/95
7-114	9/95
8-1	9/95
8-2	9/95
8-3	9/95
8-4	9/95
8-5	9/95
8-6	9/95
8-7	9/95
8-8	9/95
8-9	**9/97**
8-10	9/95
8-11	9/95
8-12	9/95
8-13	9/95
8-14	9/95
8-15	9/95
8-16	9/95
8-17	9/95
8-18	9/95
8-19	9/95
8-20	9/95
8-21	9/95
8-22	9/95
8-23	9/95
8-24	9/95
8-25	9/95
8-26	9/95
8-27	9/95
8-28	9/95
8-29	9/95
8-30	9/95
8-31	9/95
8-32	9/95

Revision Control List

Product	Title	Part Number	Date
4517/4517MP	4517/4517mp Service Manual	720P53120	September 1997

Page	Rev.
8-33	9/95
8-34	9/95
8-35	9/95
8-36	9/95
8-37	9/95
8-38	9/95
9-1	9/95
9-2	9/95
9-3	9/95
9-4	9/95
9-5	**9/97**
9-6	9/95
9-7	**9/97**
9-8	9/95
9-9	9/95
9-10	9/95
9-11	9/95
9-12	9/95
9-13	9/95
9-14	9/95
9-15	9/95
9-16	9/95
9-17	9/95
9-18	9/95
9-19	9/95
9-20	9/95
9-21	9/95
9-22	9/95
9-23	9/95
9-24	9/95
9-25	9/95
9-26	9/95
9-27	9/95
9-28	9/95
9-29	9/95
9-30	9/95
9-31	9/95
9-32	9/95
9-33	9/95
9-34	9/95
9-35	9/95
9-36	9/95
9-37	9/95
9-38	9/95
9-39	9/95
9-40	9/95
9-41	9/95
9-42	9/95
10-1	9/95
10-2	9/95

Page	Rev.
10-3	9/95
10-4	9/95
10-5	9/95
10-6	9/95
10-7	**9/97**
10-8	9/95
10-9	9/95
10-10	9/95
10-11	9/95
10-12	9/95
10-13	9/95
10-14	9/95
10-15	9/95
10-16	9/95
10-17	9/95
10-18	9/95
10-19	9/95
10-20	9/95
10-21	9/95
10-22	9/95
10-23	9/95
10-24	9/95
10-25	9/95
10-26	9/95
10-27	9/95
10-28	9/95
10-29	9/95
10-30	9/95
10-31	9/95
10-32	9/95
10-33	9/95
10-34	9/95
11-1	7/96
11-2	7/96
11-3	7/96
11-4	7/96
11-5	7/96
11-6	7/96
11-7	7/96
11-8	7/96
11-9	**9/97**
11-10	7/96
11-11	**9/97**
11-12	7/96
11-13	**9/97**
11-14	7/96
11-15	7/96
11-16	7/96
11-17	7/96
11-18	7/96

Page	Rev.
11-19	7/96
11-20	7/96
11-21	7/96
11-22	7/96
11-23	7/96
11-24	7/96
11-25	7/96
11-26	7/96
11-27	7/96
11-28	7/96
11-29	7/96
11-30	7/96
11-31	7/96
11-32	7/96
11-33	7/96
11-34	7/96
11-35	7/96
11-36	7/96
11-37	7/96
11-38	7/96
11-39	7/96
11-40	7/96
11-41	7/96
11-42	7/96
11-43	7/96
11-44	7/96
11-45	7/96
11-46	7/96
11-47	7/96
11-48	7/96
11-49	7/96
11-50	7/96
11-51	7/96
11-52	7/96
11-53	7/96
11-54	7/96
11-55	7/96
11-56	7/96
11-57	7/96
11-58	7/96
11-59	7/96
11-60	7/96
11-61	7/96
11-62	7/96
11-63	7/96
11-64	7/96
11-65	7/96
11-66	7/96
11-67	7/96
11-68	7/96

Page	Rev.
11-69	7/96
11-70	7/96
11-71	7/96
11-72	7/96
11-73	7/96
11-74	7/96
11-75	7/96
11-76	7/96
11-77	7/96
11-78	7/96
11-79	7/96
11-80	7/96
11-81	7/96
11-82	7/96
11-83	7/96
11-84	7/96
12-1	8/96
12-2	8/96
12-3	8/96
12-4	8/96
12-5	8/96
12-6	8/96
12-7	**9/97**
12-8	8/96
12-8	8/96
12-9	8/96
12-10	8/96
12-11	8/96
12-12	8/96
12-13	8/96
12-14	8/96
12-15	8/96
12-16	8/96
12-17	8/96
12-18	8/96
12-19	8/96
12-20	8/96
12-21	8/96
12-22	8/96
12-23	8/96
12-24	8/96
12-25	8/96
12-26	8/96
12-27	8/96
12-28	8/96
12-29	8/96
12-30	8/96
12-31	8/96
12-32	8/96
12-33	8/96

Revision Control List

Product	Title	Part Number	Date
4517/4517MP	4517/4517mp Service Manual	720P53120	September 1997

Page	Rev.
12-34	8/96
12-35	8/96
12-36	8/96
12-37	8/96
12-38	8/96
12-39	8/96
12-40	8/96
13-1	9/97
13-2	9/97
13-3	9/97
13-4	9/97
13-5	9/97
13-6	9/97
13-7	9/97
13-8	9/97
13-8	9/97
13-9	9/97
13-10	9/97
13-11	9/97
13-12	9/97
13-13	9/97
13-14	9/97
13-15	9/97
13-16	9/97
13-17	9/97
13-18	9/97
13-19	9/97
13-20	9/97
13-21	9/97
13-22	9/97
13-23	9/97
13-24	9/97
13-25	9/97
13-26	9/97
13-27	9/97
13-28	9/97
13-29	9/97
13-30	9/97
13-31	9/97
13-32	9/97
13-33	9/97
13-34	9/97
13-35	9/97
13-36	9/97
13-37	9/97
13-38	9/97

Page	Rev.

Page	Rev.

Page	Rev.

Table of Contents

Title	Page
Introduction	xi
Organization	xii
Service Call Procedures	1-1
Printer Specifications	2-1
Parts List	3-1
Repair/Adjustment Procedures	4-1
General Procedures/Information	5-1
Wiring Data	6-1
Repair Analysis Procedures	7-1
500-Sheet Paper Feeder Option	8-1
Offset Catch Tray (OCT) Option	9-1
Duplex Module Option	10-1
Mailbox/Collator	11-1
Envelope Feeder	12-1
High Capacity Feeder	13-1

Introduction

The *Xerox DocuPrint 4517/4517mp Network Laser Printers Service Manual* is the primary document used for repairing and maintaining the Xerox DocuPrint 4517/4517mp Network Laser Printers.

This manual contains Service Call Procedures, Diagnostic Procedures, General Information, Repair Analysis Procedures, Copy Quality Analysis Procedures, Wiring Data, and Parts List information that will enable the Service Representative to repair Xerox DocuPrint 4517/4517mp Network Laser Printers failures.

Organization

This manual is divided into eleven sections. The title and description of each section of this service manual is as follows:

Section 1 - Service Call Procedures

This section is used to identify a suspected problem. It contains Call Flow, Initial Actions, and Final Actions. This part of the service manual should always be used to start the service call.

Section 2 - Printer Specifications

This section contains all the printer specifications for the Xerox DocuPrint 4517/4517mp Network Laser Printers.

Section 3 - Parts List

This section contains illustrations of disassembled subsystems and a listing of the spared parts.

Section 4 - Repair/Adjustment Procedures

This section contains the instructions for removal, replacement, and adjustment of the spared parts.

Section 5 - General Procedures/Information

This section contains diagnostic routines, printer setup procedures, and a listing of tools and supplies.

Section 6 - Wiring Data

This section contains illustrations of the plug/jack locations and the routing of power and signal cables.

Section 7 - Repair Analysis Procedures (RAPS)

This section contains the procedures necessary to repair failures in the printer. This section also contains the procedures necessary to troubleshoot copy quality problems.

Section 8 - 500-Sheet Paper Feeder Option

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the 500-Sheet Paper Feeder option.

Section 9 - Offset Catch Tray (OCT) Option

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the OCT option.

Section 10 - Duplex Module Option

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the Duplex Module option.

Section 11 - Mailbox/Collator Option

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the Mailbox option.

Section 12 - Envelope Feeder Option

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the Envelope Feeder option.

Section 13 - High Capacity Feeder

This section contains Specifications, Parts List, REPs, Wiring Diagrams, Troubleshooting, and RAPs information for the High Capacity Feeder option.

Conventions

This manual uses the following names and acronyms interchangeably.

- The "Multi-Sheet Bypass Feeder" (MBF) is also referred to as the "Front Tray".
- "Trays" are also referred to as "cassettes".
- The "Print Engine Controller" is also referred to as the "MCU" or the "AMCU".
- The "Main Tray" is also referred to as the "250 Sheet Feeder".
- The "Mailbox/Collator" is also referred to as the "Mailbox".

Section 1

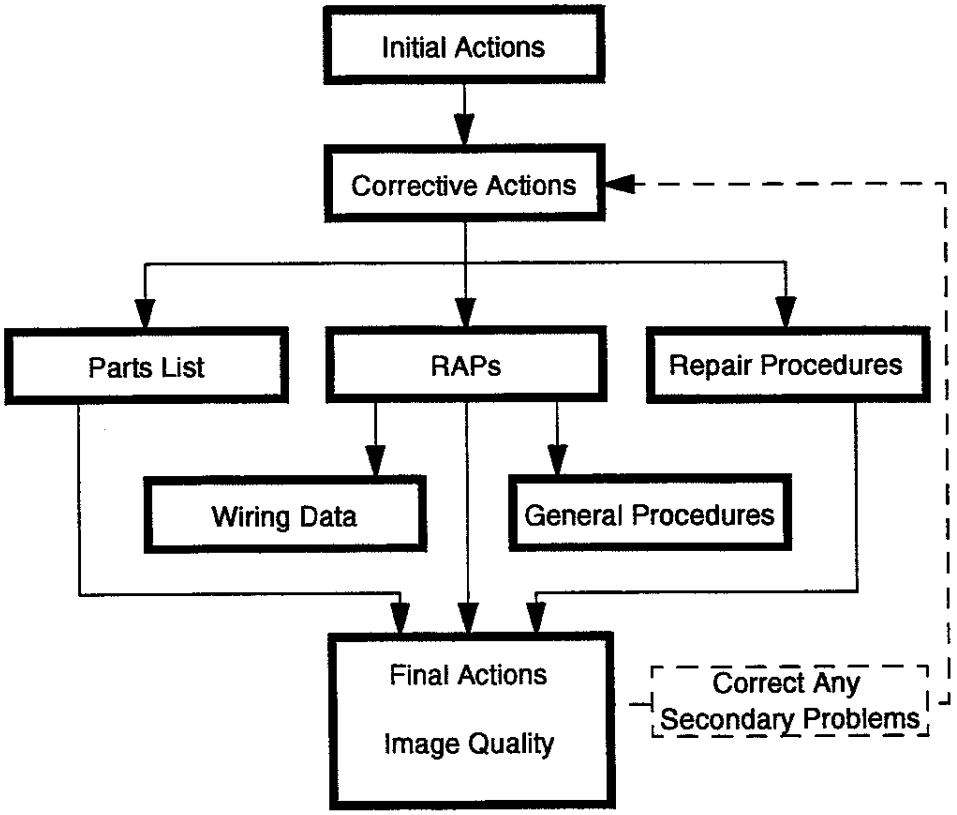
Service Call Procedures

Call Flow Diagram 1-3
Initial Actions 1-4
Corrective Actions 1-4
Final Actions 1-4

1.1 Call Flow Diagram

The basic troubleshooting steps are outlined in the Call Flow Diagram (Figure 1.1). All service calls begin with Initial Actions and end with Final Actions.

Figure 1.1.1 Call Flow Diagram



1.2 Initial Actions

1 Check that the printer paper path is clear of foreign matter such as staples, paper clips, and paper scraps.

2 After you have identified the problem symptom, check the following items:

- The printer is connected to a wall power outlet, and the outlet is supplying the correct voltage.
- The printer power cord is not frayed or broken.
- The printer is correctly grounded.
- The printer is in an appropriate operating environment, with no extremes of heat or humidity.
- The printer is not exposed to direct sunlight.
- The space around the printer meets the requirements.
- The printer is on a level and stable surface.

1.3 Corrective Actions

1 If the printer has an obvious failure or fault, you can go directly to the appropriate Repair Procedure or Repair Analysis Procedure (RAP) and begin corrective action.

2 If the fault is not obvious, follow the Entry Level RAP to identify the problem and begin corrective action. See Section 7.2.1.

3 After all corrective actions have been made, perform Final Actions. See Section 1.4.

1.4 Final Actions

1 Correct any secondary problems.

2 Reinstall the machine covers.

3 Clean the machine and the work area.

4 Run Test Prints to evaluate print quality.

5 Perform the Image Quality Checkout procedures in section 7 to correct any print quality defects.

6 Ask the customer to send a print job to verify printer operation, if possible.

7 Provide operator training as required.

8 Close the call.

Section 2

Printer Specifications

Electrical Specifications 2-3
Mechanical Specifications 2-3
Minimum Space Requirements 2-4
Functional Specifications 2-5
Paper Specifications 2-6
Options 2-8

2.1 Electrical Specifications

The Xerox DocuPrint 4517/4517mp Network Laser Printers are available in either a 110 or a 220 volt configuration that can be used with the power sources as shown in Table 2.1.1.

Table 2.1.1 Electrical Specifications

Line Voltage	Line Voltage Tolerance	Frequency	Frequency Tolerance	Power Consumption
110/115 VAC	90 - 132 VAC	50/60 Hz	47 - 63 Hz	580 Watts
220/240 VAC	198 - 264 VAC	50/60 Hz	47 - 63 Hz	670 Watts

2.2 Mechanical Specifications

Table 2.2.1 Mechanical Specifications

Unit	Width	Depth	Height	Weight
Metric	442 mm	418 mm	294 mm	18.6 Kg
SAE	17.4 in.	16.5 in.	11.6 in.	40.9 lbs

2.3 Minimum Space Requirements

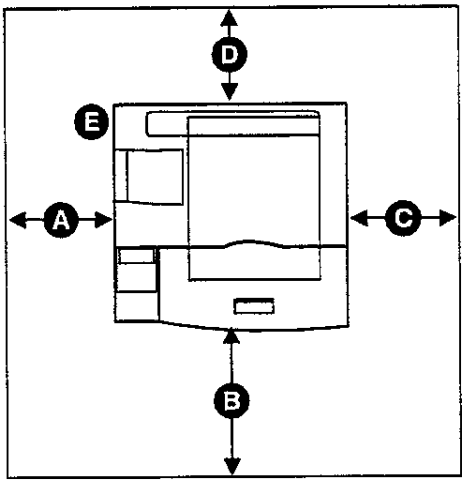
Top View

A 2 inches (50 mm)

B 20 inches (508 mm)

C 2 inches (50 mm)

D 12 inches (305 mm)



CAUTION Do not block the fan at the top rear left corner (E).

NOTE: The 500-Sheet Paper Feeder adds 4.8 inches (120 mm) to the height of the printer; the Offset Catch Tray (OCT) adds 5.2 inches (130 mm); the Mailbox adds 14.6 inches (370 mm).

2.4 Functional Specifications

- Printing Method: Xerographic Process
- Exposure method: Scanning Laser
- Fusing Method: Heat and Pressure

Table 2.4.1 Print Speed and Resolution

Mode	Print Speed - ppm (pages per minute)	Resolution - dpi (dots per inch)
Simplex	17 ppm	600 dpi
Duplex	13 ppm	600 dpi

Table 2.4.2 Operating Environment

Temperature	Humidity	Altitude	Noise	Level
5° - 35° C 50° - 90° F	15 - 85% RH	0 - 3000 m 0 - 10,000 Ft.	Running 49.5 dB Standby 35.0 dB	Within 5°

2.5 Paper Specifications

The recommended standard paper type is Xerox DP 20 lb. (80 gsm).

Paper Weight Limitations:

- Bond paper - 16 to 28 lbs (60 to 105 gsm)
- Cardstock - 50 lbs (190 gsm)
-

Table 2.5.1 Paper Sizes

Paper Type	Size
A4	8.27 x 11.69 inches 210 x 297 mm
Letter	8.5 x 11 inches 216 x 279 mm
B5 (ISO)	6.93 x 9.84 inches 176 x 250 mm
Executive	7.25 x 10.5 inches 184 x 267 mm
Folio	8.5 x 13 inches 216 x 330 mm
Legal	8.5 x 14 inches 216 x 356 mm
Commercial-10 Envelope	4.13 x 9.5 inches 105 x 241 mm
Monarch Envelope	3.87 x 7.5 inches 98 x 191 mm
DL Envelope	4.33 x 8.66 inches 110 x 220 mm
C5 Envelope	6.38 x 9.02 inches 162 x 229 mm
OHP Film (Transparency)	A4 or Letter
Label Paper	A4 or Letter

Table 2.5.2 Standard Tray Capacity

Paper Type	Capacity (Sheets)
Letter, B5, Executive, A5, Folio, and Legal	250
A4	230
OHP Film (transparency)	10
Label Paper	10

Table 2.5.3 MBF Tray Capacity

Paper Type	Capacity (Sheets)
A4, Letter, B5, Executive, Folio, and Legal	100
Monarch, Commercial-10, C5, and DL Envelopes	10
OHP Film (transparency)	30
Label Paper	30

Table 2.5.4 Optional 500-Sheet Feeder

Paper Type	Capacity (Sheets)
A4, Letter, Folio, and Legal	500

2.6 Options

The customer can install the following options:

- Up to two 500-sheet High Capacity Paper Decks or Trays
- High Capacity Envelope Feeder
- SIMMs (RAM) (sizes: 4, 16, and 32mb)
- I/O PWBs — Ethernet/LocalTalk/Token Ring
- ROM (PostScript Level 2)
- Hard Drive
- Font and Macro PCMCIA Cards
- Offsetting Catch Tray
- 10-Bin Mailbox Collator with Lockable Bins

Section 3

Parts List

About the Parts List 3-3
PL 1 Covers I 3-5
PL 2 Covers II 3-7
PL 3 Paper Tray 3-9
PL 4 Paper Transportation I 3-11
PL 5 Paper Transportation II 3-13
PL 6 Paper Transportation III 3-15
PL 7 Fusing 3-17
PL 8 Paper Exit 3-19
PL 9 Drive and Xerographic Module 3-21
PL 10 Electrical Module I (with Top Cover) 3-23
PL 11 Electrical Module II (with Chassis) 3-25
PL 12 System Controller 3-27

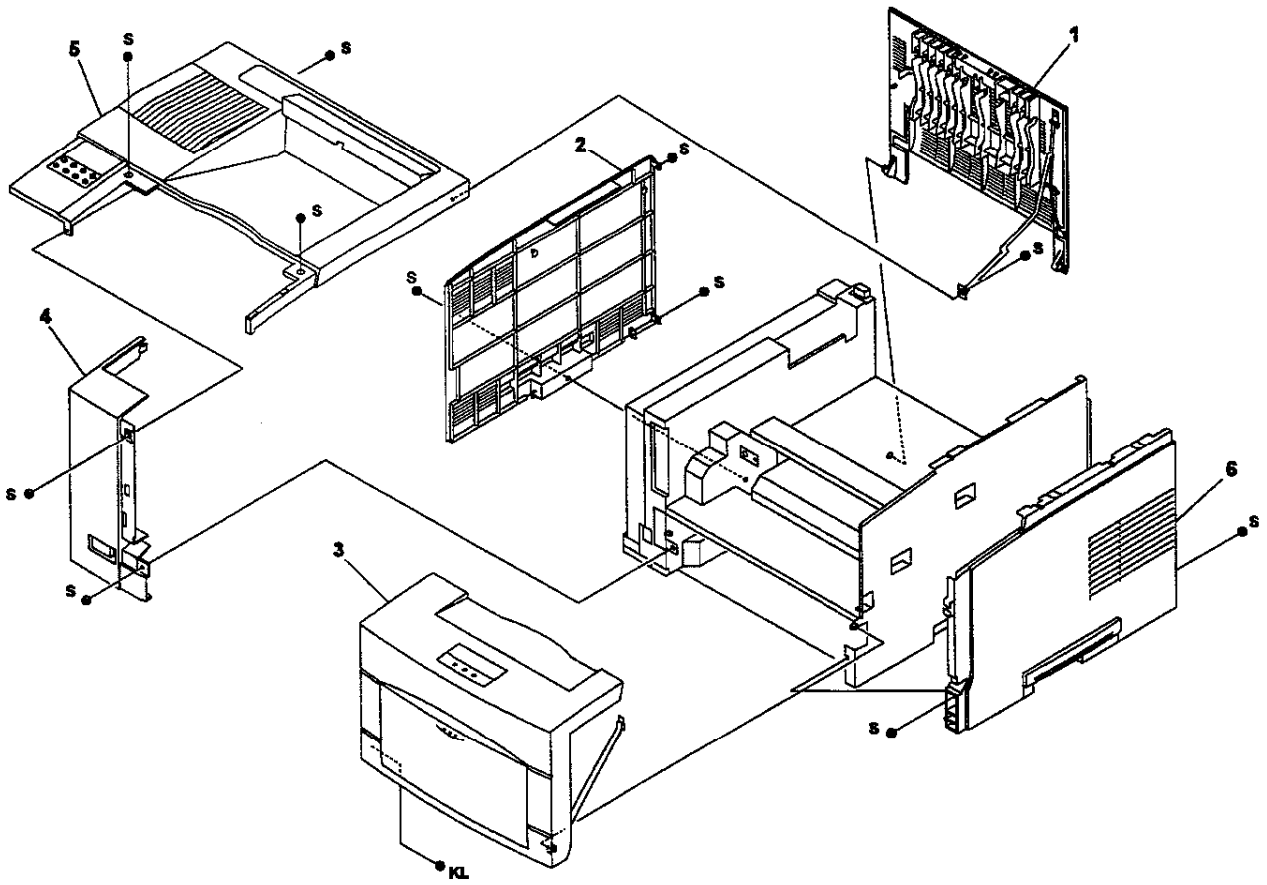
About the Parts List

This section identifies all part numbers and the corresponding location of all spared subsystem components.

Using the Parts List:

1. Each item number in the part number listing corresponds to an item number in the related illustration. Also, the parts in a given subsystem of the machine will be located in the same illustration or in a series of associated illustrations.
2. The letters "C", "E", "KL", and "S" in each illustration stand for a C-ring, an E-ring, a KL clip, and a screw, respectively.
3. The diamond symbol in each illustration indicates an assembly with one or more components.
4. The notation "with X-Y" following an item name indicates an assembly is made up of components X through Y. For example, "1... (with items 2-4)" means item 1 consists of the items 2, 3, and 4 within the same page.

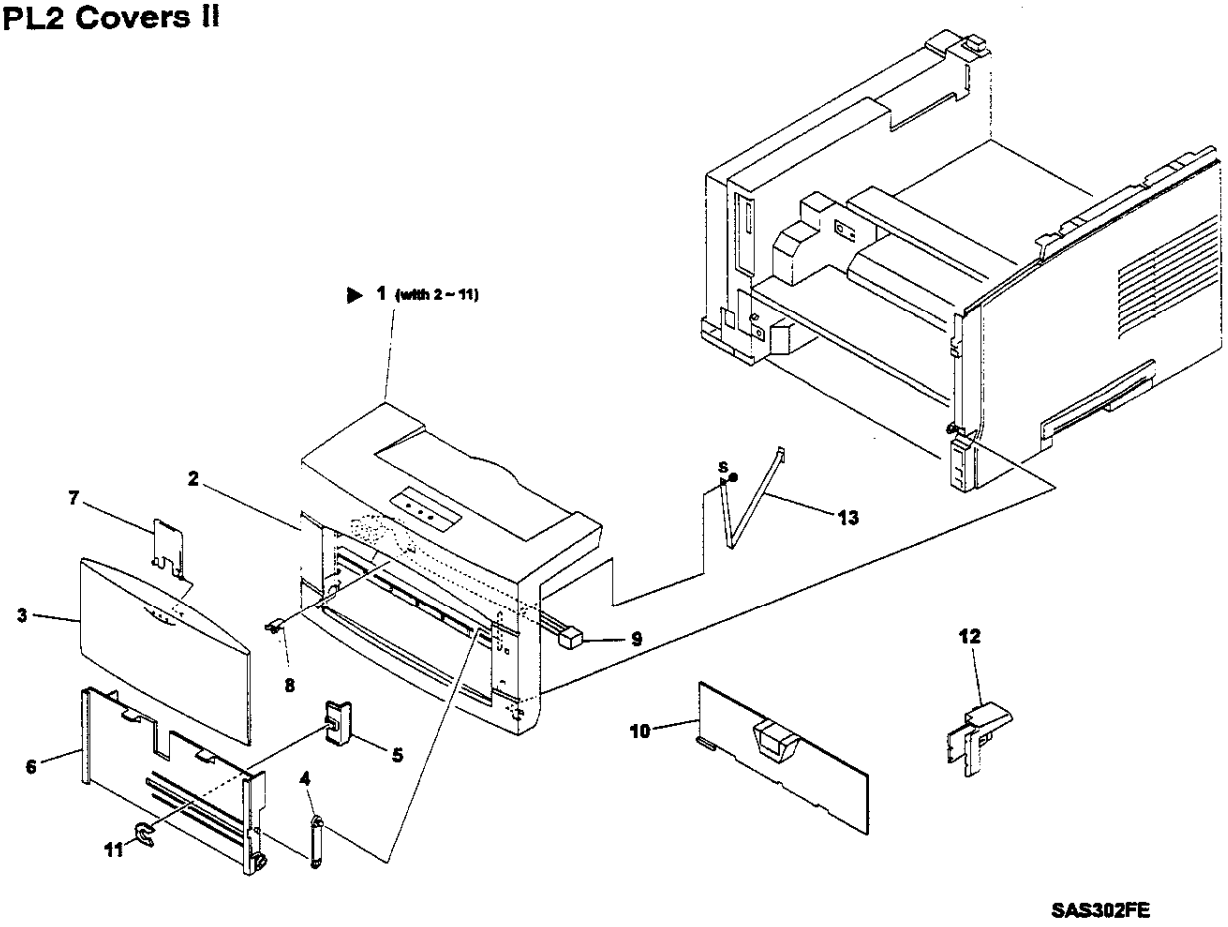
PL 1 Covers I



PL 1 Covers I

Item	Part	Description
1.	48K12916	Rear Cover
2.	48E09090	System Controller Cover
3.	48K12896	Front Cover Assembly (exploded on PL 2)
4.	48E23770	Left Front Cover
5.	48K12871	Top Cover
6.	48K29000	Right Cover

PL2 Covers II



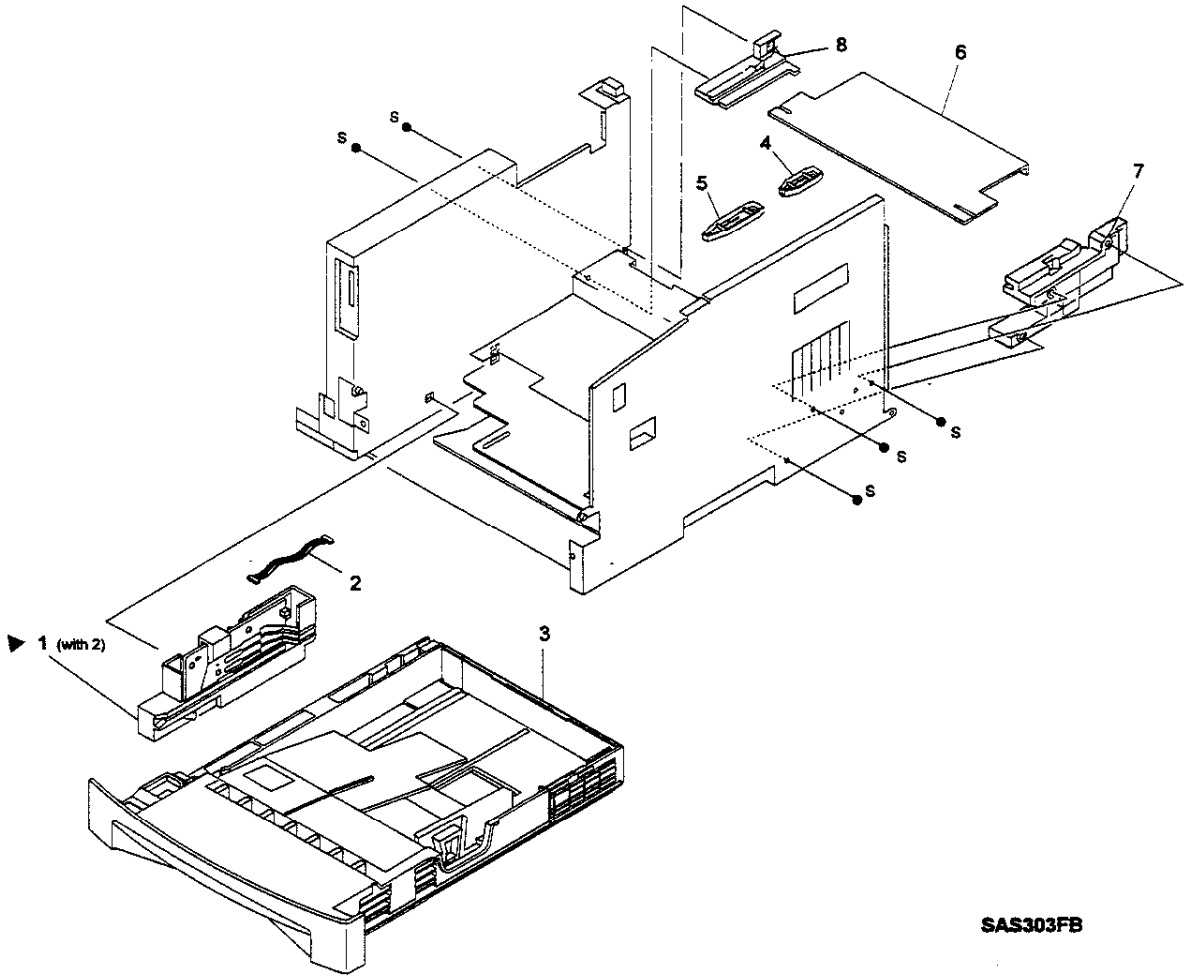
SAS302FE

PL 2 Covers II

Item	Part	Description
1.	48K12896	Front Cover Assembly (with items 2-11)(See *NOTE*)
2.	--	Front Cover
3.	--	Tray Cover
4.	--	Tray Stopper
5.	--	Holder Guide
6.	--	Main Tray
7.	--	Tray Extender
8.	113E82630	Catch Holder
9.	--	Envelope Front Harness (See *NOTE*)
10.	--	Inner Cover
11.	--	E Ring
12.	--	Harness Cover
13.	--	Cover Stopper

NOTE: This harness and six screws located on the Front Cover Assembly are not detachable.

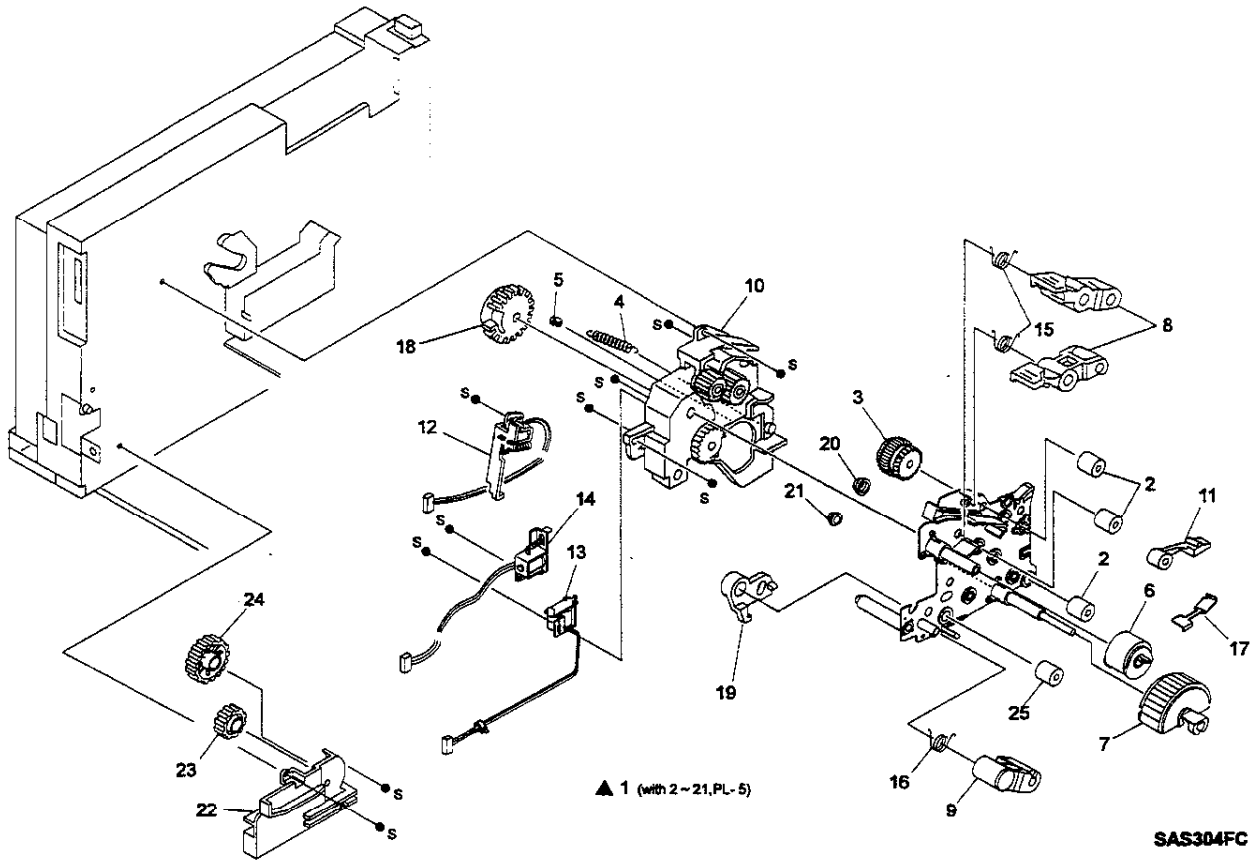
PL 3 Paper Tray



PL 3 Paper Tray

Item	Part	Description
1.	130K83303	Paper Size Sensor Assembly (with item 2)
2.	--	Paper Size Harness
3.	109R306	250-Sheet Tray
4.	--	Front Tray Rail
5.	--	Rear Tray Rail
6.	48E09581	Tray Cover
7.	--	Right Rail Guide
8.	--	Left Rail Guide

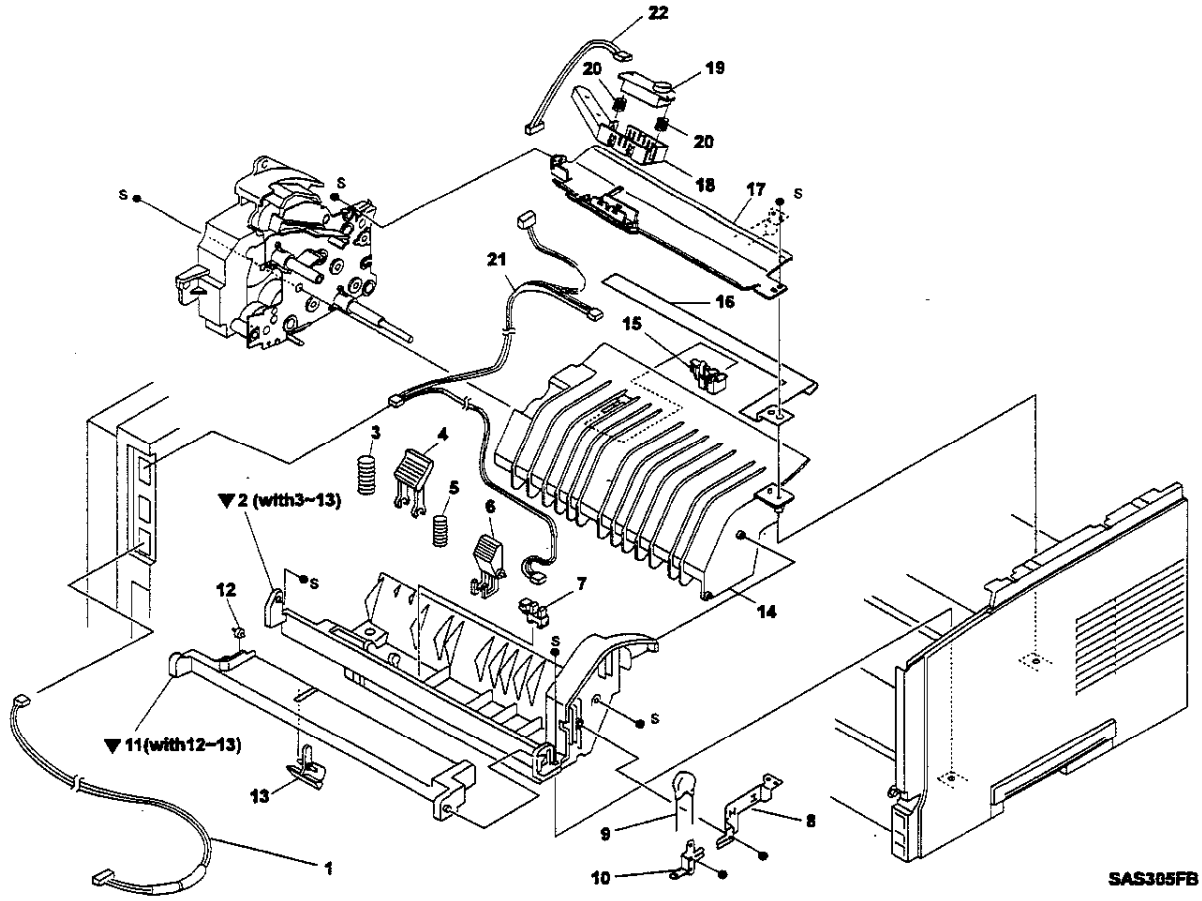
PL 4 Paper Transportation I



PL 4 Paper Transportation I

Item	Part	Description
1.	50K29301	Paper Handler Unit Assembly (with items 2-21 and PL 5)
2.	22K33263	Registration Roll
3.	5K81184	Registration (Spring) Clutch
4.	--	Lever Spring
5.	--	Lever
6.	22K33255	Front Tray (MBF) Roll
7.	22K33291	250-Sheet Feed Roll
8.	22K33272	Pinch Roll
9.	22K33335	Turn Pinch Roll
10.	--	Supporter
11.	22K36821	Duplex Pinch Roll
12.	121K84351	Registration Solenoid
13.	121K83960	Tray 1 Solenoid
14.	121K84341	Front Tray (MBF) Solenoid
15.	--	Pinch Roll Spring
16.	--	Turn Roll Spring
17.	--	Duplex Pinch Spring
18.	--	Front Tray (MBF) Gear
19.	--	Release Link
20.	--	Registration Bushing
21.	--	Pinch Registration Bushing
22.	32E99000	Lower Support
23.	7E88310	Gear (23T)
24.	7E88340	Gear (42T)
25.	22K47800	Turn Roll

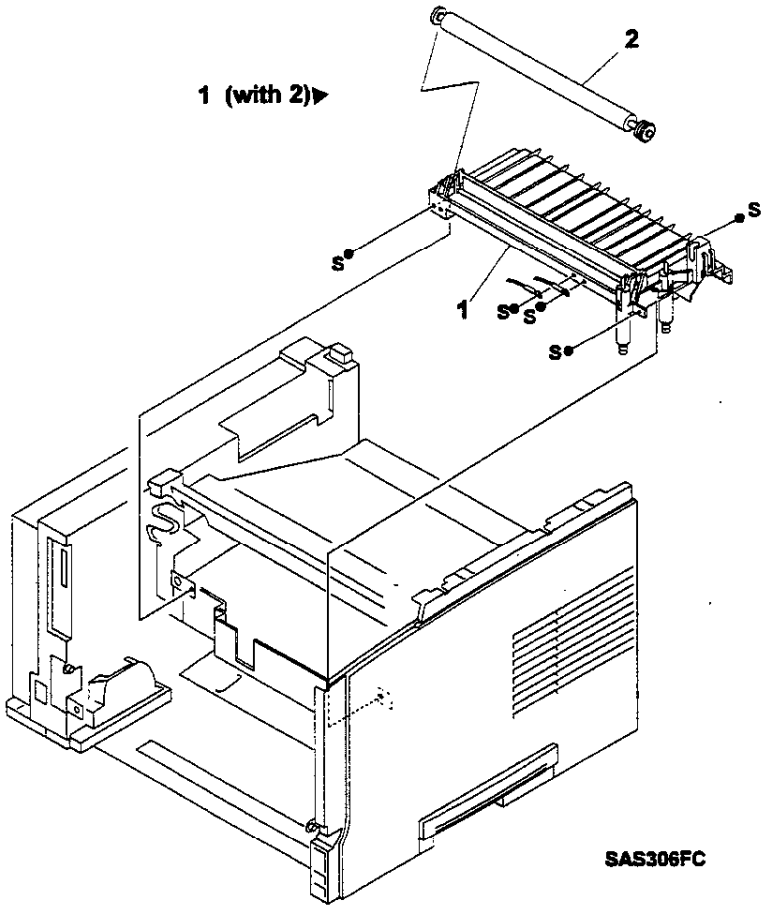
PL 5 Paper Transportation II



PL 5 Paper Transportation II

Item	Part	Description
1.	152K65342	Envelope Harness
2.	--	Front Tray (MBF) Chute Assembly (with items 3-13)
3.	--	N/F Spring
4.	19K93012	Retard
5.	--	Retard Spring
6.	--	Multi Holder
7.	130E80420	No Paper Sensor
	130E81970	No Paper Sensor, Alternate
8.	--	Right Spring
9.	--	Varistor
10.	--	Left Spring
11.	--	Tray Bottom Assembly (with items 12-13)
12.	--	Cam Roll
13.	120E98142	Front Tray (MBF) No Paper Actuator
14.	--	Bottom Chute
15.	130E81521	Registration Sensor
16.	--	Earth Bottom Spring
17.	--	Inlet Chute
18.	--	Toner Holder Sensor (P/O item 23)
19.	--	Toner Sensor (P/O item 23)
20.	--	Toner Sensor 1 Spring (P/O item 23)
21.	152K65830	Paper Handler Harness
22.	162K04710	Toner Sensor Harness
23.	600K99300	Toner Sensor Kit (with items 18-20)

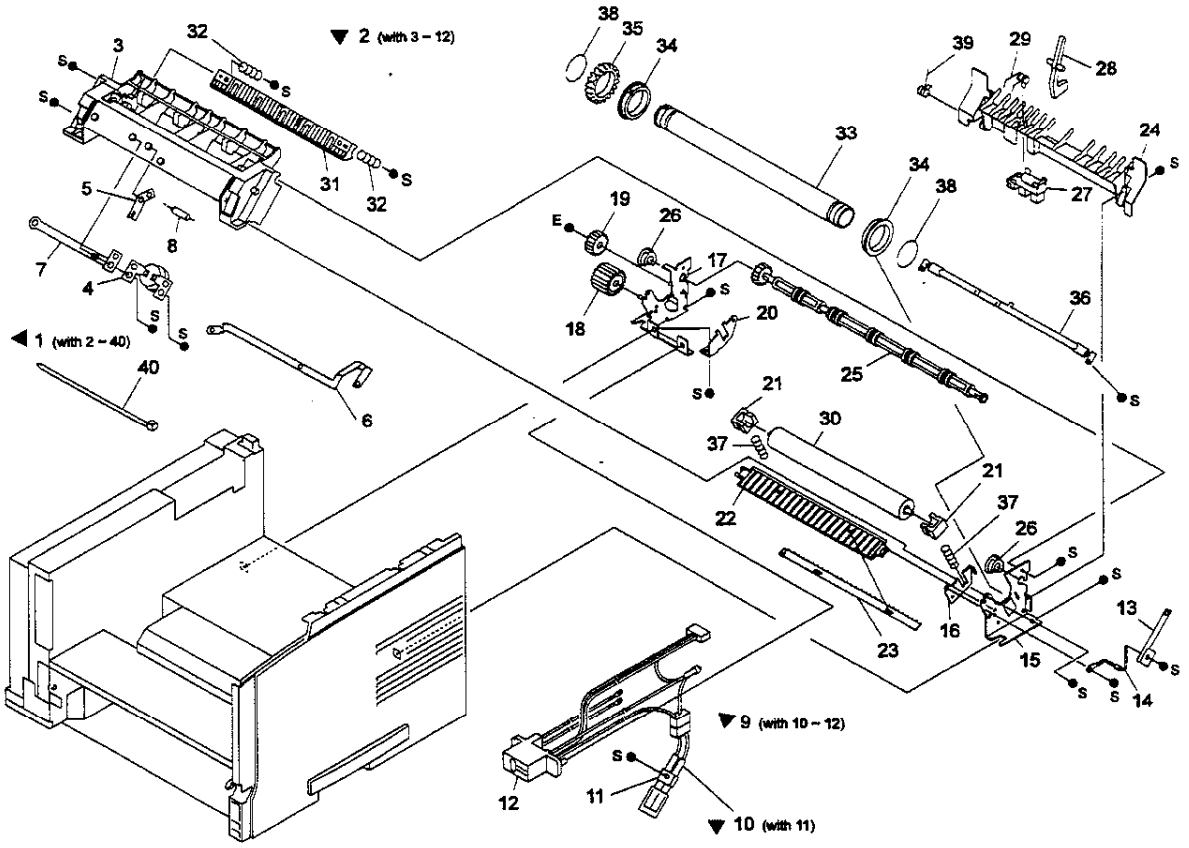
PL 6 Paper Transportation III



PL 6 Paper Transportation III

1.	54K88353	BTR (Bias Transfer Roll) Chute Assembly (with item 2)
2.	600K99291	BTR

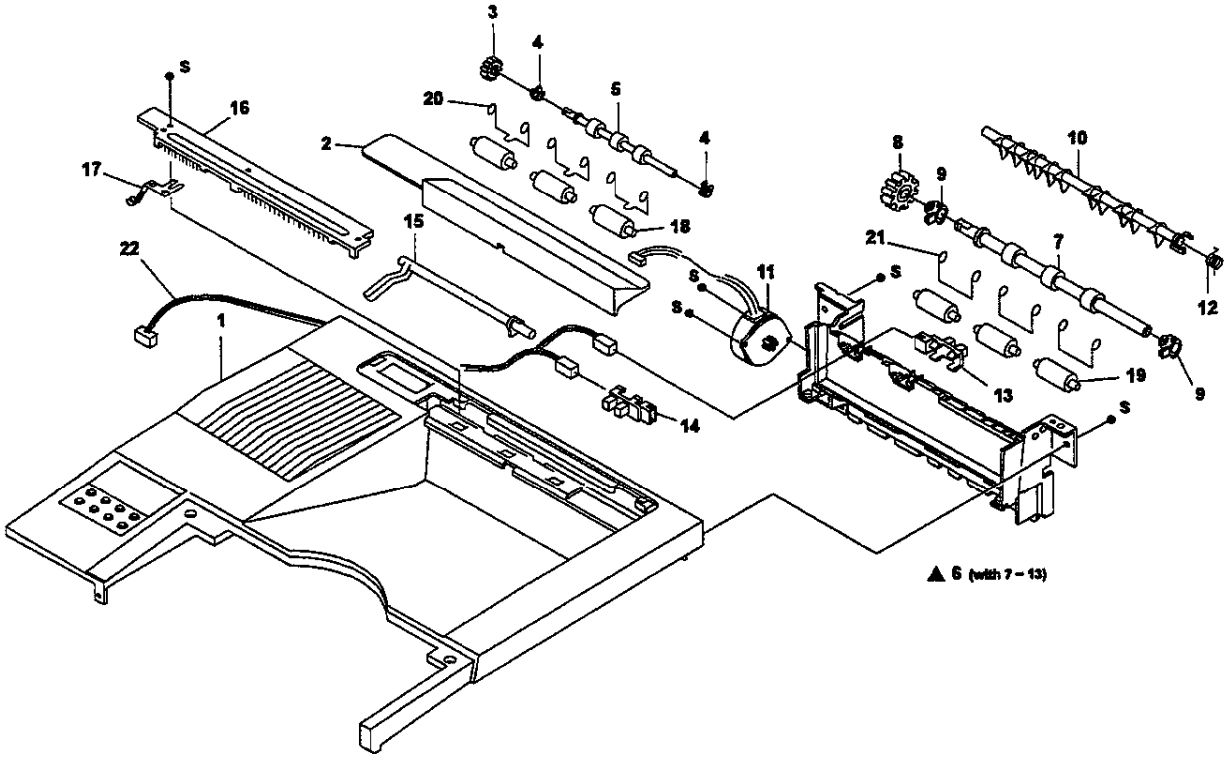
PL 7 Fusing



PL 7 Fusing

1.	108R00092	Fuser Assembly (115v) (with items 2-40)
-	108R00093	Fuser Assembly (220v) (with items 2-40)
2.	--	Top Cover Assembly
3.	--	Top Cover
4.	--	Thermostat
5.	--	Fuse Plate
6.	--	Harness 1 Plate
7.	--	Harness 2 Plate
8.	--	Fuse
9.	--	Fuse Harness
10.	--	Exit Harness Assembly
11.	--	Temperature Sensor
12.	--	Fuser Plug Connector
13.	--	Earth H Spring
14.	--	Diode Ground
15.	--	Right Frame
16.	--	Right Pressure Roll Lever
17.	--	Left Frame
18.	--	Drive Gear (15T)
19.	--	Exit Idle Gear (12T)
20.	--	Left Pressure Roll Lever
21.	--	Pressure Roll Bearing
22.	--	Inlet Chute
23.	--	Static Eliminator
24.	--	Lower Exit Chute
25.	--	Decurl Roll
26.	--	Exit Bearing
27.	--	Exit Photo Sensor
28.	--	Exit Actuator
29.	--	Exit Actuator Spring
30.	--	Pressure Roll
31.	--	Exit Chute
32.	--	Exit Spring
33.	--	Heat Roll
34.	--	Heat Roll Bearing
35.	--	Heat Roll Gear
36.	--	Quartz Heater
37.	--	Pressure Roll Spring
38.	--	Roller Ring
39.	--	Exit Spring
40.	--	Cable Tie

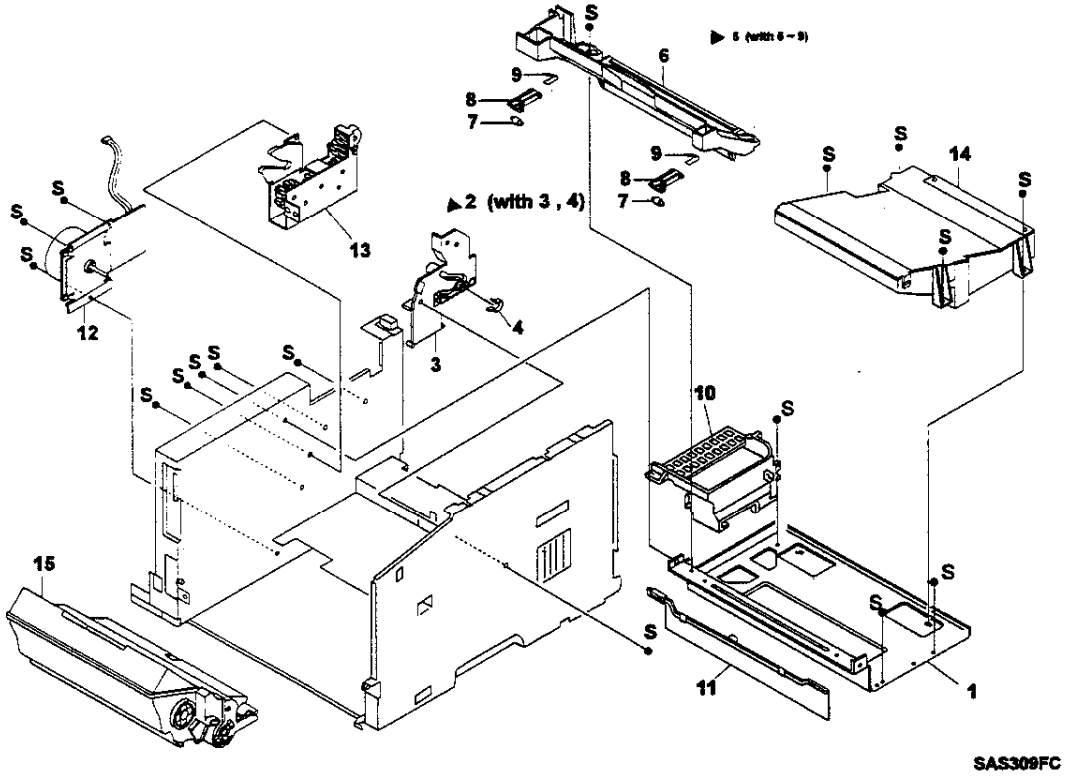
PL 8 Paper Exit



PL 8 Paper Exit

Item	Part	Description
1.	--	Top Cover (Refer to PL1 item 5)
2.	48E09050	Option Cover
3.	7E88421	Exit Gear
4.	13E82261	Exit Bearing
5.	22K33422	Exit Roll
6.	54K04645	Exit Assembly (with items 7-13, 18-21, 23, 24)
7.	22K33411	Middle Roll
8.	--	Exit Gear
9.	--	Exit Bearing
10.	--	Exit Gate
11.	127K86331	Exit Motor
	127K19450	Exit Motor, Alternate
12.	--	Direction Spring
13.	130E81680	Rear Cover Sensor
14.	130E81600	Stack Full Sensor
15.	120E98191	Stack Full Actuator
16.	--	Eliminator
17.	--	Exit Earth Spring
18.	59E90680	Pinch Exit Roll
19.	59E92270	Pinch Middle Roll
20.	--	Pinch Exit Spring
21.	--	Pinch Middle Spring
22.	152K65351	Exit Harness
23.	--	Gear (26T)
24.	--	Gear (47W)

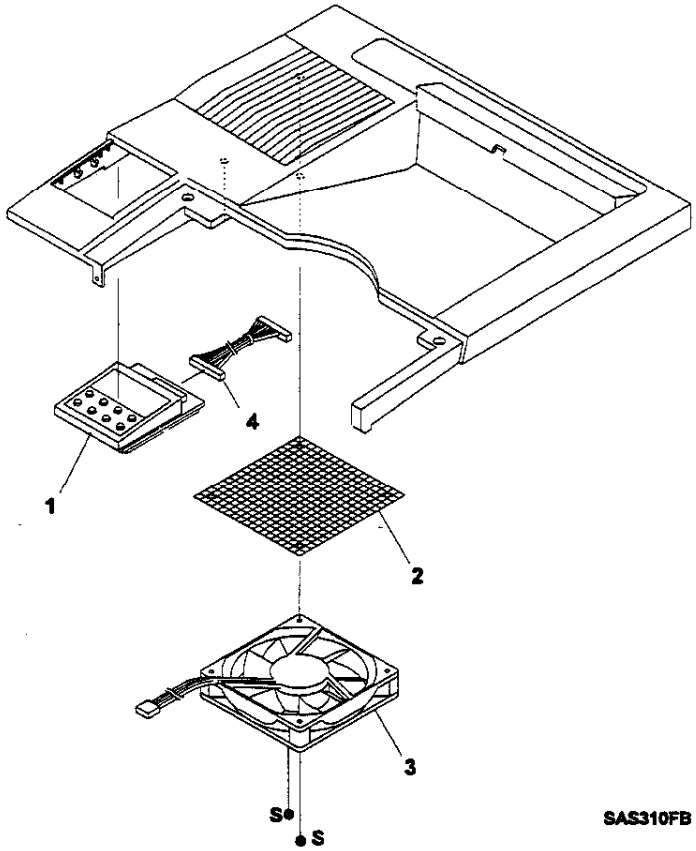
PL 9 Drive and Xerographic Module



PL 9 Drive and Xerographic Module

Item	Part	Description
1.	--	ROS Plate
2.	--	CRU Side Guide Assembly (with items 3-4)
3.	--	CRU Side Guide
4.	--	Spring
5.	--	CRU Top Guide Assembly (with items 6-9)
6.	--	CRU Top Guide
7.	--	Roller
8.	--	Arm
9.	--	Spring
10.	--	L Duct
11.	--	S Duct
12.	127K13681	Main Motor Assembly
13.	7K81436	Drive
14.	62K94113	Laser Assembly
15.	113R00095	EP Cartridge

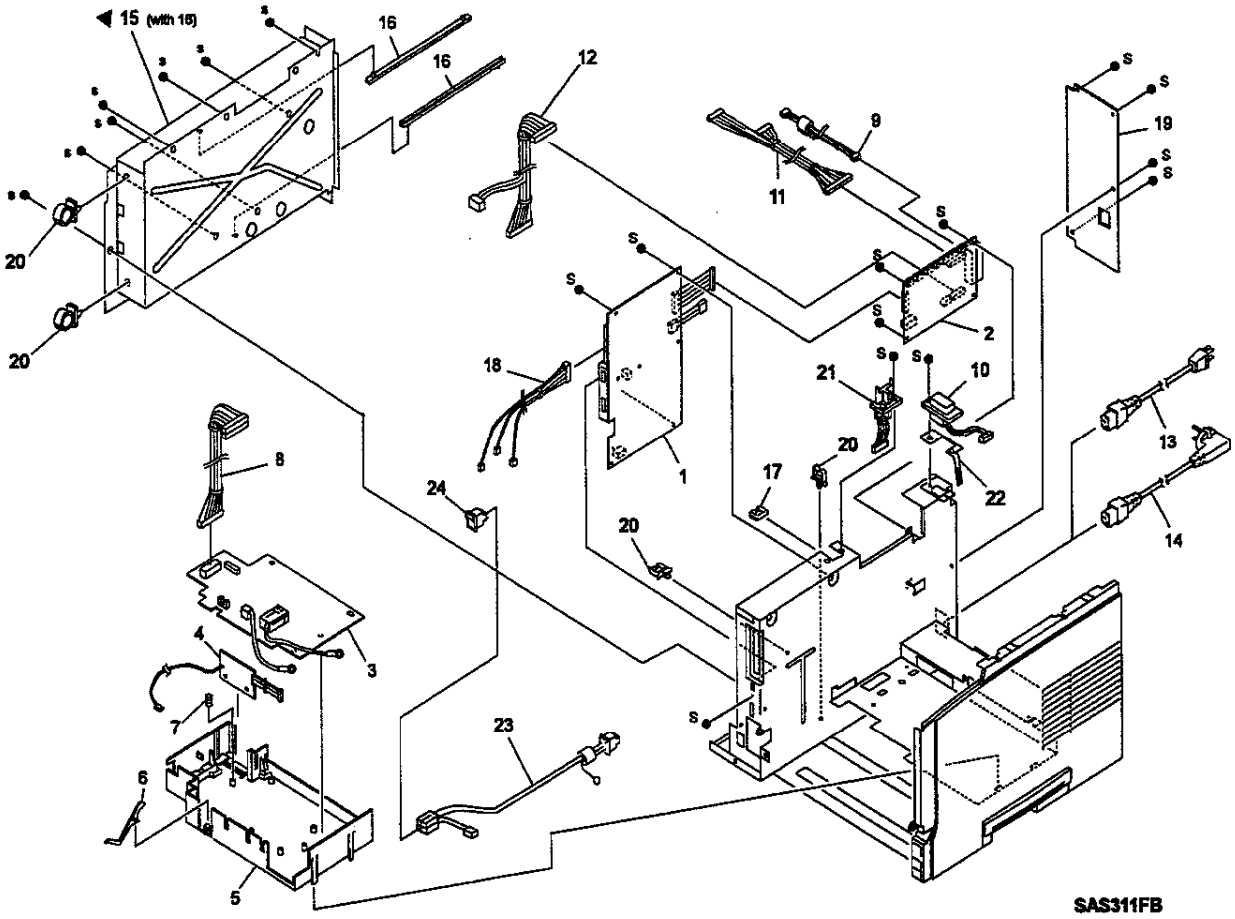
PL 10 Electrical Module I (with Top Cover)



PL 10 Electrical Module I (with Top Cover)

Item	Part	Description
1.	48K31563	Control Panel
2.	53E91650	Fan Filter
3.	127K88510	Fan
4.	162K05270	Panel Harness

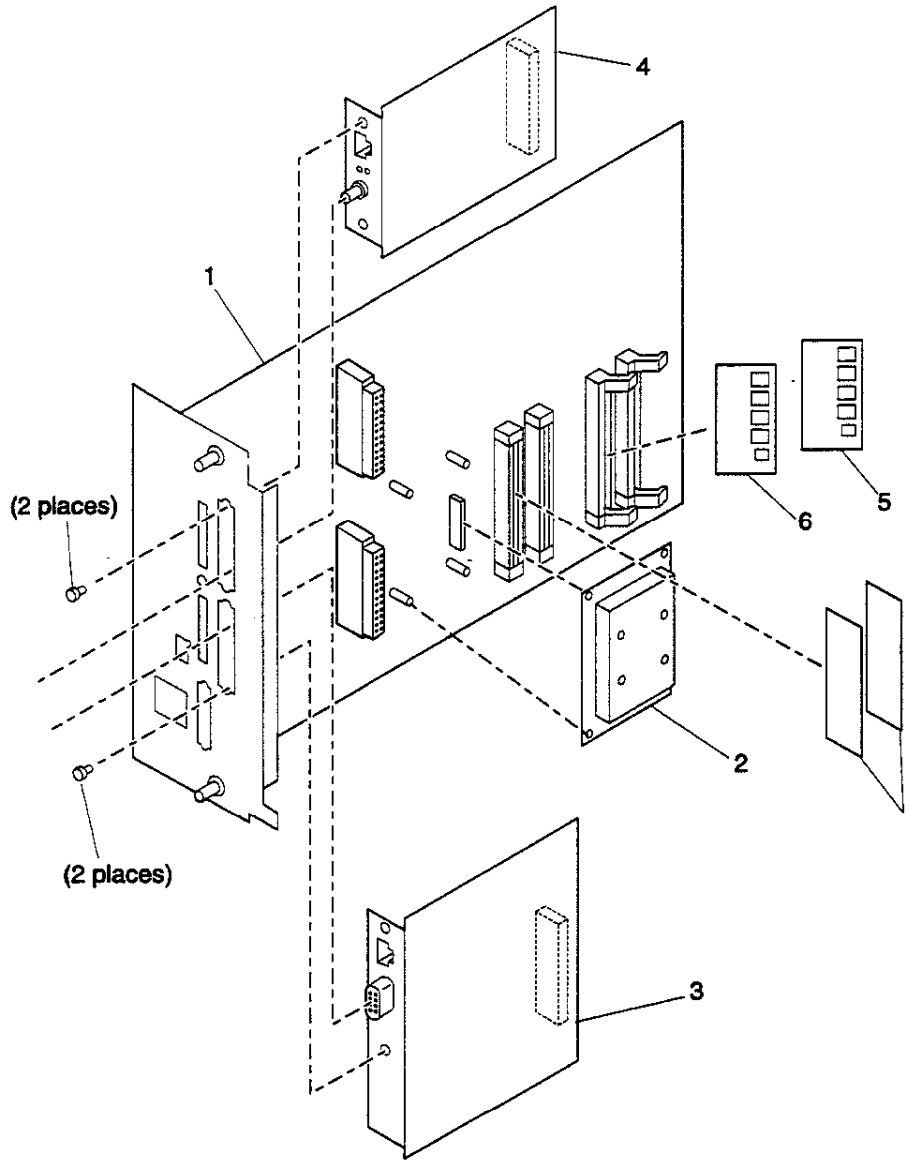
PL 11 Electrical Module II (with Chassis)



PL 11 Electrical Module II (with Chassis)

Item	Part	Description
1.	105K94260	LVPS (115V)
-	105K94270	LVPS (220V)
2.	140K67285	Print Engine Controller (115V)
-	160K15870	Print Engine Controller (220V)
3.	105K94291	HVPS
4.	140K63780	Fuser PWB
5.	--	HVPS Chassis
6.	120E98160	No Paper Actuator
7.	--	Earth Spring
8.	152K65300	HVPS Harness
9.	152K65323	SOS Harness
10.	152K65820	OCT Harness
11.	152K65330	Laser Harness
12.	162K05260	Tray Harness
13.	177K99110	US Power Cord
14.	--	EC Power Cord
15.	--	Electric Box Chassis (with item 16)
16.	--	Rail Guide
17.	--	Bush
18.	162K05250	Feed Harness
19.	--	Back Panel
20.	--	Clamp
21.	162K04430	Top Harness
22.	--	Motor Earth Spring
23.	--	Inlet Harness
24.	600K54900	Main Switch Repair Kit

PL 12 System Controller



PL 12 System Controller

Item	Part	Description
1.	160K40710	System Controller PWB, Parallel Port Only (see Note 1).
	160K40730	System Controller PWB, Parallel and Serial Port (see Note 1).
2.	121K09950	Rigid Disk Drive (125 Mb)
	121K15340	Rigid Disk Drive (810 Mb)
3.	160K44280	Token Ring Interface PWB, Rel 6.1X
4.	140K59001	Local Talk PWB
-	160K44270	Ethernet PWB Rel 6.1X
5.	600K64290	Version 2 System ROM SIMM Kit (see Note 2)
6.	160K22910	Postscript ROM SIMM PWB (see Note 2)
7.	733W03660	Memory SIMM (4 MB)
-	733W03642	Memory SIMM (16 MB)
-	733W03675	Memory SIMM (32 MB)

Note 1: System ROM in incorporated into the Base System Controller PWB. If a PCL System ROM SIMM (Item 5) in installed it will override the onboard ROM.

Note 2: Item 5 and Item 6 may use slots interchangeably.

Section 4

Repair/Adjustment Procedures

Overview **4-5**
Notations in the REP Text 4-6
Before You Start Any REP 4-6

Covers I **4-7**
Rear Cover 4-7
Left Cover 4-8
Harness Cover 4-9
Front Cover Assembly 4-10
Left Front Cover 4-11
Top Cover Assembly 4-12
Right Cover 4-13

Covers II **4-14**
Envelope Feeder (EF) Cover 4-14
Inner Cover 4-15
Front Tray 4-16
Front Tray Cover 4-17
Tray Extender 4-18

Paper Tray (Deck I) **4-19**
Paper Size Sensor 4-19

Paper Transportation I **4-20**
Paper Handling Unit Assembly 4-20
Feed Roll Assembly 4-21
Duplex Refeed Roll 4-22
Front Tray Roll 4-23

Paper Transportation II **4-24**
Toner Sensor 4-24
Inlet Chute Assembly 4-25
Registration Sensor 4-26
Front Tray Chute Assembly 4-27
Tray Bottom 4-28
Retard Assembly 4-29
Multi Holder 4-30
Front Tray No Paper Actuator 4-31
No Paper Sensor 4-32
Bottom Chute 4-33
Supporter 4-34
Pinch Roll Assembly 4-36
Turn Pinch Roll Assembly 4-37
Registration Solenoid/Tray 1 Solenoid/
Front Tray Solenoid 4-38
Registration Clutch Assembly 4-39

Paper Transportation III **4-40**
Bias Transfer Roll (BTR) Assembly 4-40
BTR Chute Assembly 4-41

Fusing **4-42**
Fuser Assembly (CRU) 4-42

Paper Exit **4-43**
Exit Roll Assembly 4-43
Middle Roll Assembly 4-44
Exit Gate 4-45
Exit Motor Assembly 4-46
Rear Cover Sensor 4-47
Option Cover/Eliminator Assembly 4-48
Stack Full Sensor 4-49
Stack Full Actuator 4-50

Drive and Xerographic Modules **4-51**
Main Motor Assembly 4-51
Drive Assembly 4-52
Laser Assembly 4-53

Electrical Module I **4-54**
Control Panel Assembly 4-54
Fan Assembly 4-55

Electrical Module II **4-56**
System Controller Chassis 4-56
Low Voltage Power Supply (LVPS) 4-57
Print Engine Controller 4-58
High Voltage Power Supply (HVPS) 4-59
Fuser PWB 4-60
No Paper Actuator 4-61
Main Power Switch 4-62

4.1 Overview

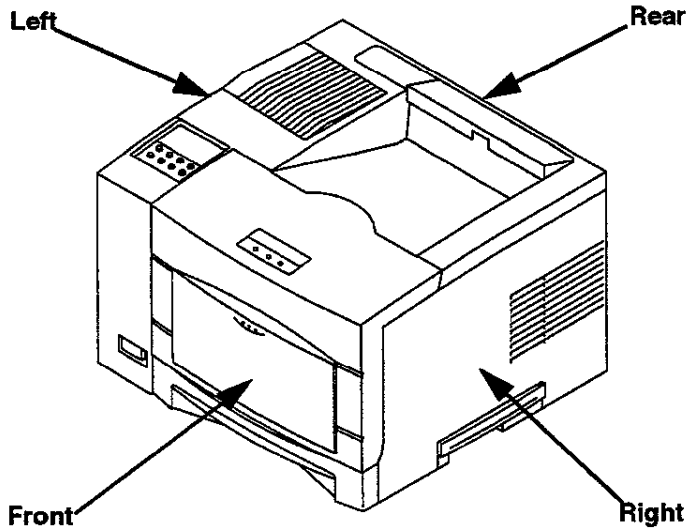
This section contains Xerox DocuPrint 4517/4517mp Network Laser Printers Repair Procedures (REPs):

- 1 Covers I
- 2 Covers II
- 3 Paper Tray
- 4 Paper Transportation I
- 5 Paper Transportation II
- 6 Paper Transportation III
- 7 Fusing
- 8 Paper Exit
- 9 Drive Assembly and Xerographic Modules
- 10 Electrical I
- 11 Electrical II

4.1.1 Notations in the REP Text

Locations given in the REPs assume you are facing the Control Panel with the following orientation:

Figure 4.1.1.1 Printer Orientation



The following notations apply:

- Arrows in the illustrations show direction of movement. Follow the numerical order if the arrows are numbered.
- The notation *screw (number, type, length of thread)* identifies individual screws.
- The notation *REP X.Y* in a REP step directs you to another REP to see how to perform a related procedure.
- The notation *Figure X.Y* references the illustration corresponding to the REP you are performing.
- A number followed by a parenthesis, e.g., 8), references the corresponding REP step.

4.1.2 Before You Start Any REP

There are a number of steps you should follow **before** you begin any procedure:

1. If applicable, cancel pending jobs and take the printer offline.
2. Switch the printer main power OFF, and disconnect the power cord from the wall outlet.
3. Remove the EP Cartridge from the printer; and store it in a safe, dark place.
4. Do not use force to remove or install printer components.
5. Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.
6. Wear a wrist strap to dissipate static electricity, which may damage sensitive electronic parts.
7. See *Section 6, Wiring Diagrams,* for detailed wiring diagrams.

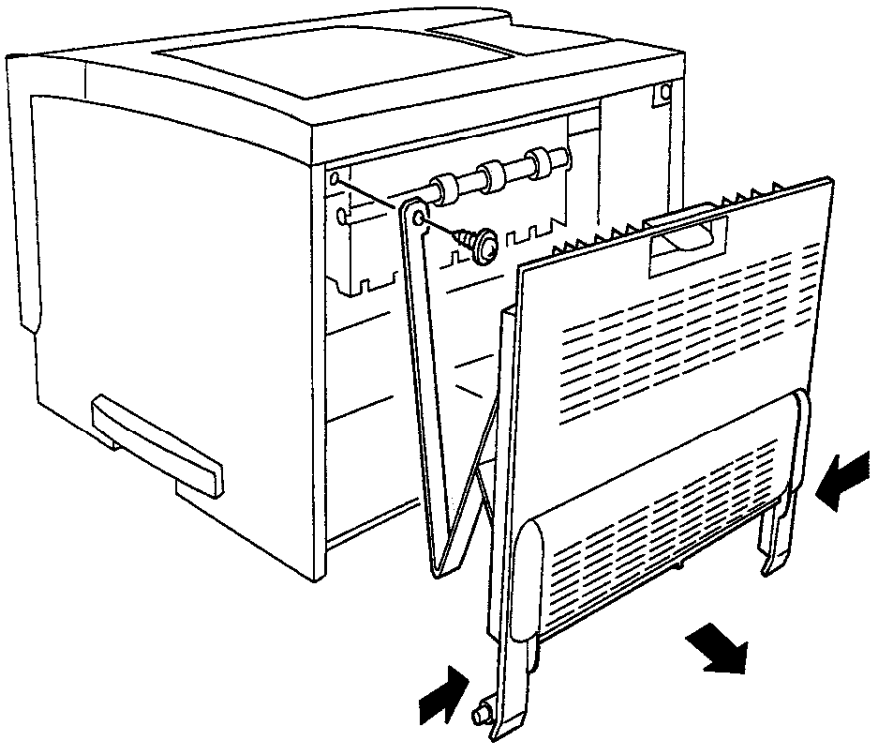
4.2 Covers I

4.2.1 Rear Cover

Removal

1 Open the Rear Cover.
2 Remove the screw securing the stopper to the Frame. (See Figure 4.2.1).
3 Press and unlatch the pivots on both ends of the rear cover and remove the cover.

Figure 4.2.1.1 Rear Cover Removal



Replacement

Perform the removal steps in reverse order.

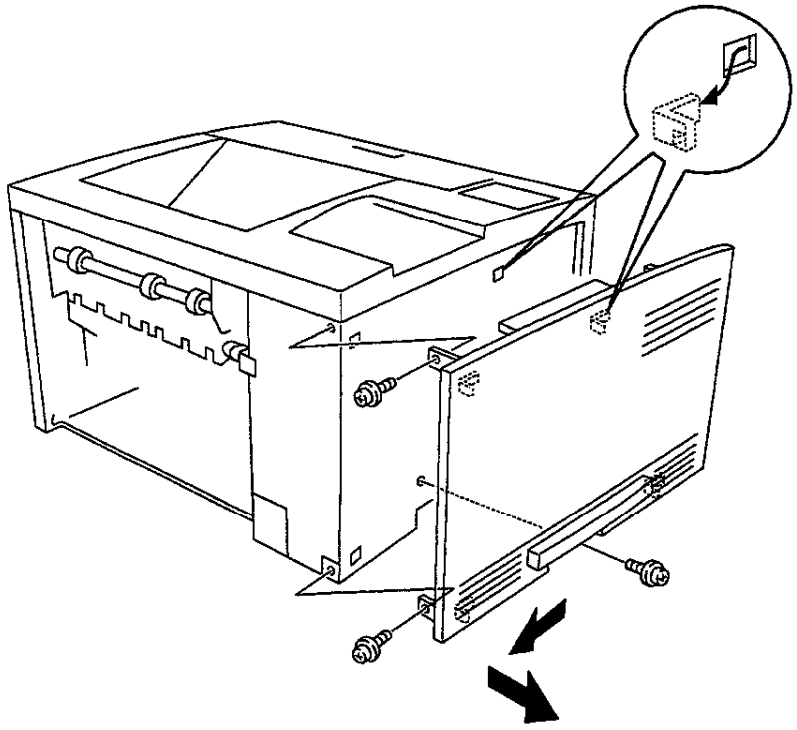
4.2.2 Left Cover

Removal

1 Remove the three screws securing the cover to the Frame. (See Figure 4.2.2).

2 Pull the rear end of the cover to snap it off the Frame.

Figure 4.2.2.1 Left Cover Removal



Replacement

Reverse Steps 1 and 2.

4.2.3 Harness Cover

Removal

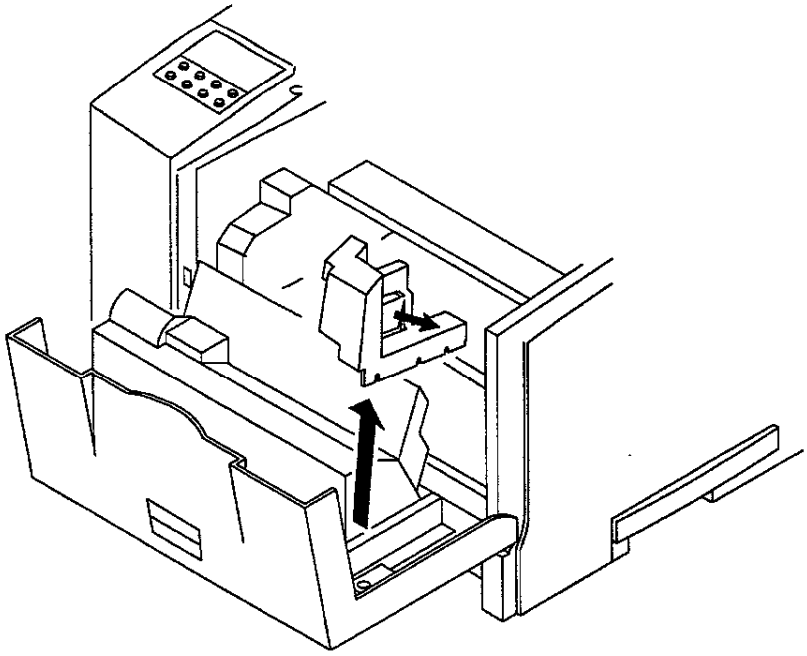
1 Open the Front Cover.

2 Press the latch on the left, and use a flat-slot screwdriver to free the latch on the right by slightly lifting upward. (See Figure 4.2.3).

NOTE: Notice the routing of the harness underneath the Harness Cover.

3 Remove the Harness Cover by pulling it upward and out of the Front Cover Assembly.

Figure 4.2.3.1 Harness Cover Removal



Replacement

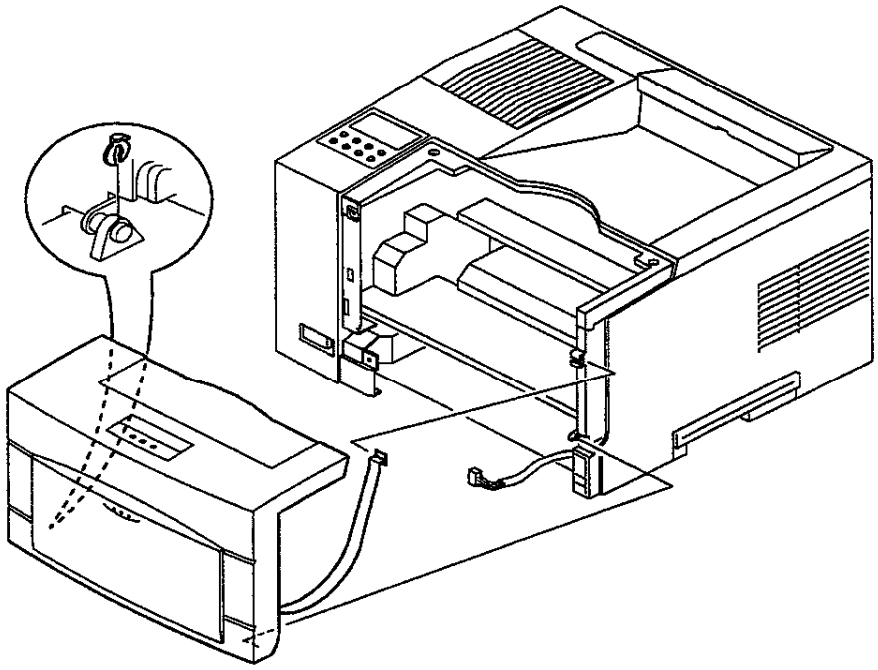
Perform the removal steps in reverse order.

4.2.4 Front Cover Assembly

Removal

1 Open the Front Cover Assembly.
2 Remove the Harness Cover (*REP 4.2.3 Harness Cover*).
3 Disconnect P/J 130.
4 Slide the Cover Stopper to the left to free it from the Frame. (See Figure 4.2.4).
5 Remove the KL clip securing the cover to the printer.
6 Slide the Front Cover Assembly to the right, and remove the assembly.

Figure 4.2.4.1 Removing the Front Cover



Replacement

Reverse Steps 1 through 6.

4.2.5 Left Front Cover

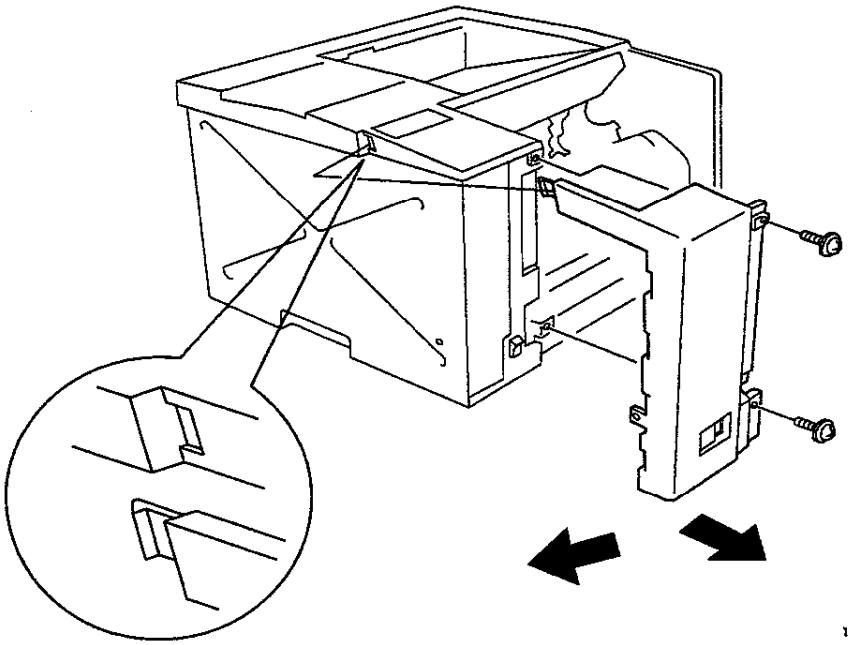
Removal

1 Open the Front Cover.

2 Remove the two screws securing the Front Cover to the Frame. (See Figure 4.2.5).

3 Remove the Front Cover from the Top Cover Assembly by rotating the Front Cover and pulling it towards you.

Figure 4.2.5.1 Left Front Cover Removal



Replacement

Reverse Steps 1 through 3.

4.2.6 Top Cover Assembly

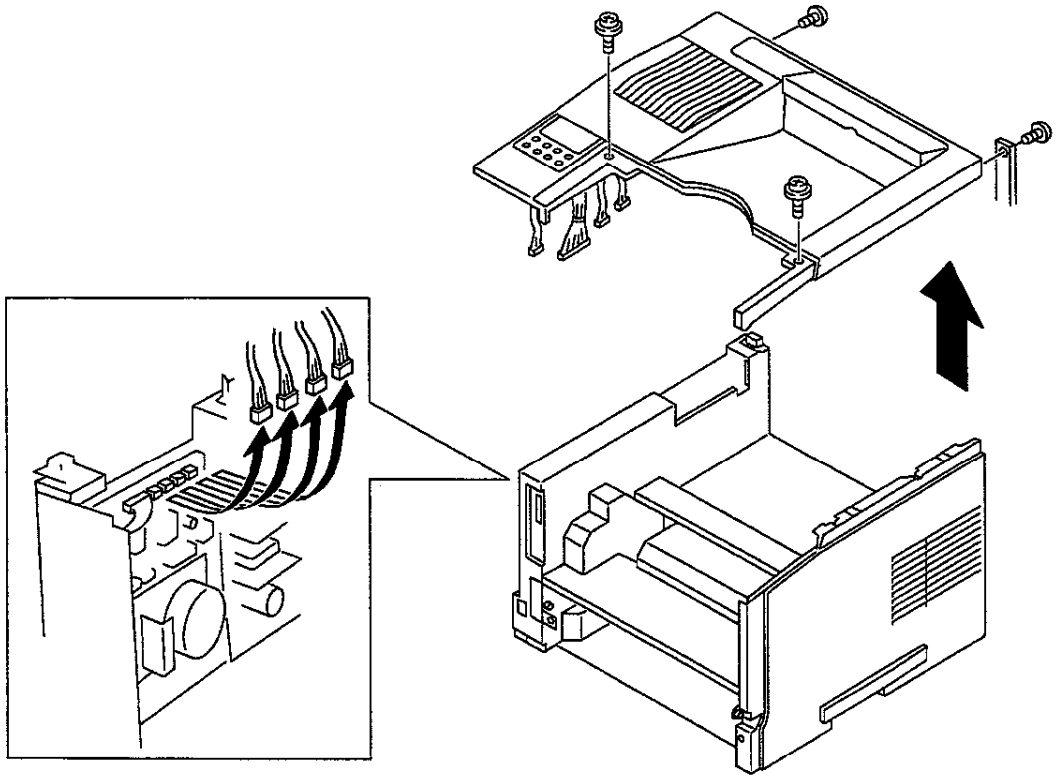
Removal

1 Open the Front Cover Assembly.
2 Remove the Left Cover (*REP 4.2.2 Left Cover*).
3 Remove the Left Front Cover (*REP 4.2.5 Left Front Cover*).
4 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).
5 Disconnect the four connectors (P/Js 23, 24, 28, and 32) from the Print Engine Controller. (See Figure 4.2.6).
6 Remove the four screws securing the Top Cover.

NOTE: You must open the Rear Cover to remove two of the four screws.

7 Remove the Wire Harness from the Wire Holder.
8 Lift upward and remove the Top Cover Assembly.

Figure 4.2.6.1 Top Cover Assembly Removal



Replacement

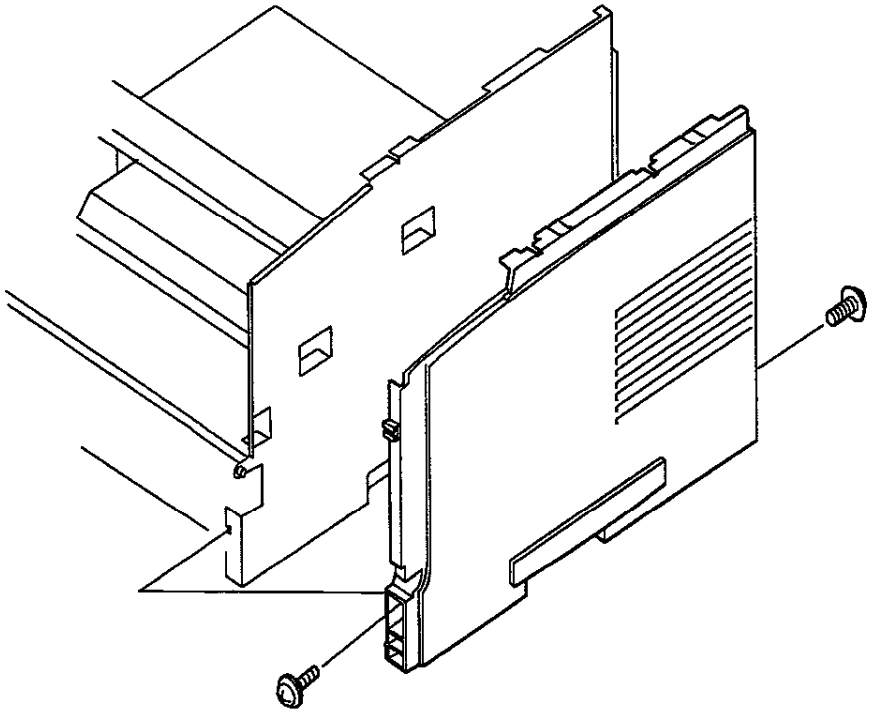
Perform the removal steps in reverse order.

4.2.7 Right Cover

Removal

1. Open the Front Cover Assembly.
2. Remove the Stopper securing the Front Cover Assembly to the Frame.
3. Open the Rear Cover Assembly.
4. Remove the screw securing the Stopper of the Rear Cover to the Frame, and remove the Stopper.
5. Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).
6. Remove the two screws securing the Right Cover to the Frame.
7. Unlatch the hooks securing the Right Cover at the top and bottom and remove the Right Cover.
8. Using a flat blade screwdriver, unlatch the two hooks securing the top of the Right Cover.
9. Unlatch the two bottom hooks and the rear hook. Pull the Right Cover out while biasing it down.

Figure 4.2.7.1 Right Cover Removal



Replacement

Perform the removal steps in reverse order.

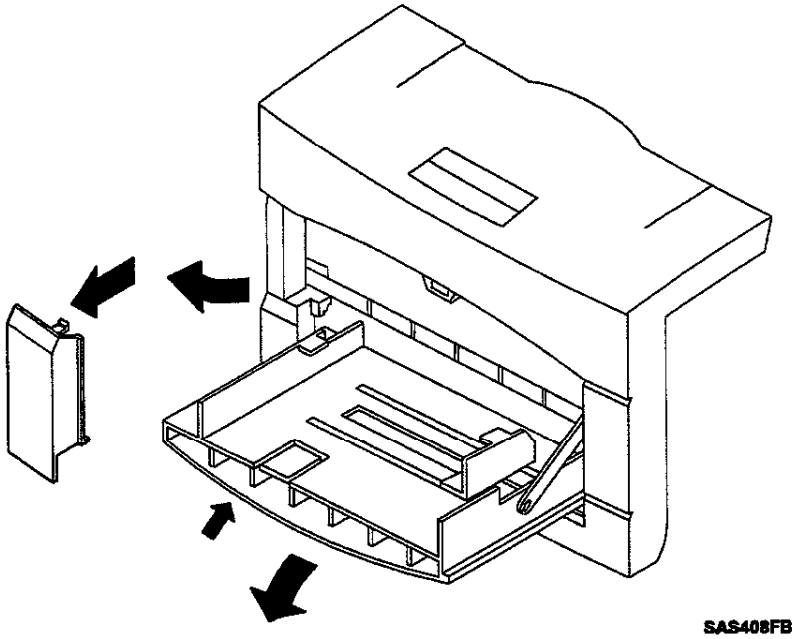
4.3 Covers II

4.3.1 Envelope Feeder (EF) Cover

Removal

1 Press the top of the Front Tray Cover to release the latch and open the tray.
2 Open the EF Cover by 90 degrees. (See Figure 4.3.1).
3 Grasp the EF Cover and remove it by pulling to the left.

Figure 4.3.1.1 EF Cover Removal



Replacement

Perform the removal steps in reverse order.

4.3.2 Inner Cover

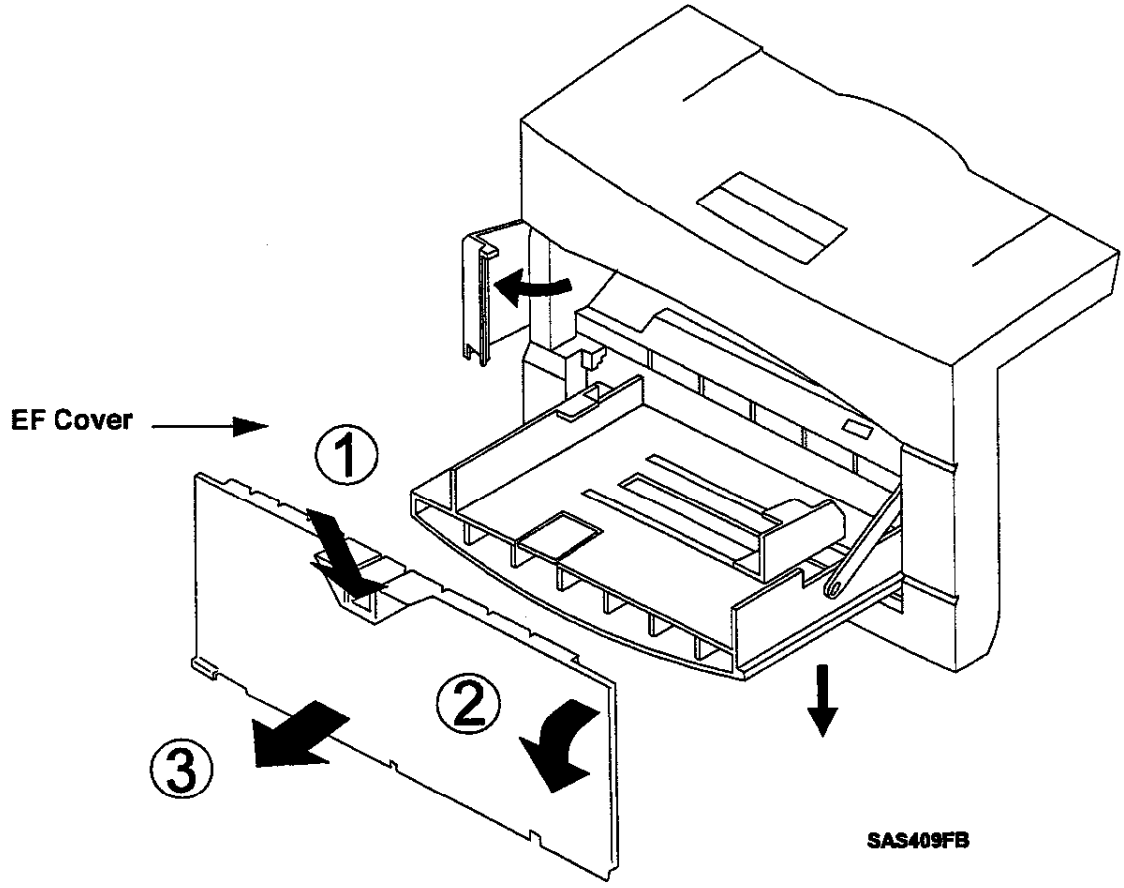
Removal

1 Press the top of the Front Tray Cover Assembly to release the latch and open the Tray.

2 Open the EF Cover by 90 degrees. (See Figure 4.3.2).

3 Release the latch on the top of the Inner Cover (1), pull the cover down (2), and then remove the cover by pulling it to the front (3).

Figure 4.3.2.1 Inner Cover Removal



Replacement

Perform the removal steps in reverse order.

4.3.3 Front Tray

Removal

1 Press the top of the Front Tray Cover Assembly to release the latch and open the tray.

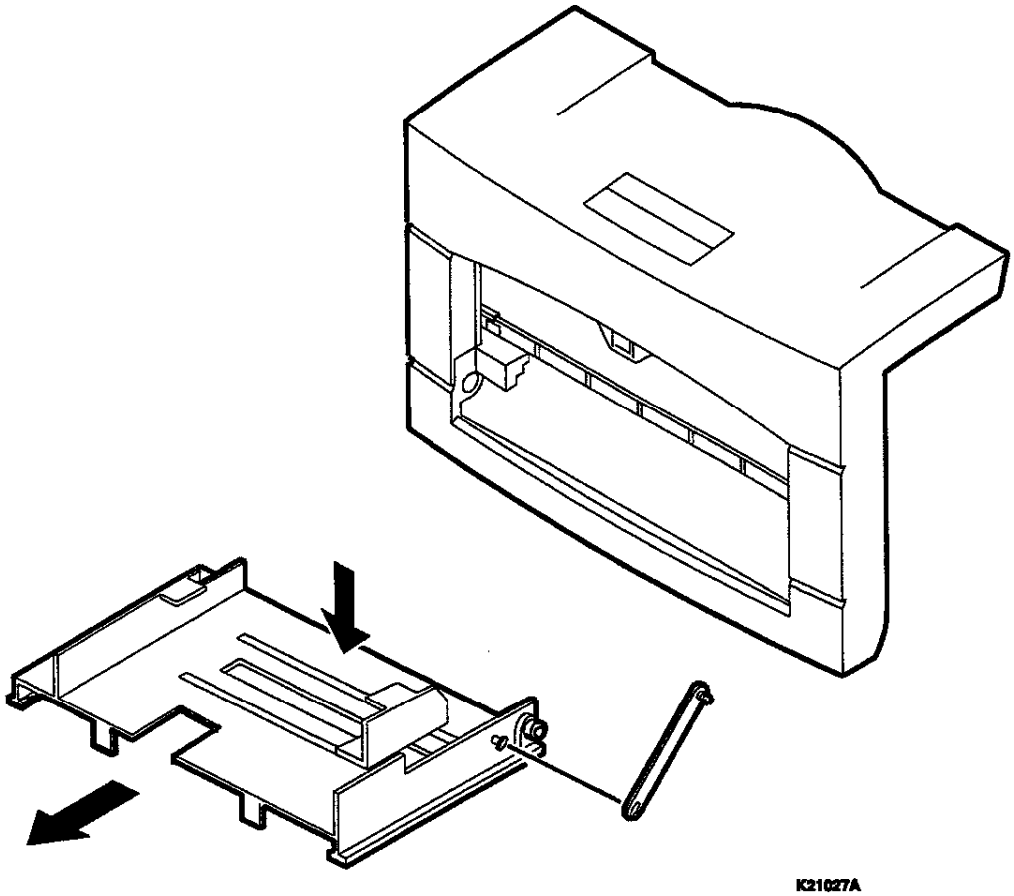
2 Remove the Front Tray Cover (*REP 4.3.4 Front Tray Cover*).

3 Lift the front tray slightly and disengage the Tray Stopper Arm from the right side of the Front Tray Cover Assembly. (See Figure 4.3.3).

4 Press the sides of the cover inward on both ends to flex the cover hinge pivots out of the holes.

5 Remove the Front Cover from the Front Tray Cover Assembly.

Figure 4.3.3.1 Tray Cover Removal



Replacement

Perform the removal steps in reverse order.

4.3.4 Front Tray Cover

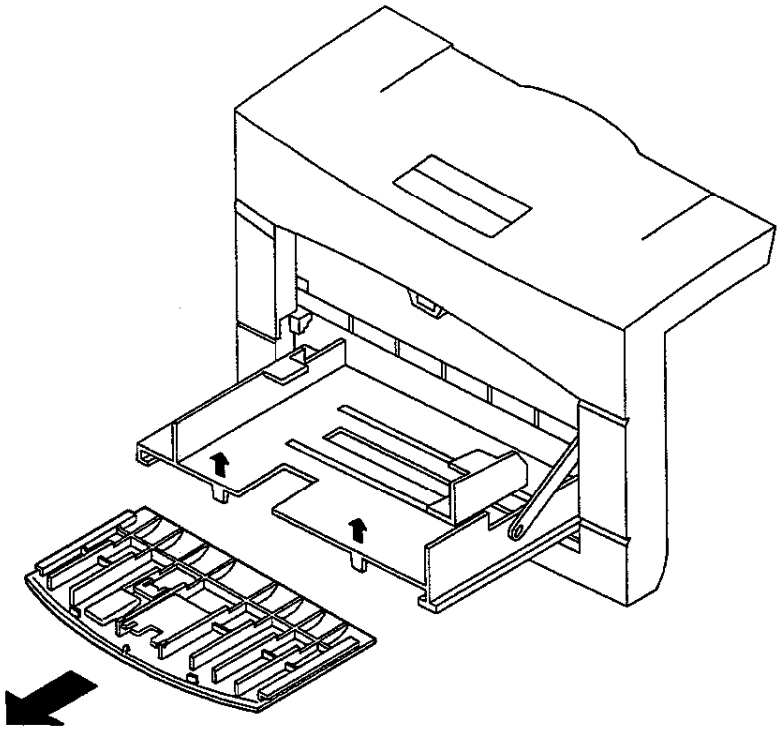
Removal

1 Press the top of the Front Tray Cover Assembly to release the latch and open the tray.

2 Pull the Front Tray Cover out fully. (See Figure 4.3.4).

3 Lift the Front Tray with your fingers to clear the stops on the Front Tray Cover; then pull the Front Tray Cover out of the Front Tray Cover Assembly. (See Figure 4.3.4).

Figure 4.3.4.1 Front Tray Cover Removal



SAS411FC

Replacement

Perform the removal steps in reverse order.

4.3.5 Tray Extender

Removal

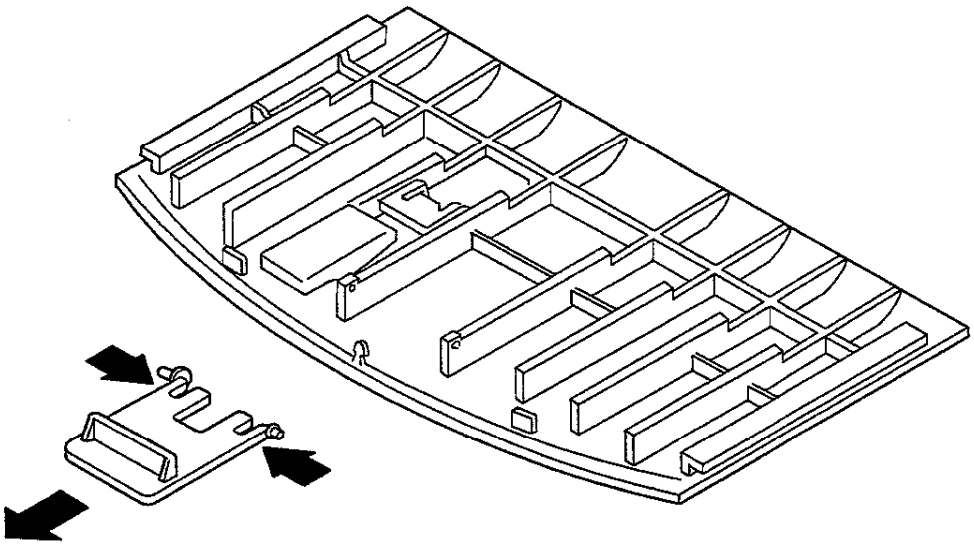
1 Press the top of the Front Tray Cover Assembly to release the latch and open the Front Tray.

2 Pull the Front Tray out fully. (See Figure 4.3.5).

3 Unlatch the Tray Extender.

4 Bend the Right Tray Cover supporting rib towards the right, while biasing the Tray Extender towards the left so that the Tray Extender snaps out of the rib of the Cover Tray.

Figure 4.3.5.1 Tray Extender Removal



SAS412FC

Replacement

Perform the removal steps in reverse order.

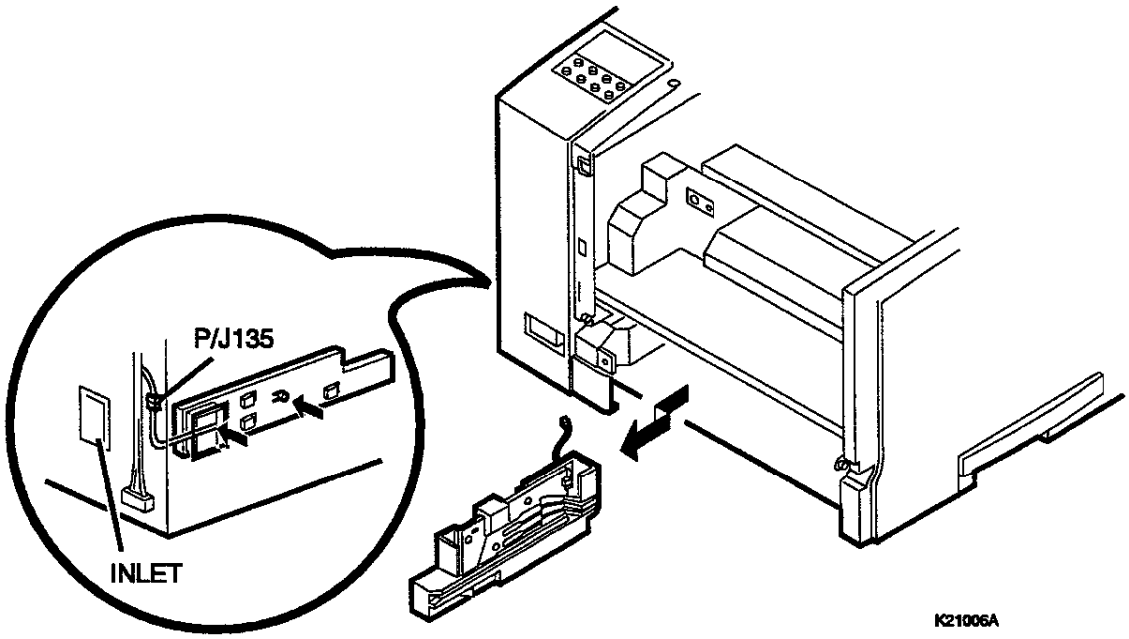
4.4 Paper Tray (Deck I)

4.4.1 Paper Size Sensor

Removal

1 Remove the Paper Tray.
2 Remove the Rear Cover (*REP 4.2.1 Rear Cover*).
3 Remove the Left Cover (*REP 4.2.2 Left Cover*).
4 Remove the Front Cover Assembly (*REP 4.2.4 Front Cover Assembly*).
5 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
6 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).
7 Disconnect the Paper Size Sensor connector (P/J 135). (See Figure 4.4.1).
8 Press the round clip and the Paper Size Sensor Assembly Stop from the System Controller side to the paper tray side; then slide the Paper Size Sensor towards the front and remove it.

Figure 4.4.1.1 Paper Size Sensor Removal



Replacement

Perform the removal steps in reverse order.

4.5 Paper Transportation I

4.5.1 Paper Handling Unit Assembly

Removal

1 Remove the Front Cover Assembly (*REP 4.2.4 Front Cover Assembly*).

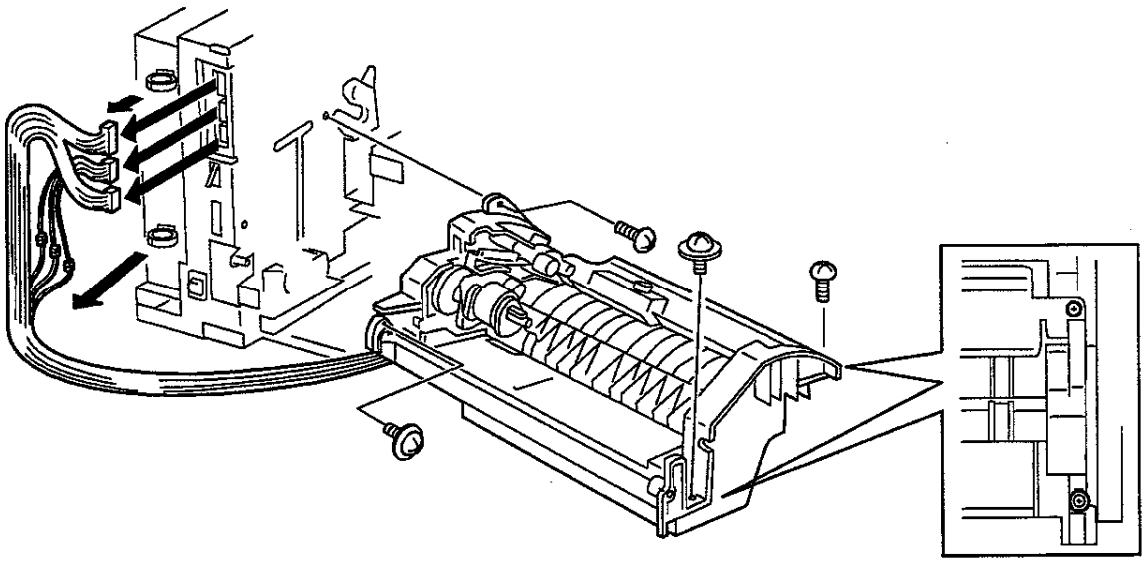
2 Remove the EP Cartridge.

3 Disconnect the three connectors (P16, P17, and P27) from the LVPS. (See Figure 4.5.1). Then remove the harness from the cable clamps.

4 Remove the four screws securing the Paper Handling Unit Assembly.

5 Carefully lift the Paper Handling Unit Assembly upward; then remove the Assembly.

Figure 4.5.1.1 Paper Handling Unit Assembly Removal



SAS415FC

Replacement

Perform the removal steps in reverse order.

4.5.2 Feed Roll Assembly

Removal

1 Remove the EP Cartridge.

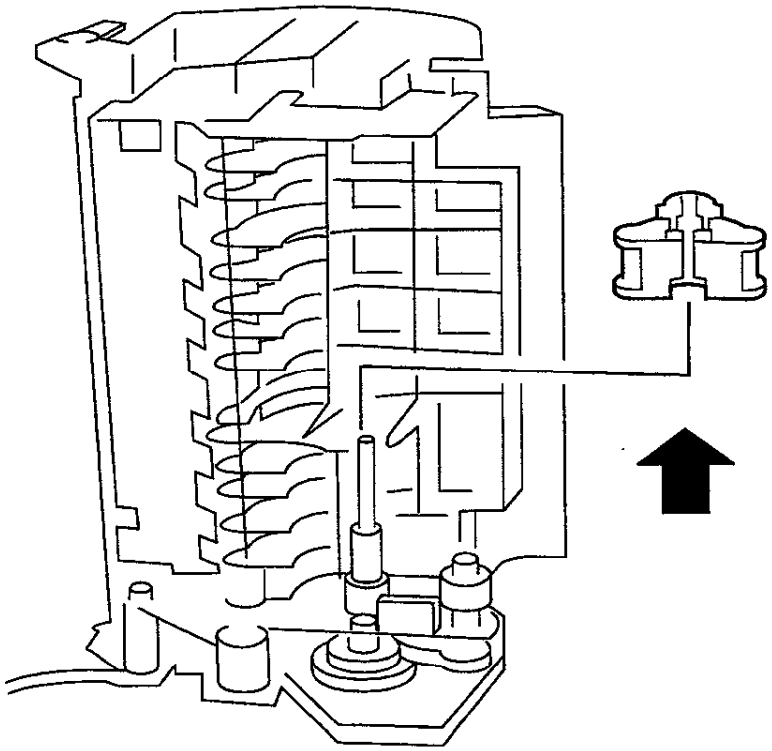
2 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

3 Position the Paper Handling Unit Assembly on the gear side.

4 Slightly push back the two release tabs on the Feed Roll Assembly while lifting the Feed Roll up the shaft.

5 Remove the Feed Roll Assembly by tilting and rotating the Assembly to one side.

Figure 4.5.2.1 Feed Roll Assembly Removal



Replacement

Perform the removal steps in reverse order

4.5.3 Duplex Refeed Roll

Removal

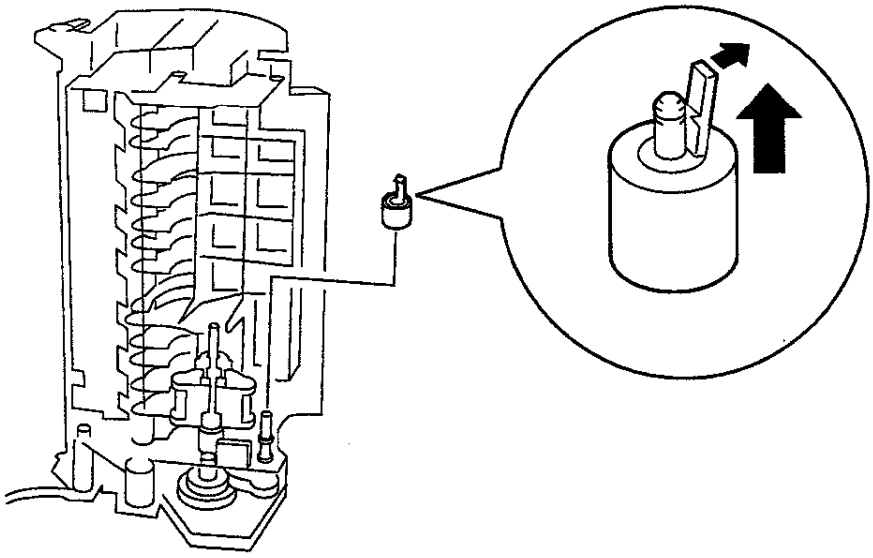
1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

2 Position the Paper Handling Unit Assembly on the gear side.

3 Pull slightly on the latch; then remove the Duplex Refeed Roll by lifting it upward. (See Figure 4.5.3).

NOTE: The Duplex Refeed Roll is located next to the Feed Roll.

Figure 4.5.3.1 Duplex Refeed Roll Removal



Replacement

Perform the removal steps in reverse order.

4.5.4 Front Tray Roll

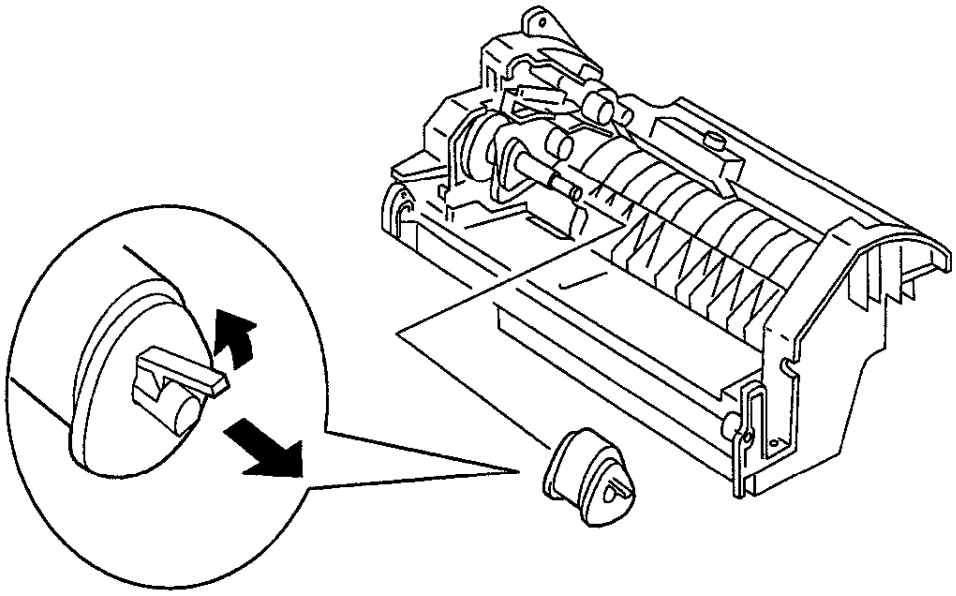
Removal

1 Open the Front Cover Assembly.

2 Press the Bottom Tray Assembly down.

3 Pull slightly on the latch; then remove the Front Tray Roll by sliding it to the right. (See Figure 4.5.4.).

Figure 4.5.4.1 Front Tray Roll



Replacement

Perform the removal steps in reverse order.

4.6 Paper Transportation II

4.6.1 Toner Sensor

Removal

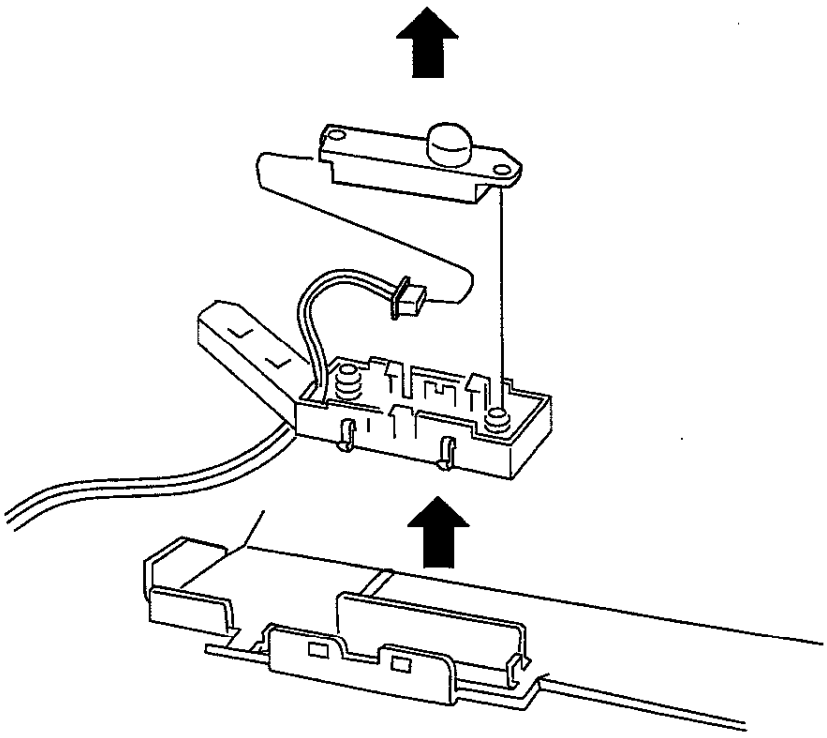
NOTE: Carefully note the routing of the wiring harness.

1 Pull the Toner Sensor Assembly towards the front from the rear while lifting upward on the Toner Sensor Assembly.

2 Disconnect the connector from the Toner Sensor (P137). (See Figure 4.6.1).

3 Disengage the three clips, lifting up the Toner Sensor.

Figure 4.6.1.1 Toner Sensor Removal



Replacement

Perform the removal steps in reverse order.

4.6.2 Inlet Chute Assembly

Removal

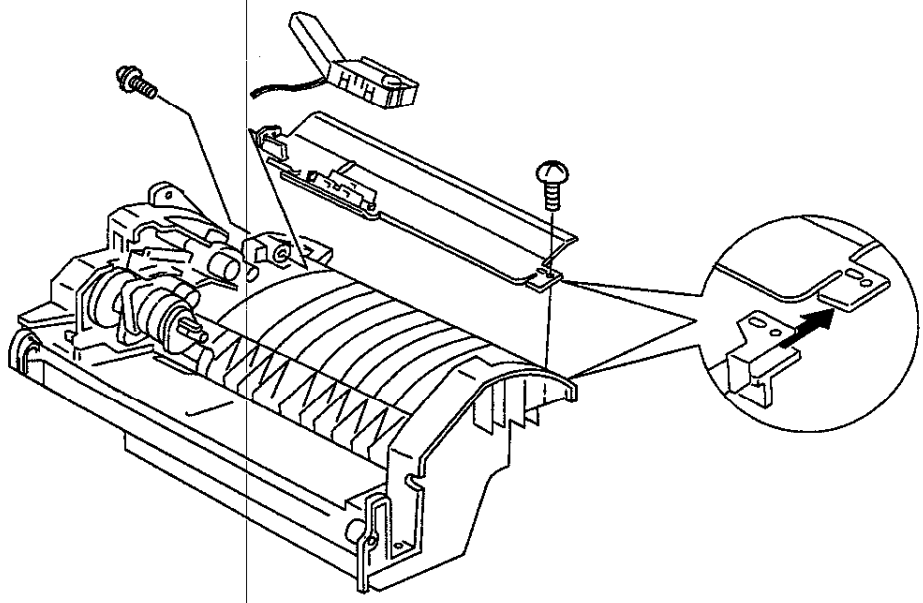
1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

2 Free the Toner Sensor wire harness from the Inlet Chute Assembly.

3 Remove the two screws securing the Inlet Chute Assembly. (The screw on the right was already removed in step 1.)

4 Bias the Inlet Chute Assembly towards the right and slightly towards the rear in order to clear the bosses at the left side of the Chute Assembly. Lift upward and remove the assembly.

Figure 4.6.2.1 Inlet Chute Assembly Removal



Replacement

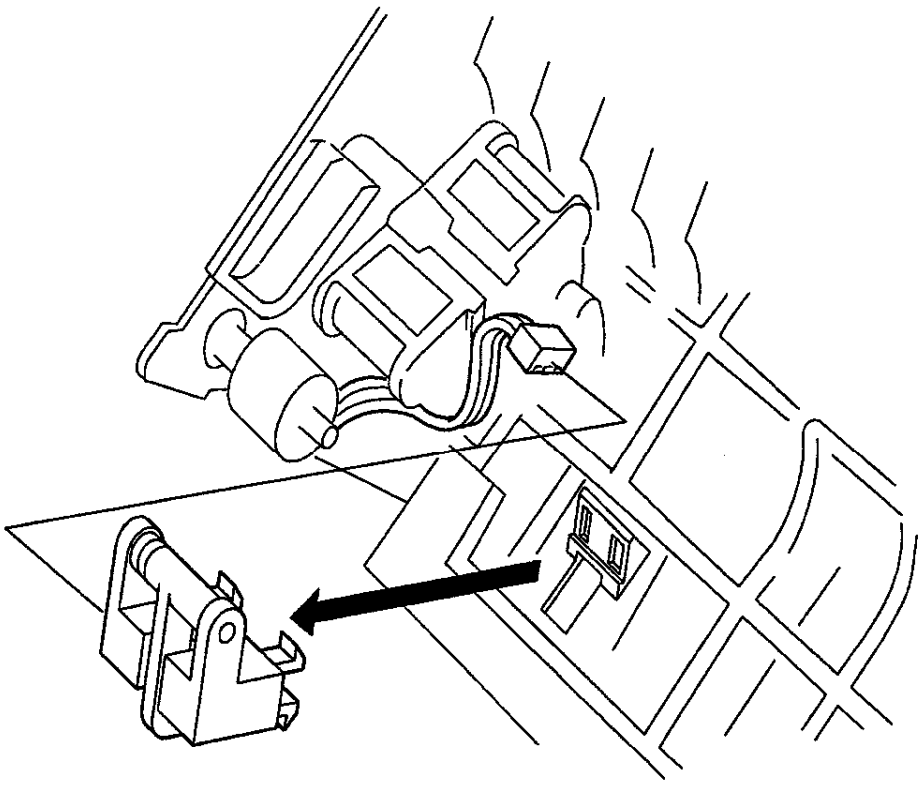
Perform the removal steps in reverse order.

4.6.3 Registration Sensor

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
2 Use a flat-slot screwdriver blade to unhook the front Sensor Registration clip. (See Figure 4.6.3).
3 Insert the screwdriver blade into the opening to unhook the rear Registration Sensor clip.
4 Disconnect P123 from the Registration Sensor.

Figure 4.6.3.1 Registration Sensor Removal



Replacement

Perform the removal steps in reverse order.

4.6.4 Front Tray Chute Assembly

Removal

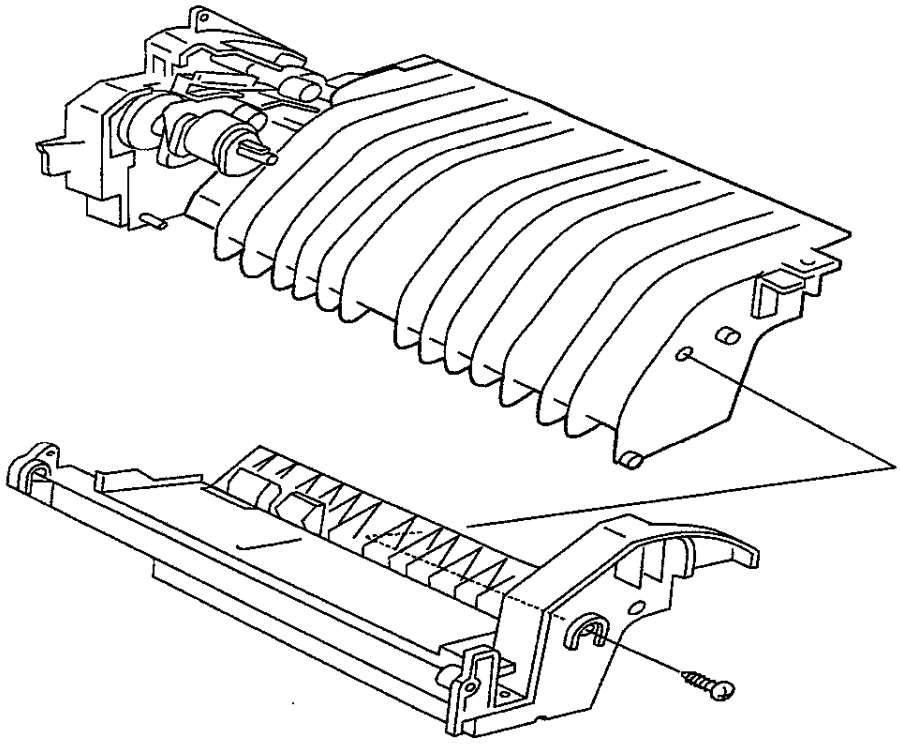
1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

2 Remove the Inlet Chute Assembly (*REP 4.6.2 Inlet Chute Assembly*).

3 Remove the screw securing the Front Tray Chute Assembly on the right.

4 Bias the Front Tray Chute Assembly towards the right while pulling upward, and then remove the assembly.

Figure 4.6.4.1 Front Tray Chute Assembly Removal



Replacement

1 Compress the Bottom Tray until it stops.

2 Perform the removal steps in reverse order.

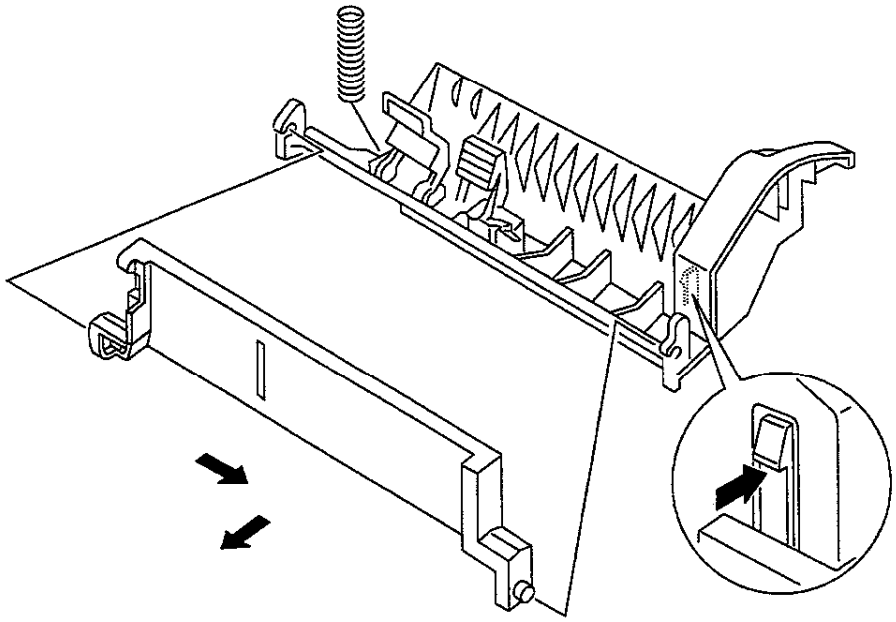
4.6.5 Tray Bottom

Removal

1 Remove the Front Tray Chute Assembly (*REP 4.6.4 Front Tray Chute Assembly*).
2 Compress the Tray Bottom.
3 Compress the tab on the right limiting the Tray Bottom upward travel.
4 Raise the Tray Bottom to the upright position and pull the right pivot out of position.
5 Remove the Tray Bottom by pulling the Tray Bottom away from the left pivot.

NOTE: Be careful not to lose the springs when the Tray Bottom is decompressed.

Figure 4.6.5.1 Tray Bottom Removal



Replacement

1 Compress the Tray Bottom with the springs in position.
2 Perform the removal steps in reverse order.

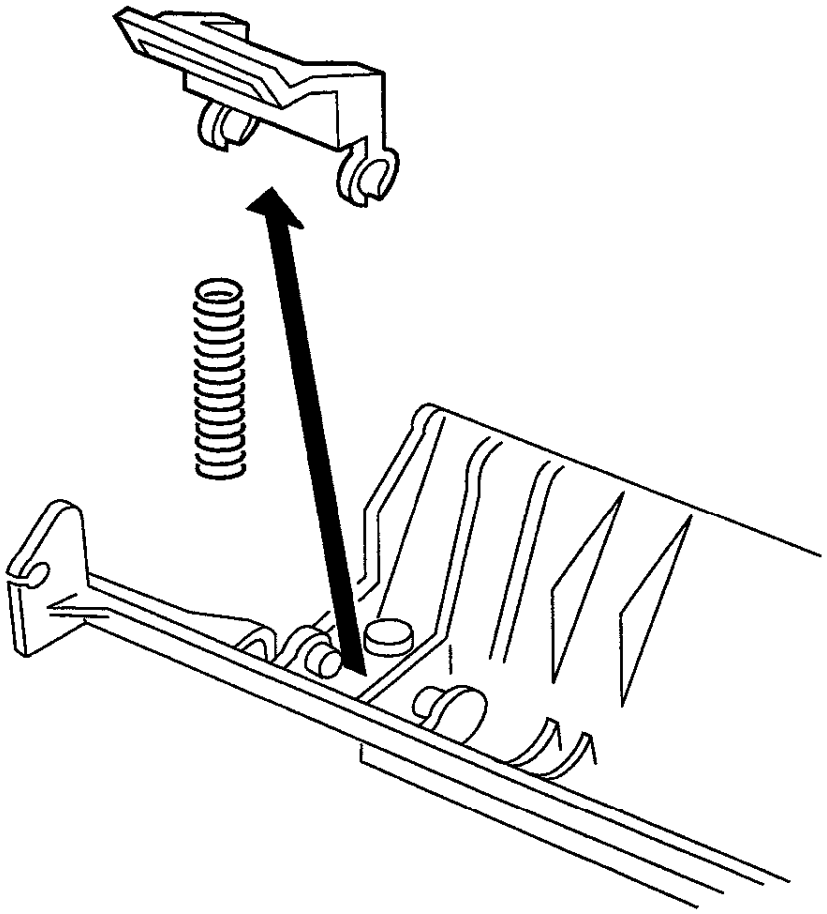
4.6.6 Retard Assembly

Removal

1 Remove the Tray Bottom (*REP 4.6.5 Tray Bottom*).

2 Press the Retard Assembly down to the level plane, and remove the Assembly by unclipping it from the Tray Bottom.

Figure 4.6.6.1 Retard Assembly Removal



Replacement

Perform the removal steps in reverse order.

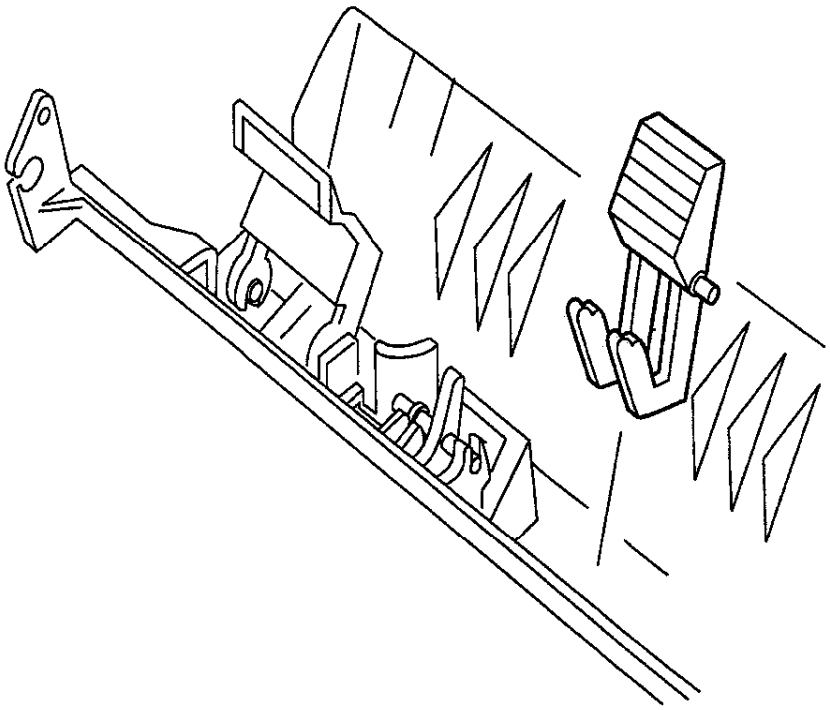
4.6.7 Multi Holder

Removal

1 Remove the Tray Bottom (*REP 4.6.5 Tray Bottom*).

2 Pull the Multi Holder upward out of the Tray Bottom.

Figure 4.6.7.1 Multi Holder Removal



Replacement

Perform the removal steps in reverse order.

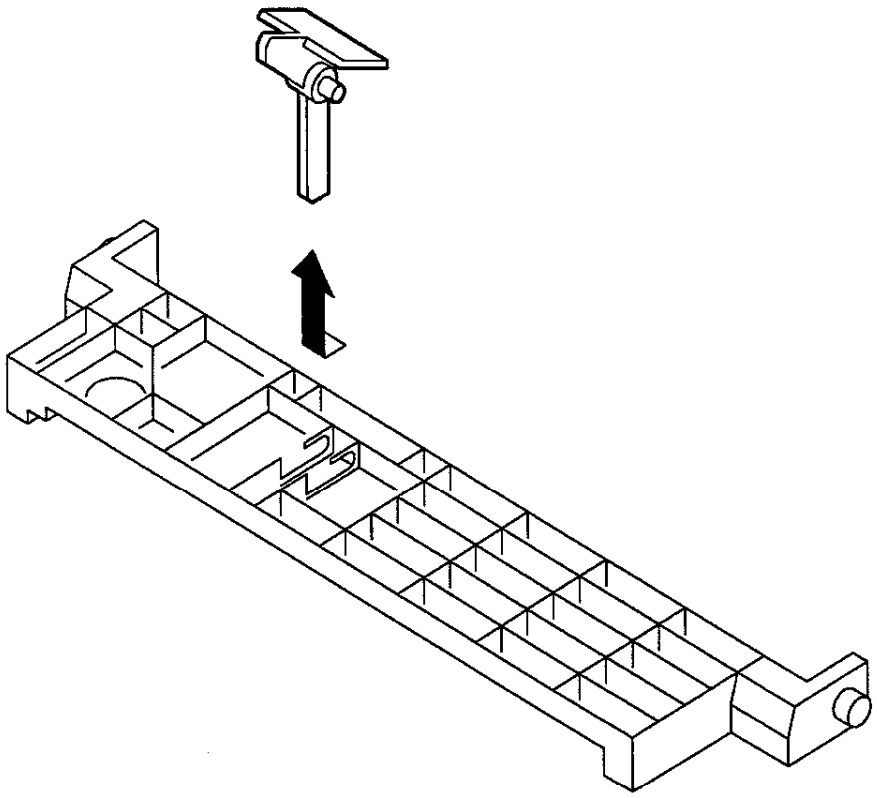
4.6.8 Front Tray No Paper Actuator

Removal

1 Remove the Tray Bottom (*REP 4.6.5 Tray Bottom*).

2 Turn the Tray Bottom upside down, and pull and remove the Front Tray No Paper Actuator out of position.

Figure 4.6.8.1 Front Tray No Paper Actuator Removal



Replacement

Perform the removal steps in reverse order.

4.6.9 No Paper Sensor

Removal

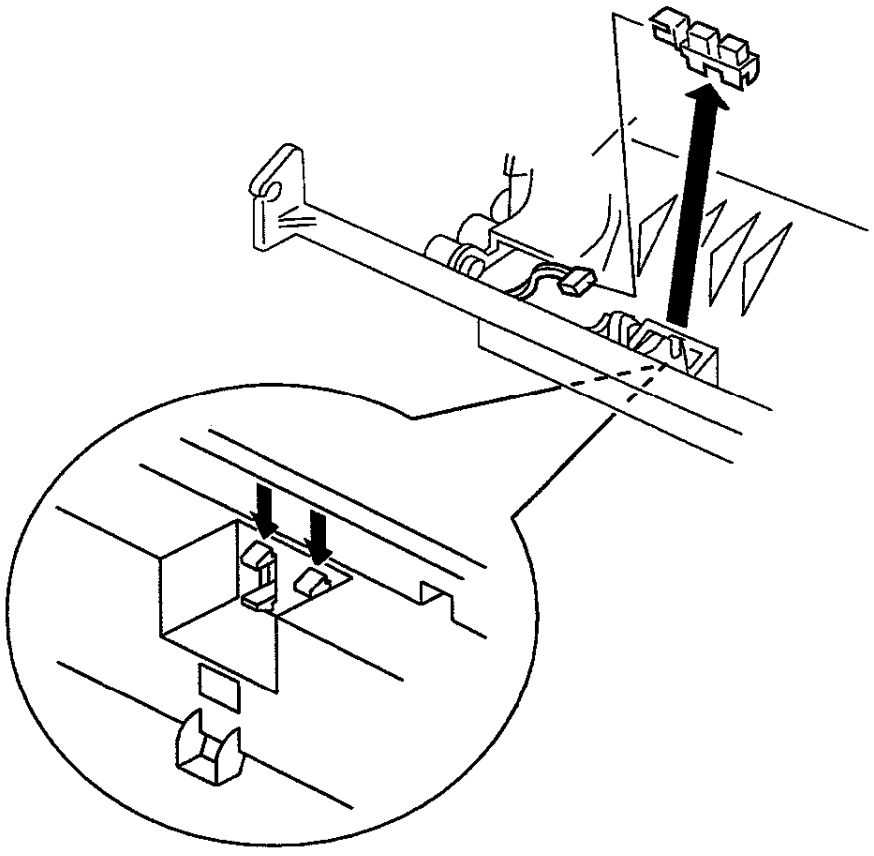
1 Remove the Tray Bottom (*REP 4.6.5 Tray Bottom*).

2 Use a flat-slot screwdriver blade. From the underside of the Tray Bottom, unhook the front No Paper Sensor clip.

3 Lift the loosened No Paper Sensor by prying it with a screwdriver and disengage the rear clips.

4 Disconnect the Sensor connector, and remove the No Paper Sensor.

Figure 4.6.9.1 No Paper Sensor Removal



Replacement

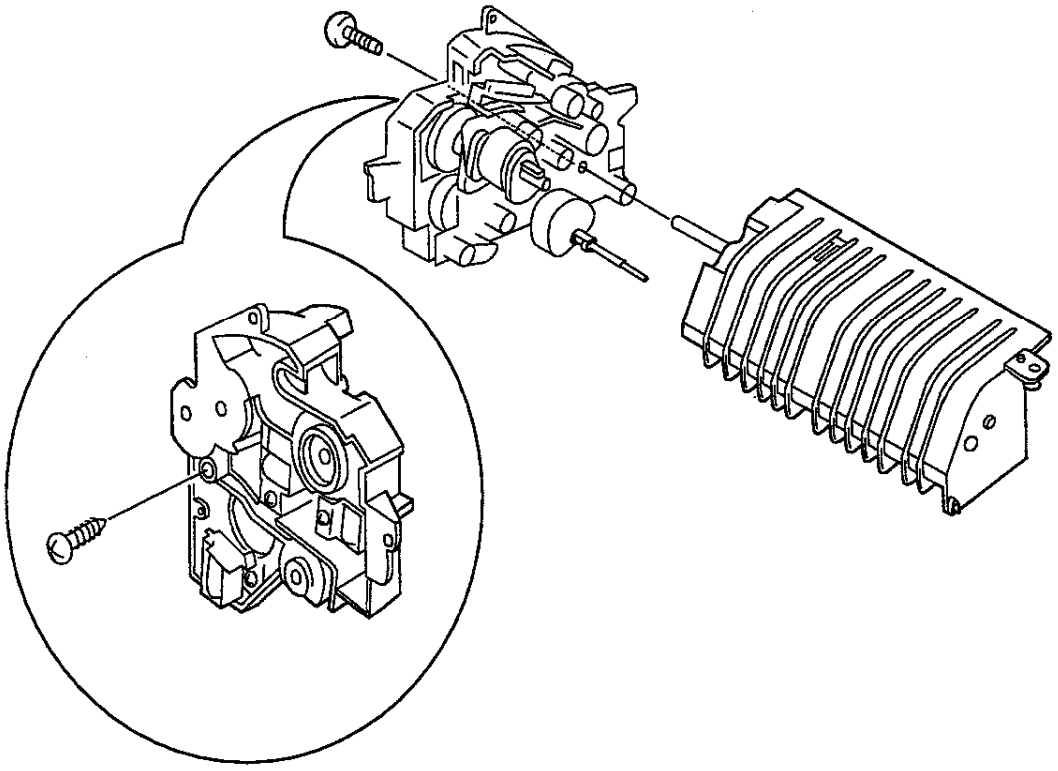
Perform the removal steps in reverse order.

4.6.10 Bottom Chute

Removal

1. Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*)
2. Remove the Registration Sensor (*REP 4.6.3 Registration Sensor*).
3. Remove the Front Tray Chute Assembly (*REP 4.6.4 Front Tray Chute Assembly*).
4. Pull out the wire harness from the junction connector (P/J 128) of the Toner Sensor.
5. Remove the screw securing the Bottom Chute on the right.
6. Remove the screw securing the right supporter to the Bottom Chute.
7. Remove the Bottom Chute from the Paper Handling Unit Assembly.

Figure 4.6.10.1 Bottom Chute Removal



Replacement

Perform the removal steps in reverse order.

4.6.11 Supporter

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

2 Raise the Paper Handling Unit Assembly approximately 90 degrees.

3 Remove the wire harnesses connected to the No Toner Sensor and the Registration Sensor away from the Supporter.

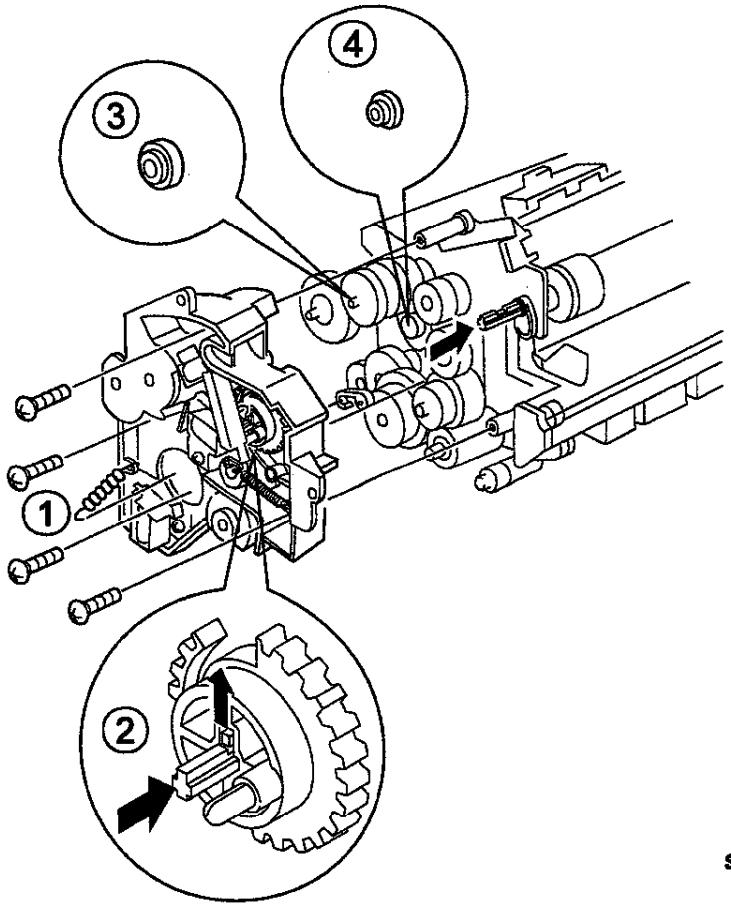
4 Remove the Lever Spring (1).

5 Remove the three screws securing the Supporter to the Registration Plate as well as the screw securing the Supporter to the Bottom Chute.

6 Use tweezers to release the latch up out of the Front Tray Gear shaft, and pull off the Supporter along with the Front Tray Gear (2).

CAUTION! The Registration Bushing (3) and the P/Registration Bushing (4) might fall off simultaneously at this time. Be careful not to lose them.

Figure 4.6.11.1 Supporter Removal



SAS429FA

Replacement

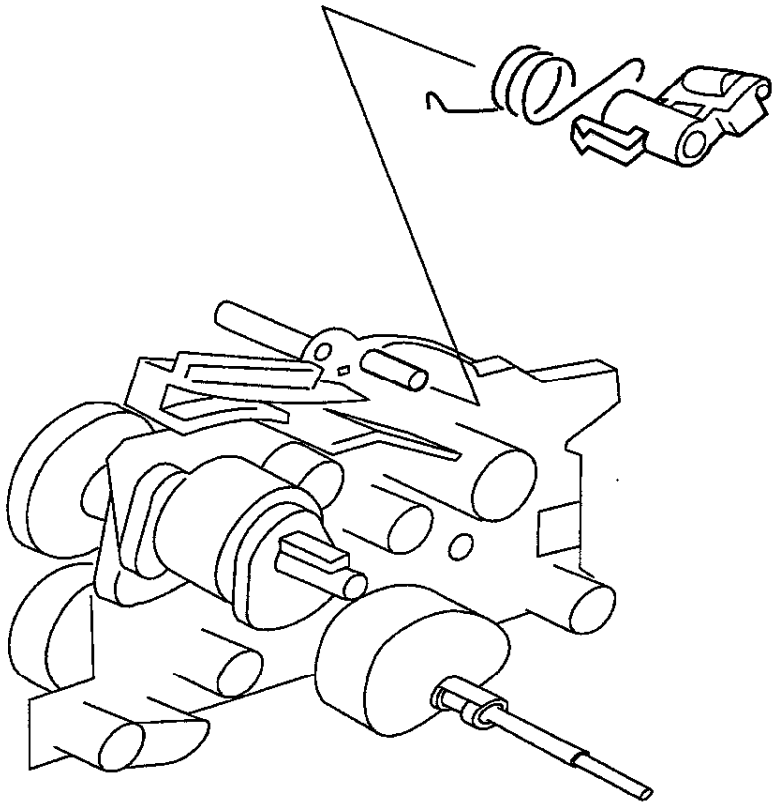
Perform the removal steps in reverse order.

4.6.12 Pinch Roll Assembly

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
2 Remove the Supporter (*REP 4.6.11 Supporter*).
3 Unclip the spring from the Registration Plate.
4 Unlatch the clip securing the Pinch Roll Assembly to the Registration Plate.
5 Remove the Pinch Roll Assembly with the Pinch Roll springs.

Figure 4.6.12.1 Pinch Roll Assembly Removal



Replacement

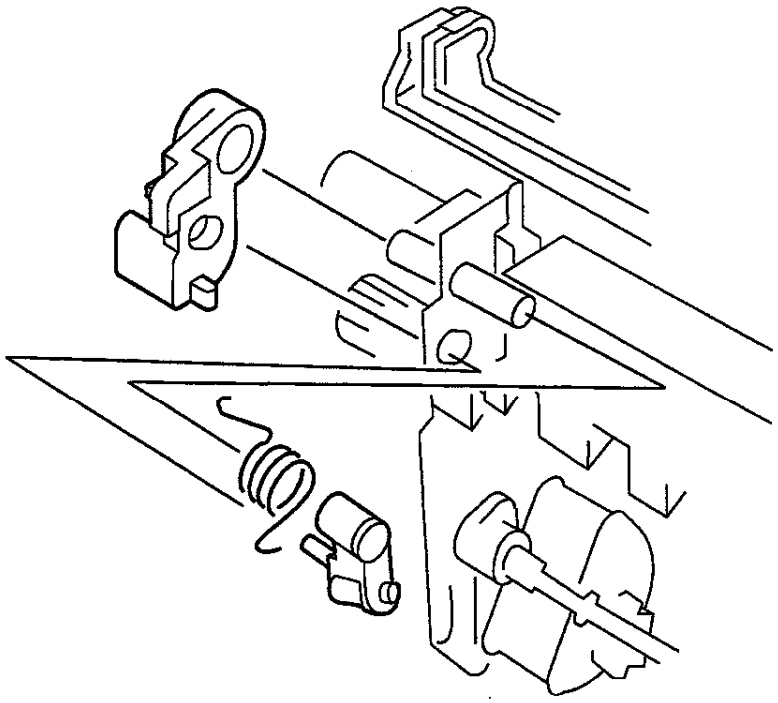
Perform the removal steps in reverse order.

4.6.13 Turn Pinch Roll Assembly

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
2 Remove the Supporter (*REP 4.6.11 Supporter*).
3 Unhook the spring on the Registration Plate side from the Release Link.
4 Remove the Turn Pinch Roll Assembly with the Turn Pinch Roll Spring.

Figure 4.6.13.1 Turn Pinch Roll Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.6.14 Registration Solenoid/Tray 1 Solenoid/Front Tray Solenoid

Removal

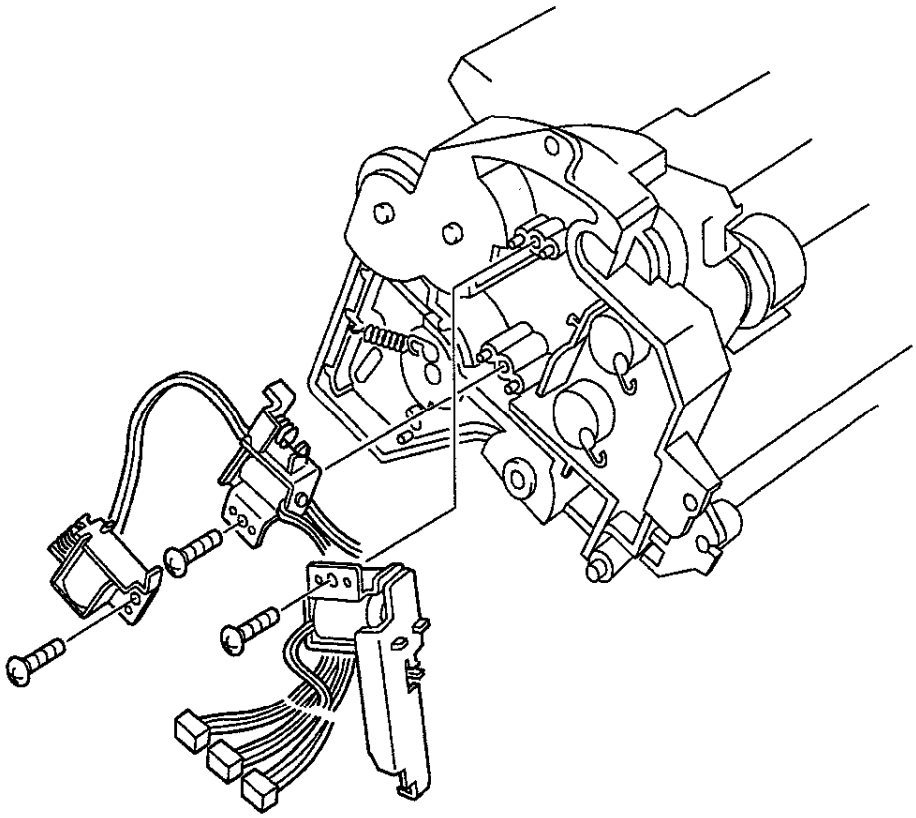
1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).

2 Remove the three screws securing the Registration Solenoid, Tray 1 Solenoid, and Front Tray Solenoid.

3 Pull the three Solenoids away from the Supporter with the wire harness.

NOTE: You can remove these three Solenoids separately at this point.

Figure 4.6.14.1 Registration Solenoid/Tray 1 Solenoid/ Front Tray Solenoid Removal



Replacement

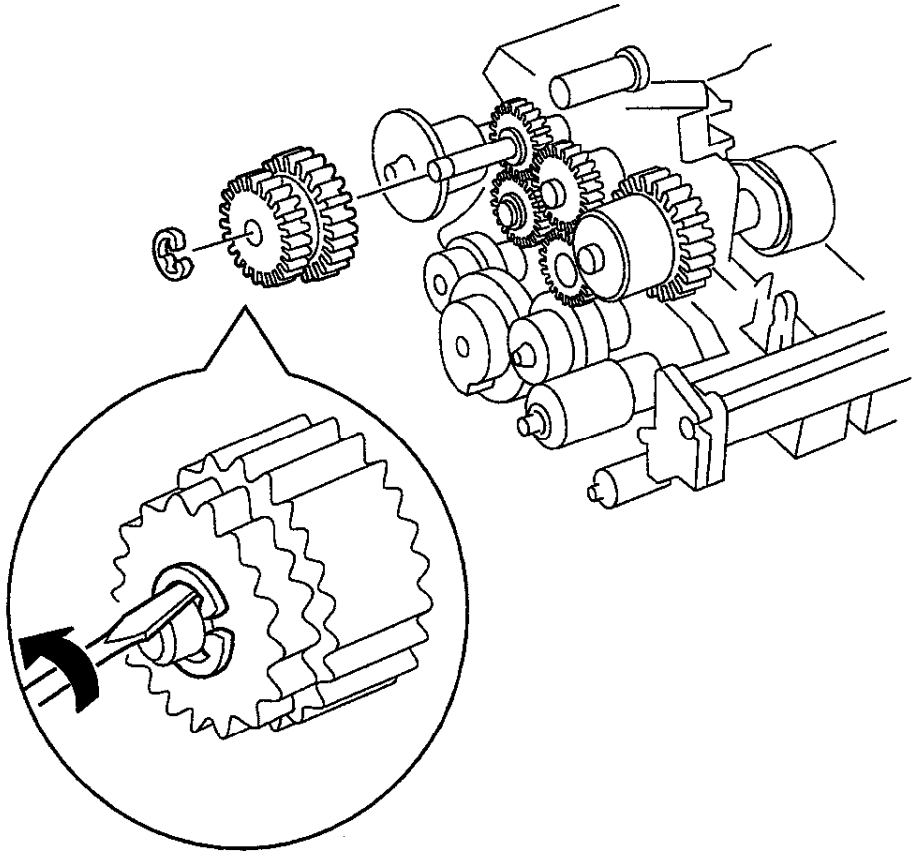
Perform the removal steps in reverse order.

4.6.15 Registration Clutch Assembly

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
2 Remove the Supporter (*REP 4.6.11 Supporter*).
3 Remove the Registration Bushing.(See Figure 4.6.11).
4 Use a flat-slot screwdriver blade to pry off the E-ring.
5 Slide the Registration Clutch Assembly off together with the Idler Gear.

Figure 4.6.15.1 Registration Clutch Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.7 Paper Transportation III

4.7.1 Bias Transfer Roll (BTR) Assembly

Removal

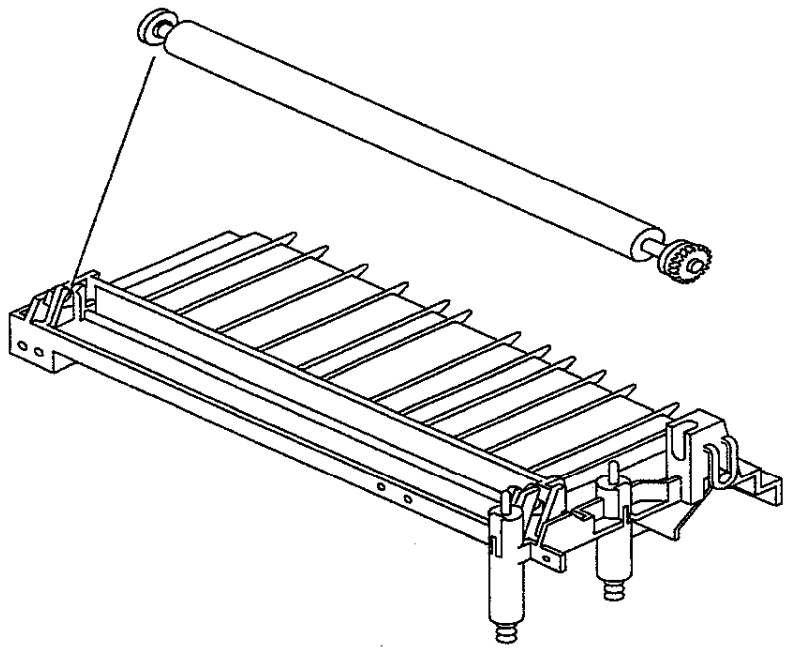
1 Open the Front Cover Assembly.

2 Remove the EP Cartridge.

WARNING! **To prevent contamination of the BTR, do not touch the foam portion of the roll. Handle the roll by the shaft extension on each end.**

3 Use a slotted screwdriver to lift each end of the BTR Assembly upward, and remove the Assembly.

Figure 4.7.1.1 BTR Assembly Removal



Replacement

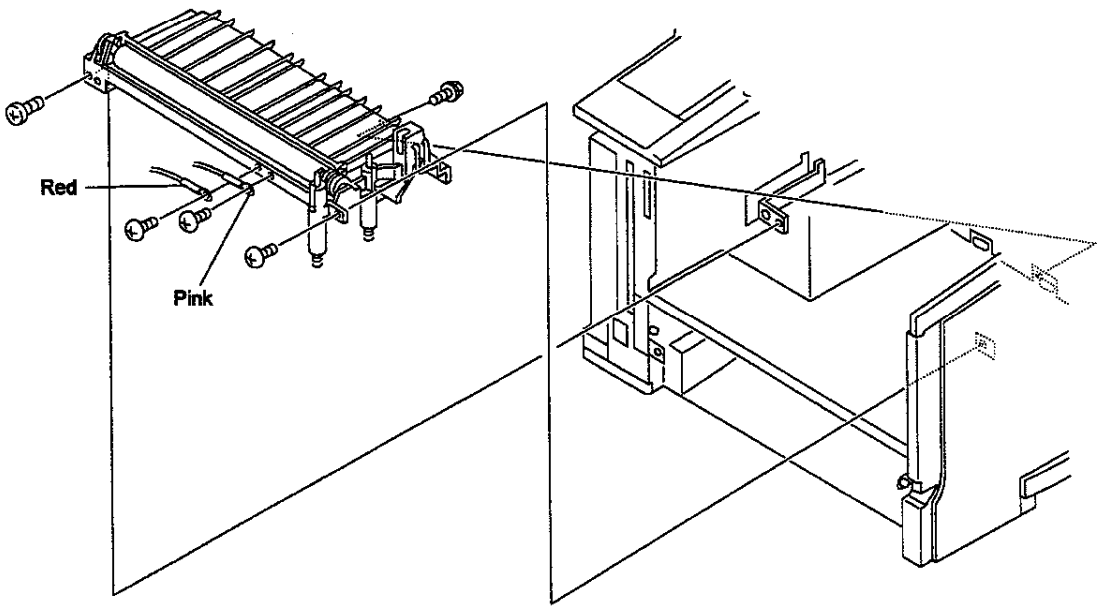
Perform the removal steps in reverse order.

4.7.2 BTR Chute Assembly

Removal

1 Remove the Paper Handling Unit Assembly (*REP 4.5.1 Paper Handling Unit Assembly*).
2 Remove the two screws securing the BTR Chute Assembly. (See Figure 4.7.2).
3 Remove the two screws securing the HVPS leads.
4 Remove the Duplex Module, if present.
5 Remove the Fuser Module (*REP 4.8.1 Fuser Assembly (CRU)*).
6 Remove the rear screw securing the BTR Chute Assembly to the Frame.
7 Lift the BTR Chute Assembly upward and remove it.

Figure 4.7.2.1 BTR Chute Assembly removal



SAS436FC

Replacement

Perform the removal steps in reverse order.

4.8 Fusing

4.8.1 Fuser Assembly (CRU)

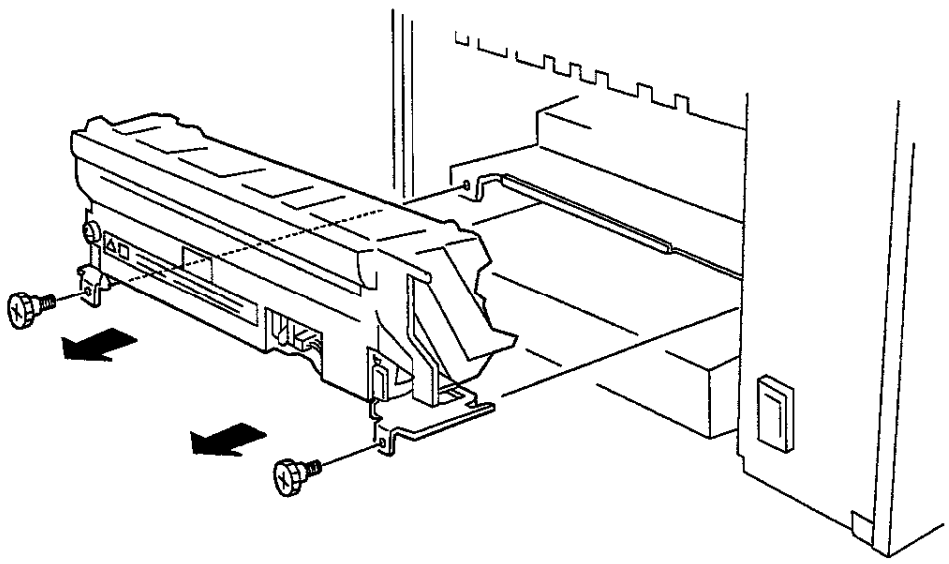
Removal

1 Remove the Duplex Module, if installed. (*REP 10.3.1 Duplex Module*10.3.1).

2 Remove the two Fuser Module anchor screws. (See Figure 4.8.1).

3 Grasp the Fuser Assembly by the peach felt tabs on both ends; then remove the Fuser Assembly by firmly pulling it towards you.

Figure 4.8.1.1 Fuser Assembly (CRU) Removal.



Replacement

1 Perform the removal steps in reverse order.

2 If a new Fuser Assembly was installed, reset the Fuser Life Counter by turning on the printer power while pressing the **Online** and **Menu** keys.

4.9 Paper Exit

4.9.1 Exit Roll Assembly

Removal

1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Remove the Option Cover *(REP 4.9.6 Option Cover/Eliminator Assembly)*.

3 Remove the three screws securing the Eliminator Assembly and take off the Exit Assembly.

4 Turn the Top Cover Assembly over.

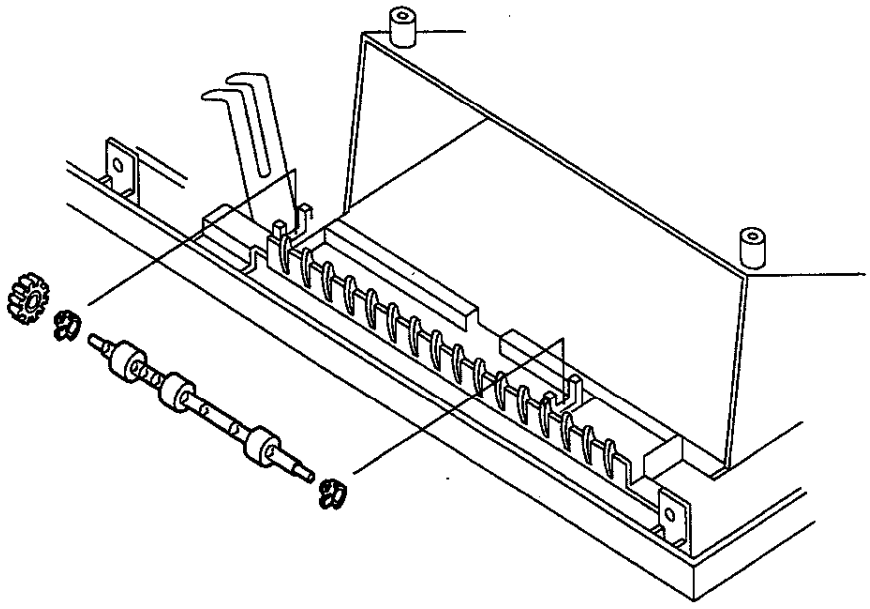
5 Disconnect P/J24 (Exit Motor) and P/J124 (Rear Cover Sensor).

6 Remove the four screws securing the Exit Roll Assembly to the back side of the Top Cover Assembly, and remove the Exit Roll Assembly from the Top Cover Assembly.

7 Pry off the hook of the bearings from the top face side of the Top Cover Assembly, and remove the Exit Roll Assembly together with the two bearings.

8 Disengage the latch of the Gear and slide off the Gear and the two bearings together. (See Figure 4.9.1).

Figure 4.9.1.1 Exit Roll Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.9.2 Middle Roll Assembly

Removal

1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover Assembly over.

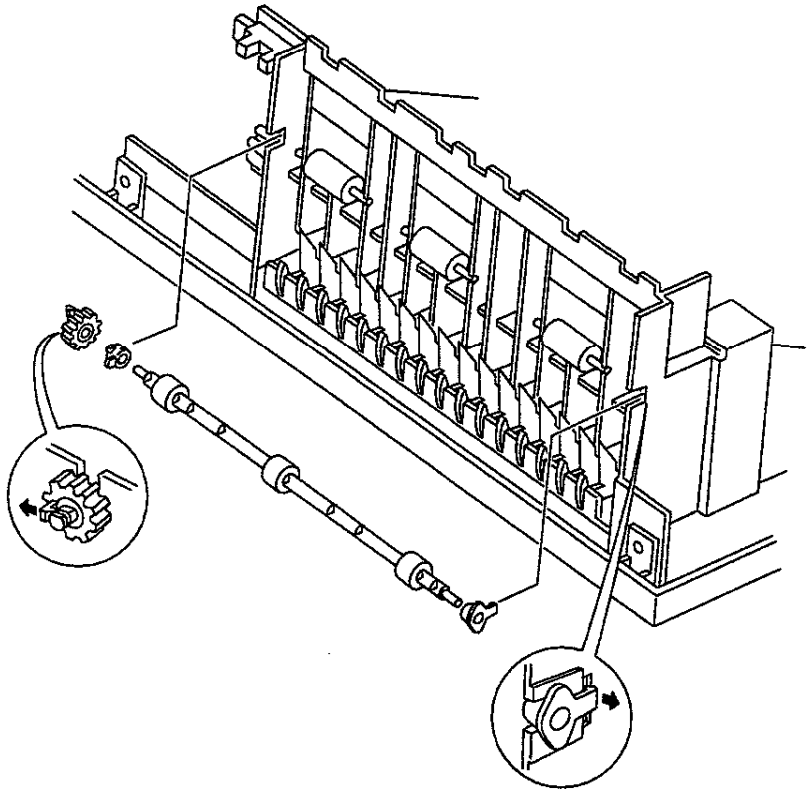
3 Pull the locking tab on the gear to unlatch the Gear from the Middle Roll Assembly.

4 Pull the Gear away from the Middle Roll Assembly.

5 Unhook both bearings and pull the Middle Roll Assembly together with the bearings away from the Exit Assembly Frame.

NOTE: The Middle Pinch Rolls might fall off when you remove the Middle Roll Assembly.

Figure 4.9.2.1 Middle Roll Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.9.3 Exit Gate

Removal

1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover Assembly over.

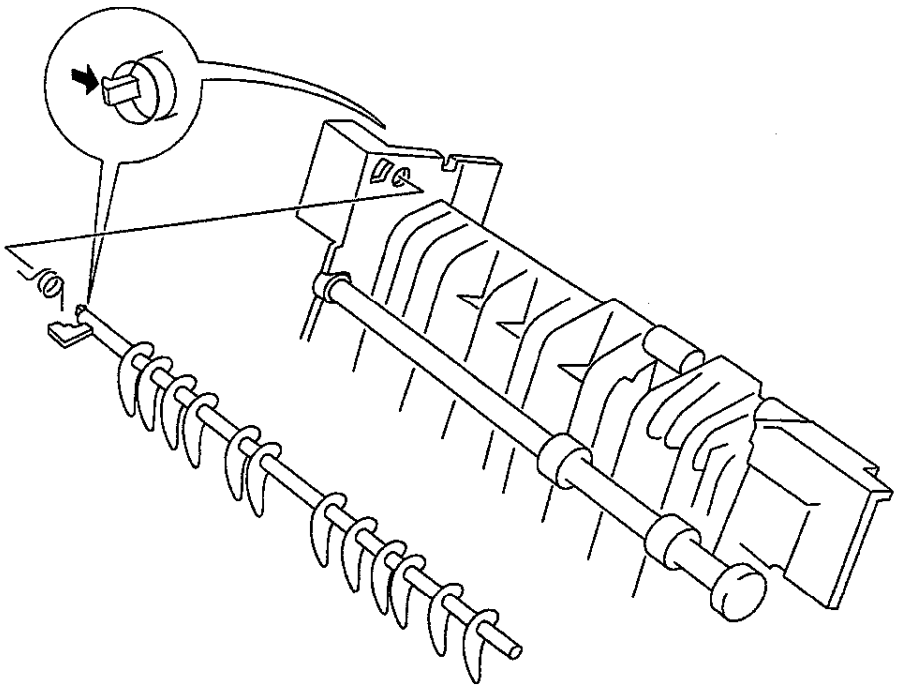
3 Remove the four screws securing the Exit Assembly, and remove the Assembly from the Top Cover Assembly.

4 Bend the Exit Gate to remove the Gate from the Exit Motor end of the Exit Assembly.

5 Unlatch the shaft on the Direction Spring side of the Exit Gate, and remove the Gate and Direction Spring from the Exit Assembly.

6 Remove the Direction Spring from the Exit Gate.

Figure 4.9.3.1 Exit Gate Removal



Replacement

Perform the removal steps in reverse order.

4.9.4 Exit Motor Assembly

Removal

1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover Assembly over.

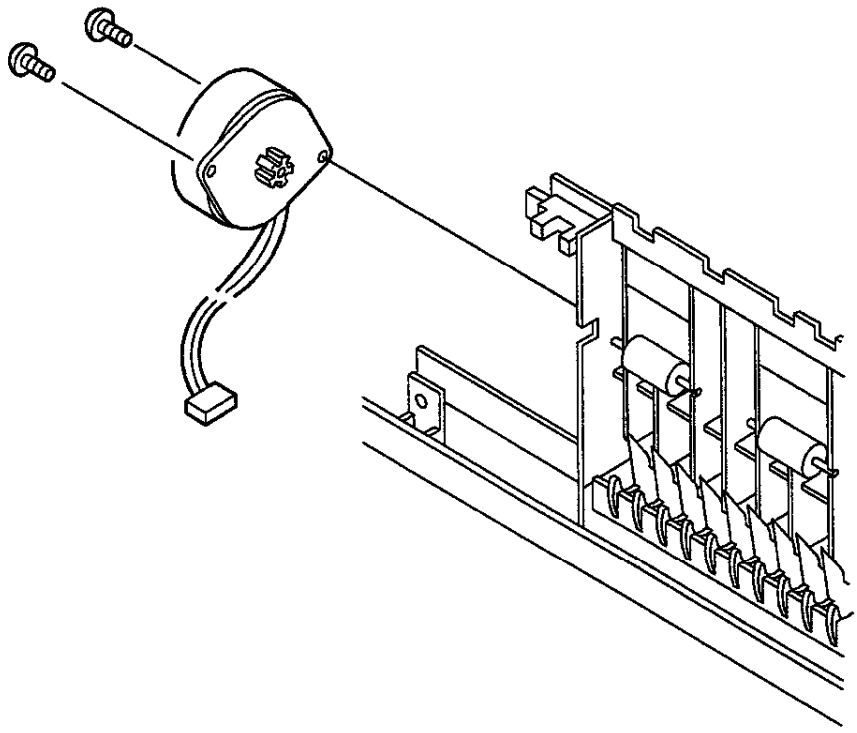
3 Disconnect P/J24 (Exit Motor).

4 Remove the two screws securing the Exit Motor Assembly, and pull the Exit Motor Assembly out. (See Figure 4.9.4).

NOTE: Note the routing of the Exit Motor wiring harness.

5 Remove the Exit Motor wiring harness from the Cover Assembly.

Figure 4.9.4.1 Exit Motor Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.9.5 Rear Cover Sensor

Removal

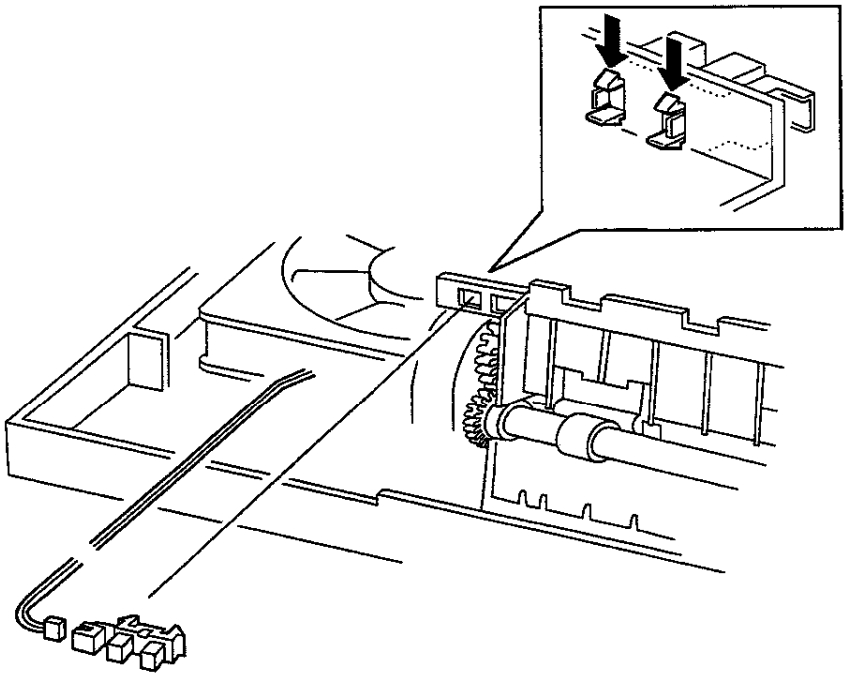
1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover Assembly over.

3 Unhook the Rear Cover Sensor clip by pressing it from the rear of the Top Cover Assembly, and remove the Rear Cover Sensor. (See Figure 4.9.5).

4 Unplug the Rear Cover Sensor connector, and remove the sensor.

Figure 4.9.5.1 Rear Cover Sensor Removal



Replacement

Perform the removal steps in reverse order.

4.9.6 Option Cover/Eliminator Assembly

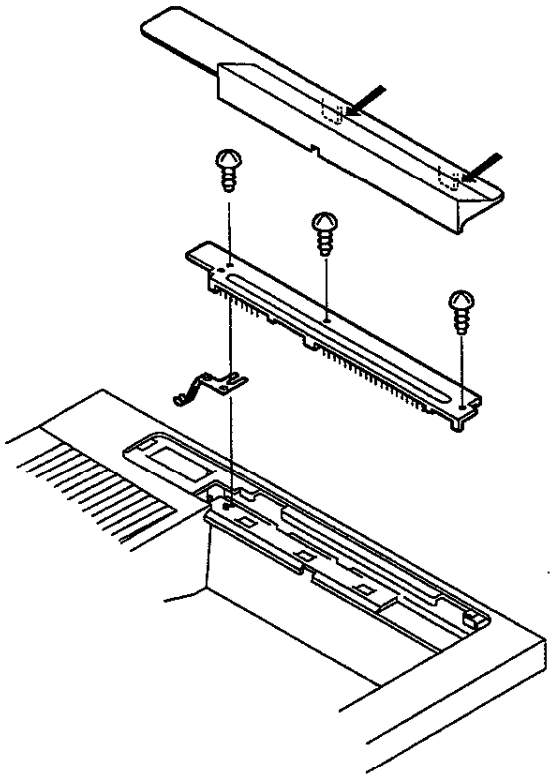
Removal

1 Remove the Option Cover. (Press the two hooks of the Option Cover Plate from under the rear part of the Top Cover Assembly.)

2 Remove the three screws.

3 Remove the Eliminator Assembly along with the Exit Earth Spring.

Figure 4.9.6.1 Option Cover/Eliminator Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.9.7 Stack Full Sensor

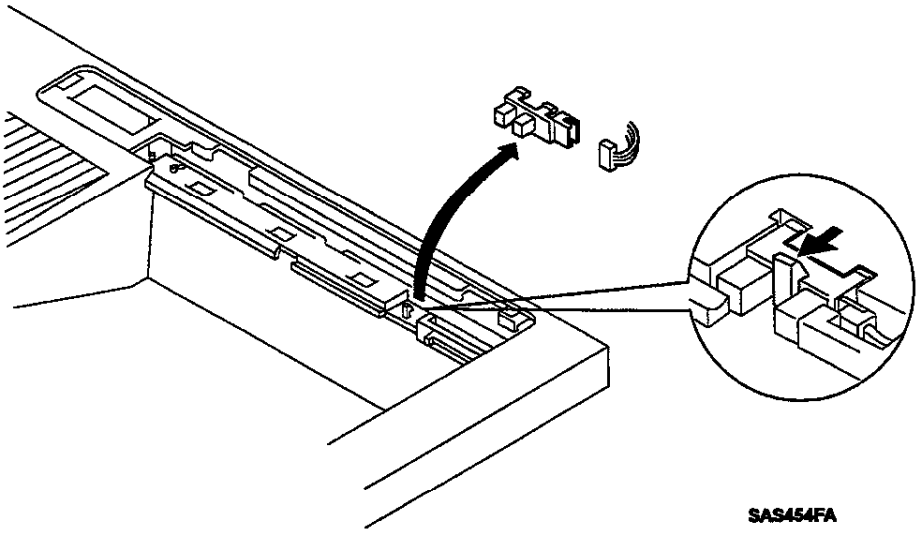
Removal

1 Remove the Rear Option Cover Plate and the Eliminator Assembly. (*REP 4.9.6 Option Cover/ Eliminator Assembly*).

2 Use a flat-slot screwdriver blade to unhook the Stack Full Sensor clip. (See Figure 4.9.7).

3 Disconnect the connector, and remove the Stack Full Sensor.

Figure 4.9.7.1 Stack Full Sensor Removal



Replacement

Perform the removal steps in reverse order.

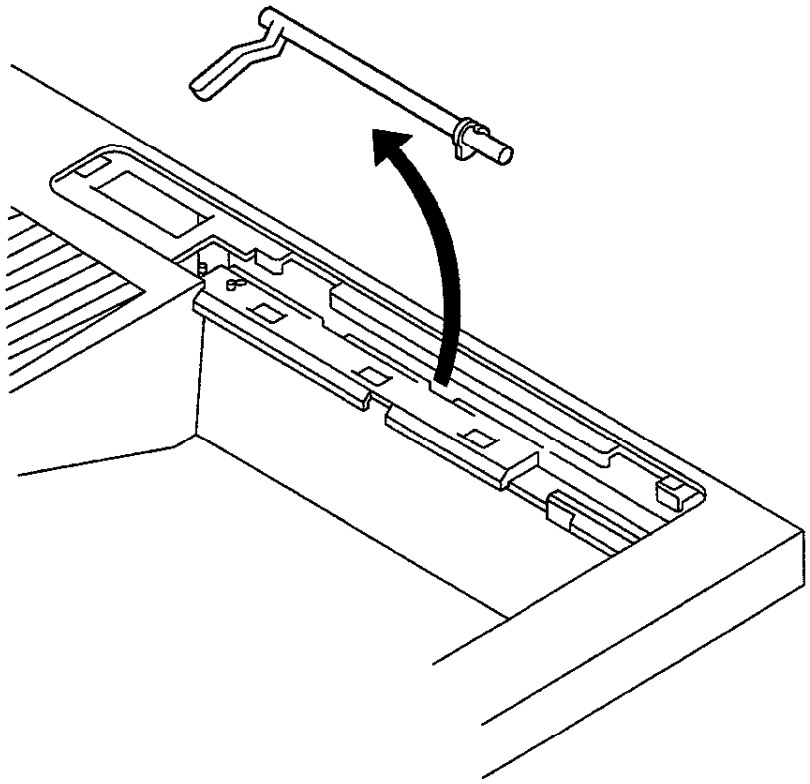
4.9.8 Stack Full Actuator

Removal

1 Remove the Rear Option Cover Plate and the Eliminator Assembly. (*REP 4.9.6 Option Cover/ Eliminator Assembly*).

2 Lift the right end of the Stack Full Actuator upward, and remove the Actuator. (See Figure 4.9.8).

Figure 4.9.8.1 Stack Full Actuator Removal



Replacement

Perform the removal steps in reverse order.

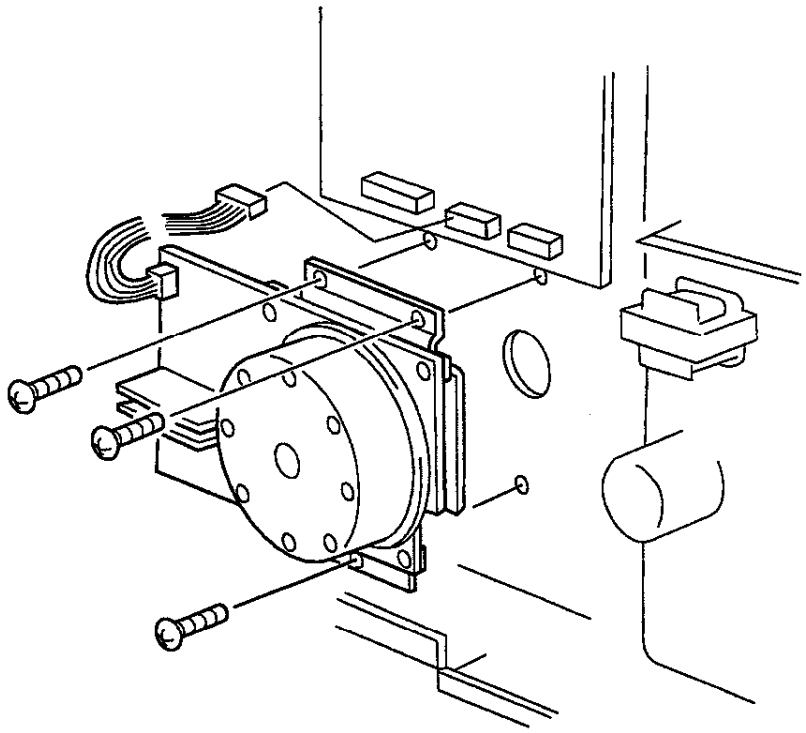
4.10 Drive and Xerographic Modules

4.10.1 Main Motor Assembly

Removal

1 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).
2 Disconnect P14 from the Print Engine Controller. (See Figure 4.10.1).
3 Remove the three screws securing the Main Motor Assembly to the Frame.
4 Remove the Main Motor Assembly along with the wire harness

Figure 4.10.1.1 Main Motor Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.10.2 Drive Assembly

Removal

1 Remove the BTR Chute Assembly (*REP 4.7.2 BTR Chute Assembly*).

2 Remove the Main Motor Assembly (*REP 4.10.1 Main Motor Assembly*).

NOTE: It is not necessary to completely remove the Print Engine Controller to access the Drive Assembly securing screws.

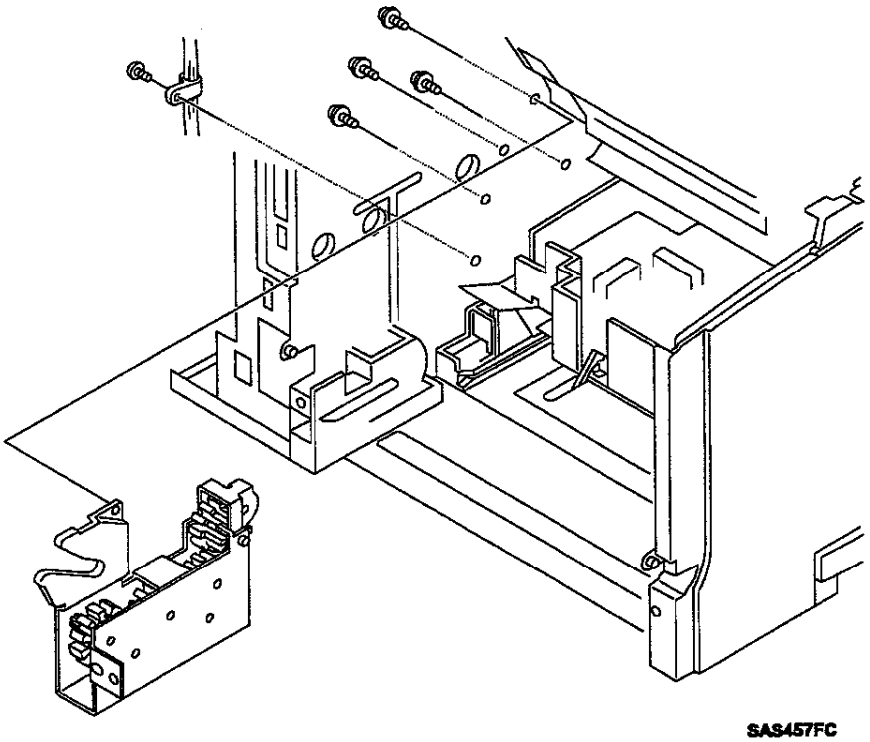
3 Partially remove the Print Engine Controller (*REP 4.12.3 Print Engine Controller*).

4 Remove the four screws securing the Drive Assembly to the Frame. (See Figure 4.10.2).

5 Remove the screw securing the "P" clamp.

6 Pull the Drive Assembly towards the front of the printer and remove the Assembly

Figure 4.10.2.1 Drive Assembly Removal



Replacement

Perform the removal steps in reverse order.

4.10.3 Laser Assembly

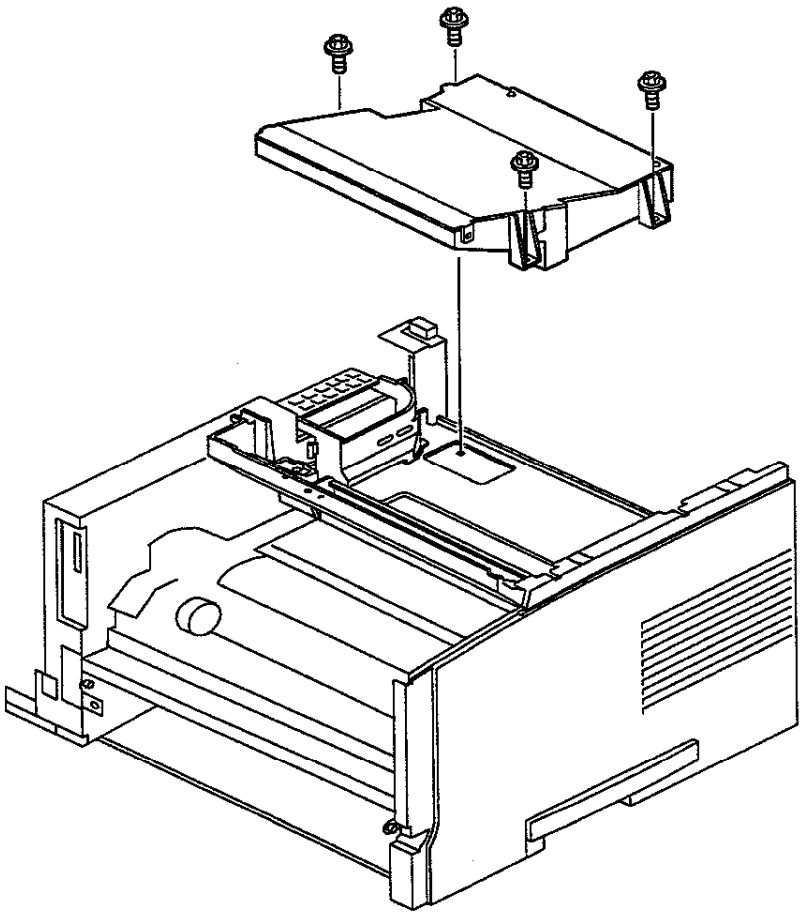
Removal

1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Remove the four screws (hexagon-shaped with a black flange) securing the Laser Assembly, and lift the Laser Assembly.

3 Disconnect P/J112, P/J113, and P/J114 after lifting the Laser Assembly

Figure 4.10.3.1 Laser Assembly Removal.



Replacement

Perform the removal steps in reverse order.

4.11 Electrical Module I

4.11.1 Control Panel Assembly

Removal

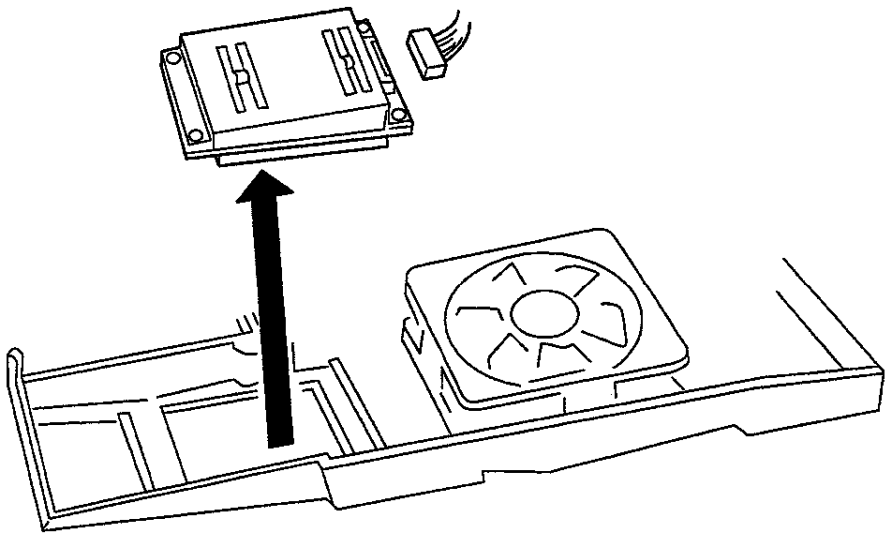
1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover over.

3 Disconnect P33 from the Control Panel. (See Figure 4.11.1).

4 Open and release the hooks that lock the Control Panel Assembly. Spread the hooks wider apart; then lift and remove the Control Panel Assembly. (See Figure 4.11.1).

Figure 4.11.1.1 Control Panel Assembly Removal.



Replacement

Perform the removal steps in reverse order.

4.11.2 Fan Assembly

Removal

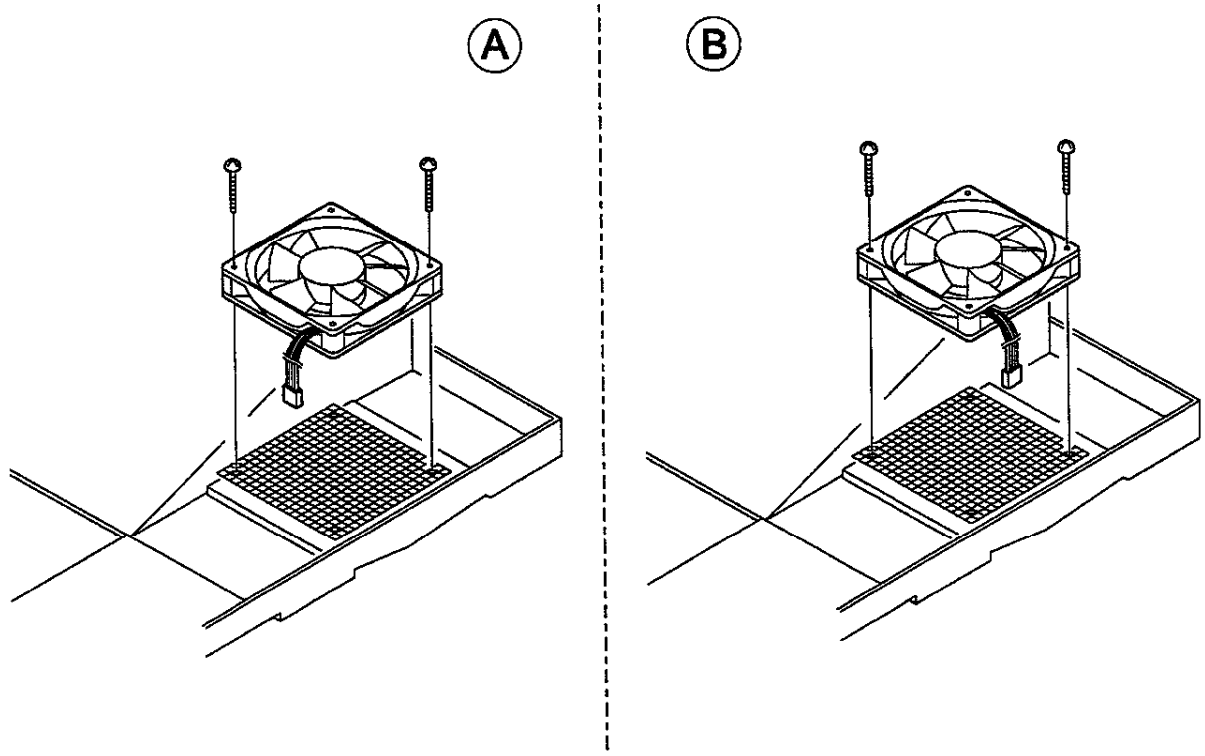
1 Remove the Top Cover Assembly (*REP 4.2.6 Top Cover Assembly*).

2 Turn the Top Cover over.

3 Remove the two screws securing the Fan Assembly, and remove the Assembly. (See Figure 4.11.2).

CAUTION **The Fan Harness might be going in different directions depending on the manufacture**

Figure 4.11.2.1 Fan Assembly Removal



Replacement

Perform the removal steps in reverse order.

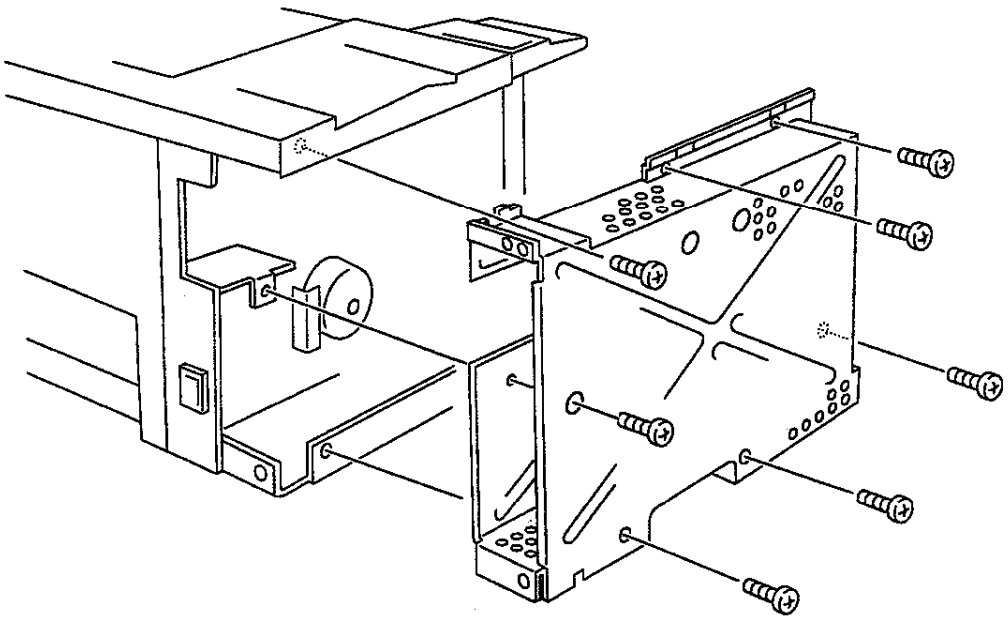
4.12 Electrical Module II

4.12.1 System Controller Chassis

Removal

1 Remove the Left Cover (*REP 4.2.2 Left Cover*).
2 Remove the Left Front Cover (*REP 4.2.5 Left Front Cover*).
3 Remove the System Controller PWB.
4 Remove the seven screws securing the System Controller Chassis. (See Figure 4.12.1).
5 Free the Wire Harnesses from the Paper Handling Unit Assembly.
6 Remove the System Controller Chassis.

Figure 4.12.1.1 System Controller Chassis Removal



Replacement

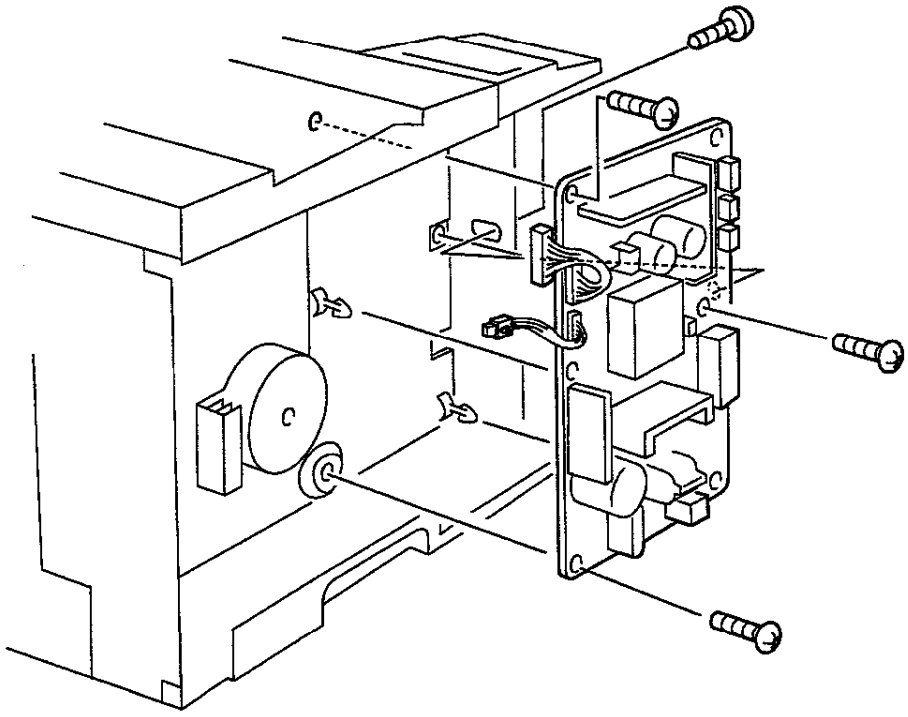
Perform the removal steps in reverse order.

4.12.2 Low Voltage Power Supply (LVPS)

Removal

1 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).
2 Disconnect P13 and P25 from the Print Engine Controller. (See Figure 4.12.2).
3 Disconnect P16, P17, P27, P131, P1, and P3 from the LVPS.
4 Remove the four screws securing the LVPS to the Frame.
5 Pinch the heads of the three PWB standoffs to release the LVPS from the Frame.
6 Carefully remove the LVPS.

Figure 4.12.2.1 LVPS Removal



Replacement

Perform the removal steps in reverse order.

4.12.3 Print Engine Controller

Removal

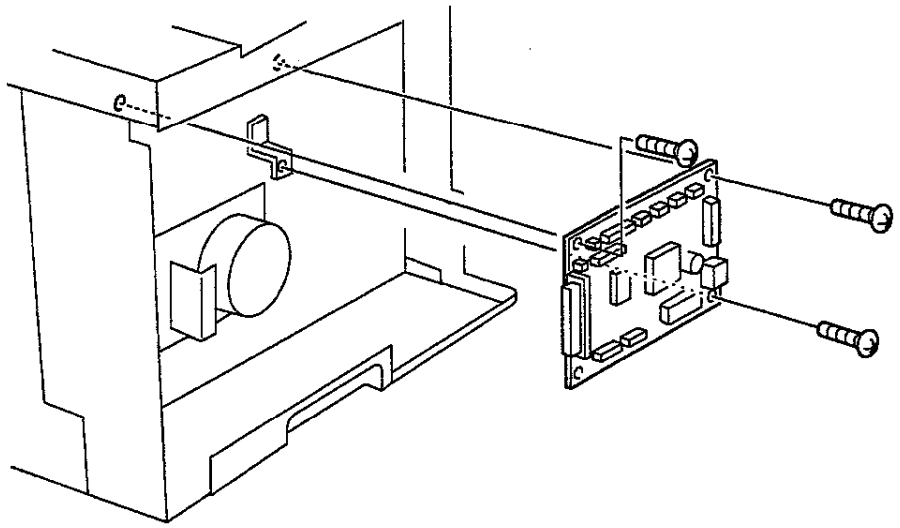
1 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).

2 Disconnect P13, P14, P15, P18, P19, P21, P22, P23, P24, P25, P28, and P32 from the Print Engine Controller.

3 Remove the three screws securing the Print Engine Controller to the Frame. (See Figure 4.12.3).

4 Pinch the head of the PWB standoff to release the LVPS from the Frame, and remove the Print Engine Controller.

Figure 4.12.3.1 Print Engine Controller Removal



Replacement

Perform the removal steps in reverse order.

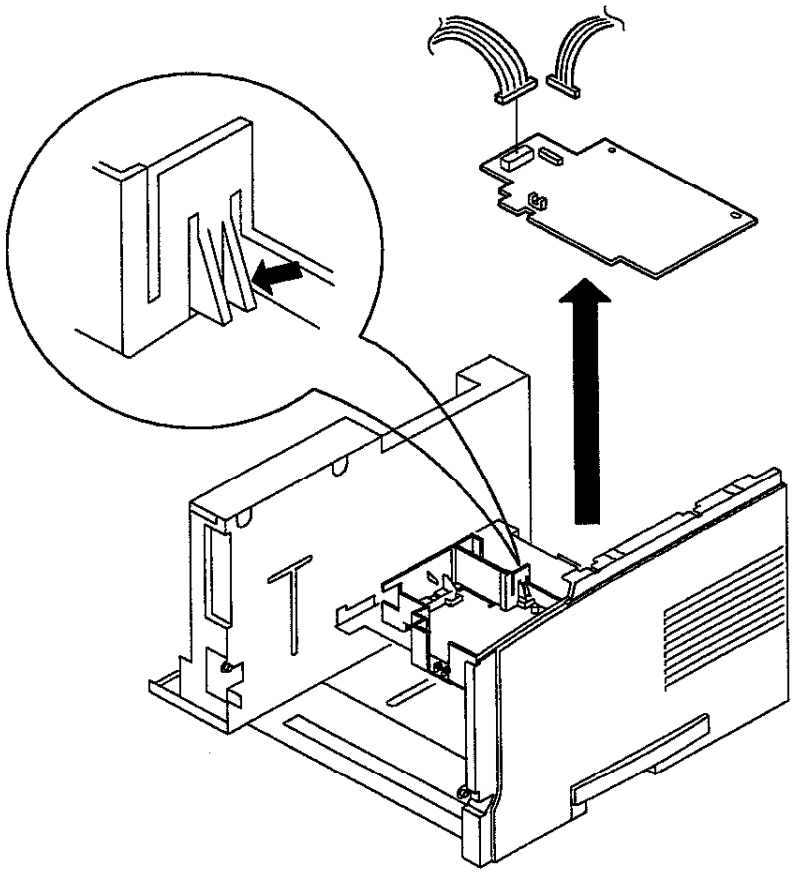
4.12.4 High Voltage Power Supply (HVPS)

Removal

1 Remove the EP Cartridge.
2 Remove the BTR Chute Assembly (*REP 4.7.2 BTR Chute Assembly*).
3 Remove the No Paper Actuator (*REP 4.12.6 No Paper Actuator*).
4 Disconnect P115 and P111 from the HVPS. (See Figure 4.12.4).
5 Use your fingers to open and release the left rear hook securing the HVPS so the PWB floats from the two bosses.
6 Lift the LVPS up and toward the rear to clear the front tabs, then remove the HVPS.

CAUTION The Earth Spring may fall off simultaneously at this time. Do not lose it.

Figure 4.12.4.1 HVPS Removal



Replacement

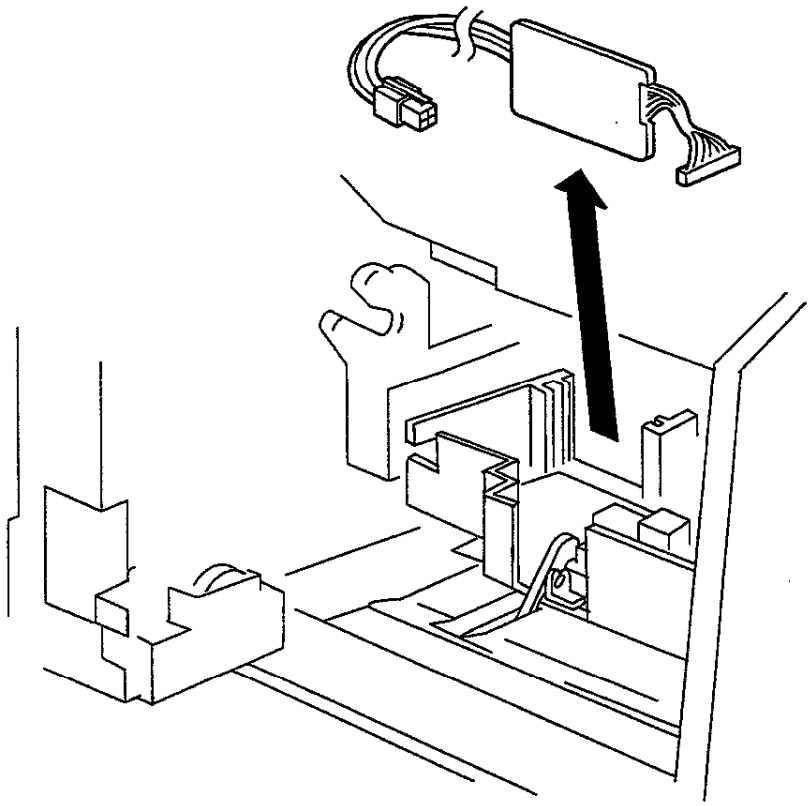
Perform the removal steps in reverse order, ensuring the HVPS is positioned under the retaining tabs.

4.12.5 Fuser PWB

Removal

1 Remove the BTR Chute Assembly (*REP 4.7.2 BTR Chute Assembly*).
2 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).
3 Disconnect P3 from the LVPS. (See Figure 4.12.5).
4 Disconnect P115 from the HVPS.
5 Remove the wire harnesses from the rear, and slide the PWB Fuser out of the channel.

Figure 4.12.5.1 Fuser PWB Removal



Replacement

Perform the removal steps in reverse order.

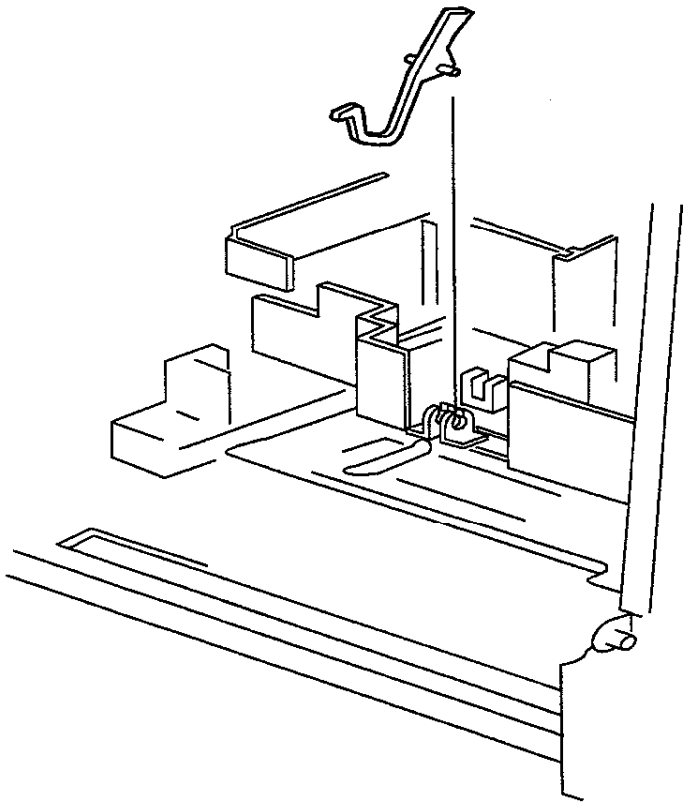
4.12.6 No Paper Actuator

Removal

1 Remove the BTR Chute Assembly (*REP 4.7.1 Bias Transfer Roll (BTR) Assembly*).

2 Lift and remove the No Paper Actuator

Figure 4.12.6.1 No Paper Actuator Removal



Replacement

Perform the removal steps in reverse order.

4.12.7 Main Power Switch

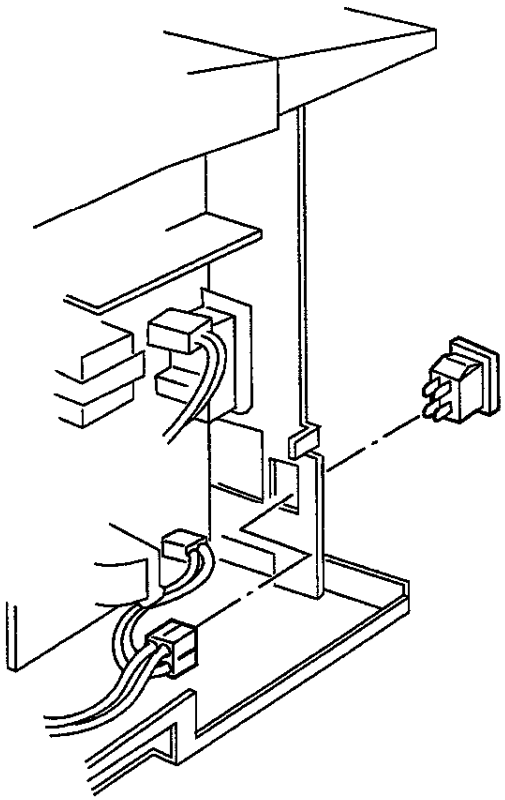
Removal

1 Remove the System Controller Chassis (*REP 4.12.1 System Controller Chassis*).

2 Unplug the Harness Connector from the Main Power Switch. (See Figure 4.12.7.)

3 Squeeze on the switch retaining clamps while pushing the switch out from the printer.

Figure 4.12.7.1 Main Power Switch Removal



Replacement

Perform the removal steps in reverse order.

Section 5

General Procedures/Information

Printer Operations **5-3**
Control Panel 5-3
Printer Modes 5-4
Online Mode 5-4
Menu Mode 5-6
Menu Tree 5-7
Language Menu 5-8
Mailbox Menu 5-9
PCL Menu 5-10
PostScript Menu 5-13
Interface Menu 5-15
System Menu 5-17
Test Menu 5-18
Reset Menu 5-19

Diagnostics Mode **5-20**
Diagnostic Mode 1 5-21
DG 30 Print Counter 5-24
DG 02 Sensor Check 5-25
DG 07 Fuser Temperature Set 5-27
DG 08 Fuser Temperature 5-28
DG 81 Solenoid MBF 5-30
DG 82 Tray 1 Solenoid 5-31
DG 83 Tray 2 Solenoid 5-32
DG 84 Tray 3 Solenoid 5-33
DG 85 Envelope Solenoid 5-34
DG 86 Exit Direction Solenoid 5-35
DG 87 Registration Solenoid 5-36
DG 90 Main Motor 5-37

DG 91 Duplex Motor H.S.(High Speed) 5-38
DG 92 Duplex Motor L.S. (Low Speed) 5-39
DG 93 Exit Motor CW (Clockwise) 5-40
DG 94 Exit Motor CCW (Counter Clockwise) 5-41
DG 95 Offset Catch Tray (OCT) Motor 5-42
DG 96 Offset Motor CW (Clockwise) 5-43
DG 97 Offset Motor CCW (Counter Clockwise) 5-44
DG 70 HVPS (Charge Roll AC) 5-45
DG 71 HVPS (Charge Roll DC) 5-47
DG 72 HVPS (Developer Bias DC) 5-49
DG 73 HVPS (Developer Bias AC) 5-51
DG 74 HVPS (Detack Saw) 5-53
DG 75 HVPS (Bias Transfer Roll -) 5-55
DG 76 HVPS (Bias Transfer Roll +) 5-57
DG 00 Exit Diagnostics 5-59
DG 00 Checksum 5-60
DG 00 Size Sensor 5-61
Diagnostic Mode 2 5-62
Diagnostic Mode 3 5-64
Setting and Verification of Registration 5-67
Print Engine Controller Test Print 5-71
System Controller Test Print 5-72

Diagnostic Mode 2 Error and Status Codes 5-73
Error/Status Code Display Conditions, Printer Action, and Recovery Procedures 5-75

Supplemental Tools, Supplies, and Hardware 5-80

Service Cleaning Procedure 5-82
Preparation Procedure 5-82
Paper Path Cleaning Procedure 5-82

Printer Data and Tag Information 5-83
Printer Data Labels 5-83
Retrofit (Change) Tag/MOD Matrix 5-85

5.1 Printer Operations

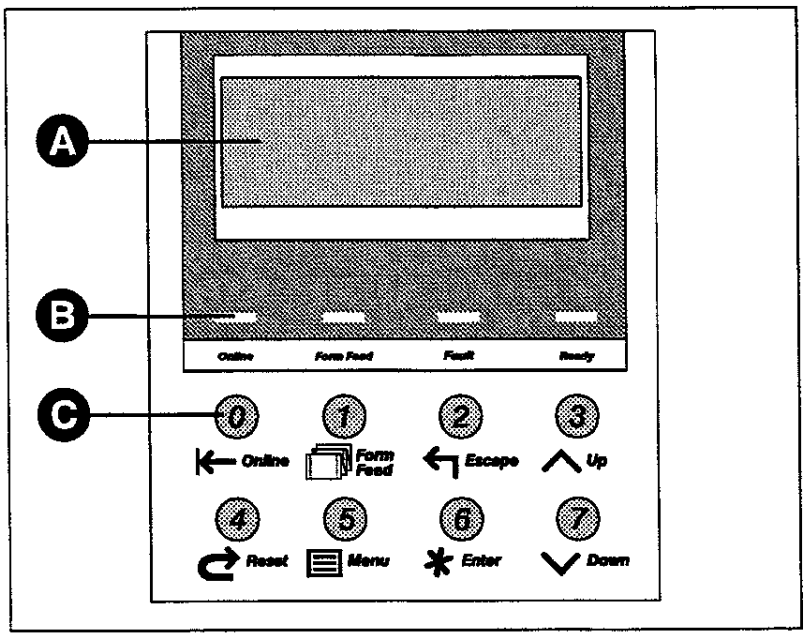
The information provided in this section is based on the standard functions of this model printer. The diagnostic procedures presented in this section are accessed at the printer control panel.

5.1.1 Control Panel

The Control Panel is located to the left of the Top Cover and has one input device and two output devices:

Liquid Crystal Display	The Liquid Crystal Display (LCD) displays messages sent from the Printer Controller and the System Controller. The LCD displays two lines of text, with sixteen characters per line.
LED	The four indicated LEDs are, from left to right, **Online, Form Feed, Fault,** and **Ready.**
User Input Device	The Control Panel keypad is the main user input device. The keypad has eight keys.

Figure 5.1.1.1 Control Panel



- **A**2-line by 16-character display
- **B**Indicator lights (LEDs)
- **C**Control keys (8)

5.1.2 Printer Modes

The Xerox DocuPrint 4517/4517mp Network Laser Printer has three modes of operation, each with a unique set of options:

1. Online Mode (See *5.1.3 Online Mode.*)
2. Menu Mode (See *5.1.4 Menu Mode.*)
3. Diagnostic Mode (See sections *5.2.1 Diagnostic Mode 1*, *5.2.2 Diagnostic Mode 2*, and *5.2.3 Diagnostic Mode 3.*) There are three Diagnostic Modes:
   - Diagnostic Mode 1 = Component Test Mode
   - Diagnostic Mode 2 = Test Print Mode
   - Diagnostic Mode 3 = Configuration Mode

5.1.3 Online Mode

The Online Mode is the normal operating mode for the printer. In this mode, the printer is online, under control of the System Controller, and ready to generate output.

Switch on the printer power. The printer then enters a warm-up state called the *Power-On Diagnostic Sequence*. If the printer detects no errors, the fuser comes up to operating temperature and the Main Motor starts running.

During warm up:

1 Two lines of black squares are displayed on the LCD to verify that the pixels of the display are functional.

2 The LCD display fills with black asterisks (*). The asterisks appear as the Power-On Diagnostics progress.

```
**********
**********
```

3 When the *Power-On Diagnostic Sequence* completes, the LCD will display the Xerox copyright information.

4 The printer will display **Warming Up/Please Wait...** while the fuser warms up.

```
Warming Up

Please Wait...
```

5 When the fuser reaches operating temperature, and if the *Power-On Diagnostic Sequence* encounters no problems, the LCD displays the **Online/Ready** message.

5.1.4 Menu Mode

The Menu Mode allows you to set, change, or adjust the various features/options available in the Xerox DocuPrint 4517/4517mp Network Laser Printer. The menus displayed on any particular printer depend upon the options installed in the printer. If an option is not installed, the menu items for that option will not be displayed.

Entering the Menu Mode:

1 With the printer in the "Online Ready" mode, press the **Online** key to take the printer "Offline".
2 Press the **Menu** Key. The LCD will display **Main Menu/Language.**
3 From the Main Menu you can access the seven major menus. (See *Figure 5.1.4.2.1 Menu Tree.*)
4 Press the **Up** or **Down** arrow key to scroll through the major menus.
5 When the desired major menu is displayed, press the **Enter** key to select that menu.
6 Each of the seven major menus has a number of submenus listed under them.

NOTE: The display will indicate that a submenu is available by displaying a "greater than" symbol in the lower right corner of the display.

7 Press the **Up** or **Down** arrow key to scroll through the submenus.
8 When the desired submenu is displayed, press the **Enter** Key to select that submenu item.
9 In some cases you will have another level of submenus. If another level exists, press the **Up** or **Down** arrow key to scroll through the submenus, then press the **Enter** key to select the desired submenu item.
10 You will now be at the lowest level of the menus. At this level you set, change, or adjust the feature or option you selected.
11 Use the **Up** or **Down** arrow key to scroll through the settings.
12 When the desired setting is displayed, press the **Enter** key to "save" your setting to NV RAM.
13 If you wish to go back up one menu level, press the **Enter** key. You will go up one menu level each time the **Enter** key is pressed.
14 When you have completed all settings, press the **Online** key to return the printer to the "Online Ready" mode.

NOTE: On the following pages, the menu tree and all the possible menu paths will be illustrated. The menu tree may be different on different printers depending upon the options installed. Most of the menu selections are straight forward and can be set to match the customers requirements without any additional information. Where additional information is required, the information is contained in the Xerox DocuPrint 4517/4517mp Network Laser Printers User Guide.

5.1.4.1 Menu Tree

The menu tree illustrates the seven major menus that can be accessed from the menu mode. To access the menus:

1. From the Online Ready condition, press the **Online** key.
2. Press the **Menu** key.
3. Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the major menu items.
4. When the desired menu is displayed, press **Enter**.

A breakdown of each major menu is illustrated on the following pages.

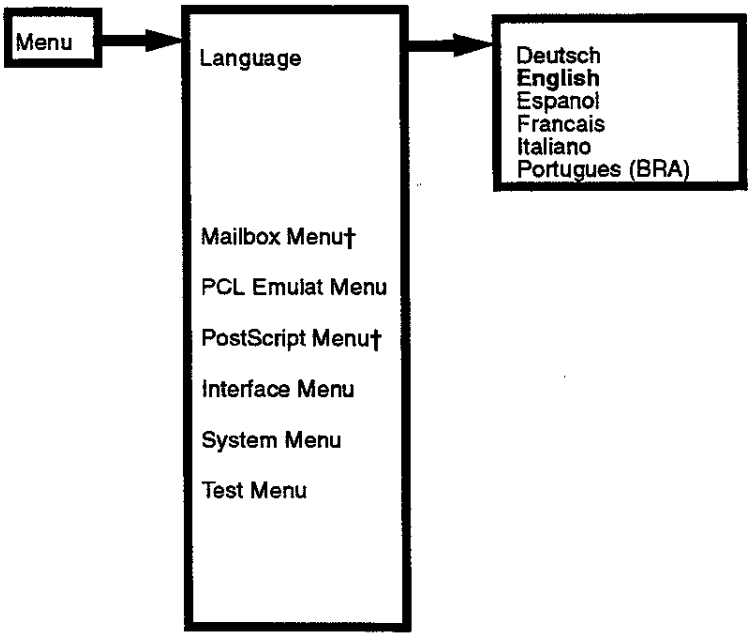
5.1.4.2 Language Menu

The Language Menu allows you to select the language that will be used to display information on the control panel and print text on the configuration sheet. To select a language:

1 From the Online Ready condition press the **Online** key.
2 Press the **Menu** key.
3 When "Main Menu" "Language" is displayed, press **Enter**.
4 Press the **Down** arrow key to move through the language submenu items.
5 When the desired language is displayed, press **Enter**.

Option	English Equivalent
Deutsch	German
English	International English
Español	Spanish
Français	French
Italiano	Italian
Português (BRA)	Brazilian Portuguese

Figure 5.1.4.2.1 Menu Tree



† Appears only when the option is installed.

5.1.4.3 Mailbox Menu

If the printer has a Mailbox installed, the printer will display the "Mailbox Menu." The complete Mailbox menu is illustrated below. To select the Mailbox Menu:

1 From the Online Ready condition press the **Online** key.

2 Press the **Menu** key.

3 When **Main Menu/Language** is displayed, press the **Down** arrow key until **Mailbox** is displayed.

4 Press the **Enter** key.

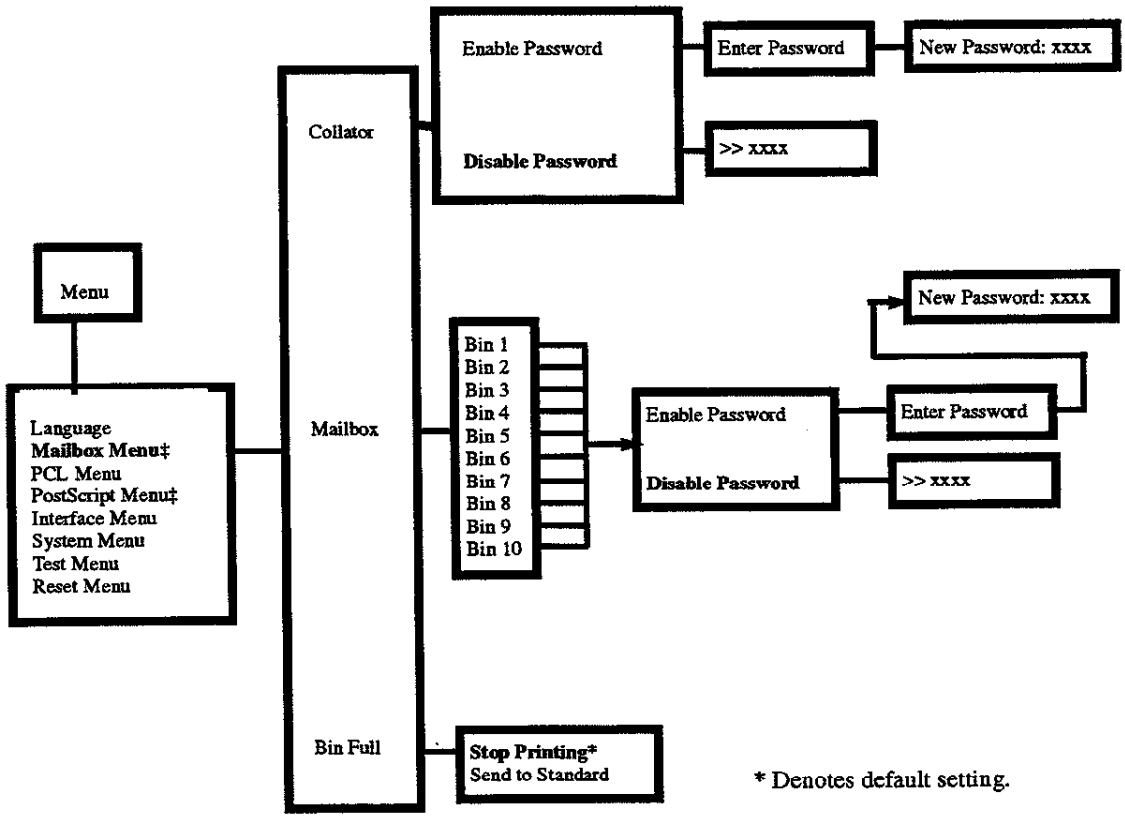
5 Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the Mailbox submenu items.

6 When the desired submenu is displayed, press **Enter.**

7 Press the **Up** or **Down** arrow key to move through the menu settings.

8 When the desired menu setting is displayed, press **Enter.**

Figure 5.1.4.3.1 Mailbox Menu



NOTE: A service password (1056) may be used to override a password set by the user.

5.1.4.4 PCL Menu

The PCL (Printer Control Language) Menu options establish the default configuration for the printer. PCL is used by software applications to send information and instructions to the printer. If the software does not send a particular PCL setting to the printer, the printer's PCL default setting will be used. To select the PCL Menu:

1 From the Online Ready condition press the Online key.

2 Press the **Menu** key.

3 When **Main Menu/Language** is displayed, press the **Down** arrow key until **PCL Menu** is displayed.

4 Press the **Enter** key.

5 Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the PCL submenu items.

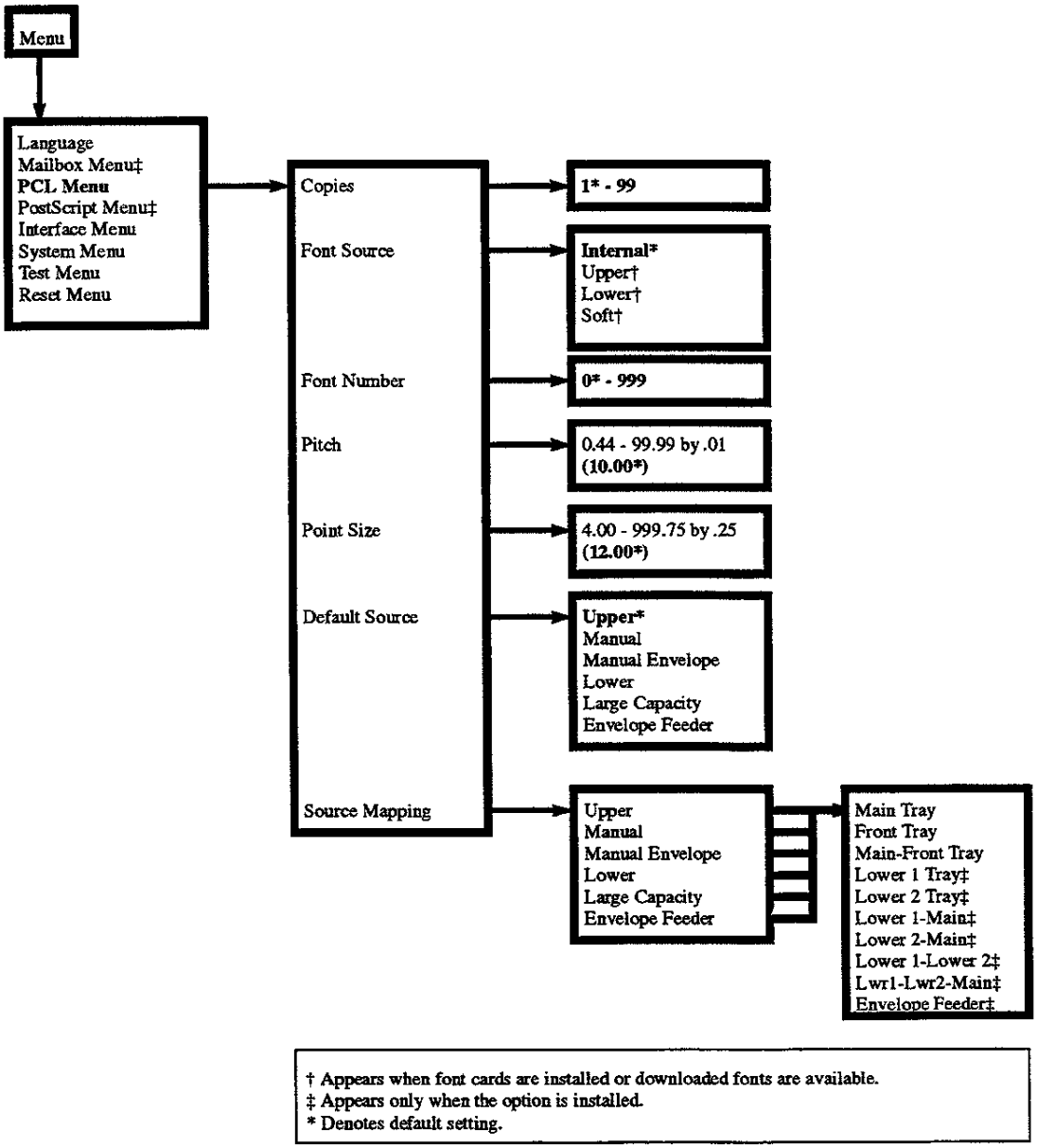
6 When the desired submenu is displayed, press **Enter.**

7 Press the **Up** or **Down** arrow key to move through the menu settings.

8 When the desired menu setting is displayed, press **Enter.**

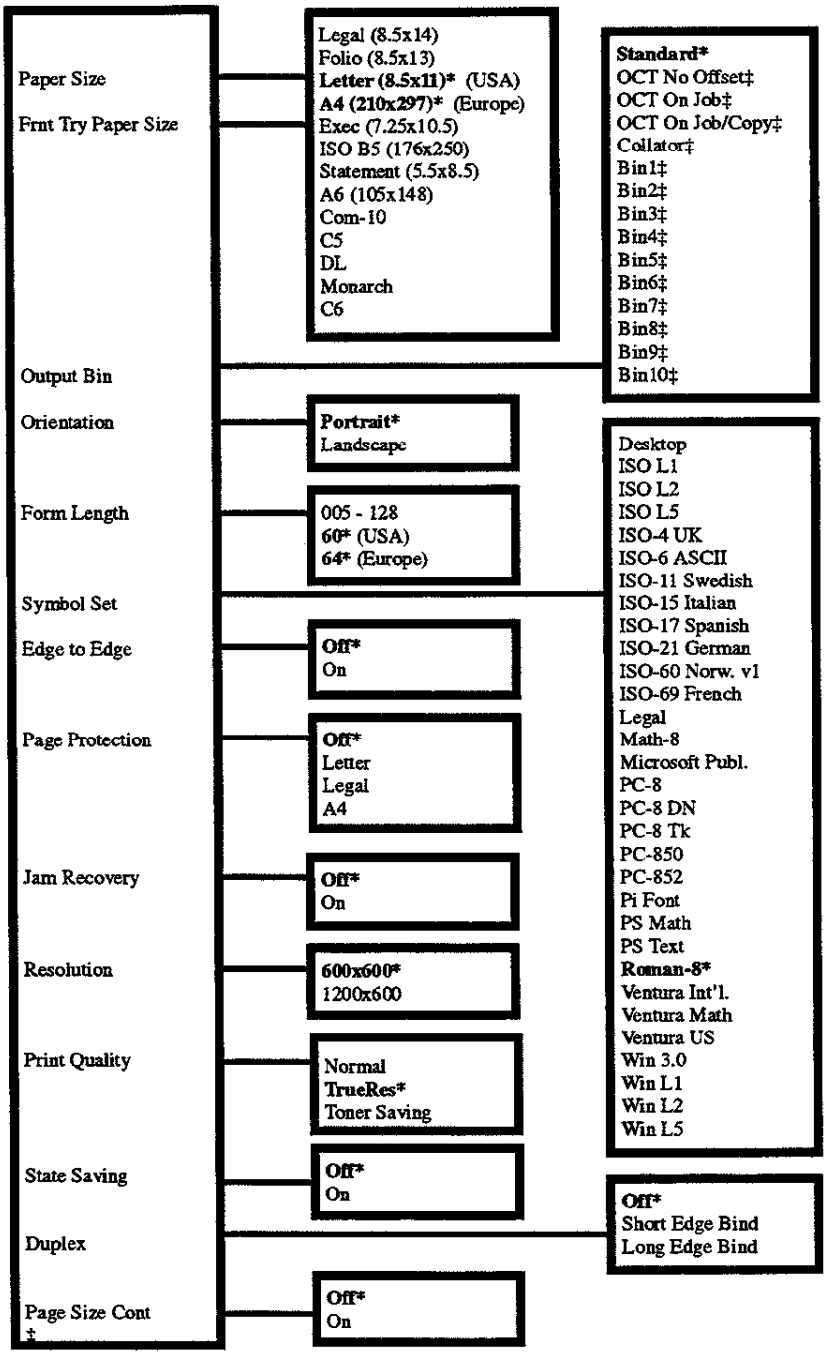
The PCL Menu is illustrated in Figure 5.1.4.4.1 and Figure 5.1.4.4.2.

Figure 5.1.4.4.1 PCL Menu



NOTE: The PCL Menu is continued on the next page.

Figure 5.1.4.4.2 PCL Menu (continued)

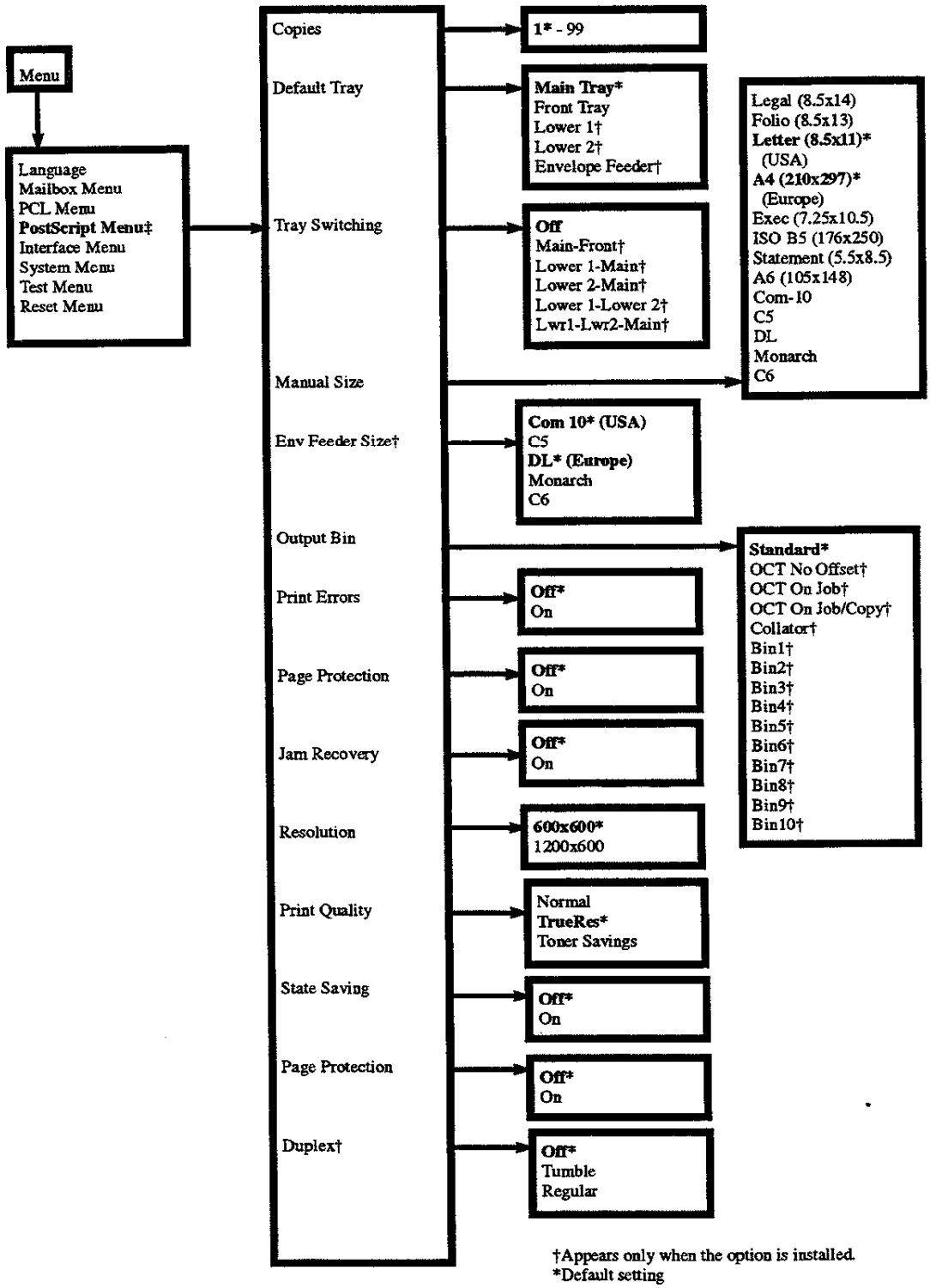


5.1.4.5 PostScript Menu

If the printer has an optional PostScript ROM PWB installed, the printer will display the PostScript Menu. The complete PostScript Menu is illustrated on the next page. To select the PostScript Menu:

1. From the Online Ready condition press the **Online** key.
2. Press the **Menu** key.
3. When **Main Menu/Language** is displayed, press the **Down** arrow key until **PostScript** is displayed.
4. Press the **Enter** key.
5. Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the PostScript submenu items.
6. When the desired submenu is displayed, press **Enter**.
7. Press the **Up** or **Down** arrow key to move through the menu settings.
8. When the desired menu setting is displayed, press **Enter**.

Figure 5.1.4.5.1 PostScript Menu



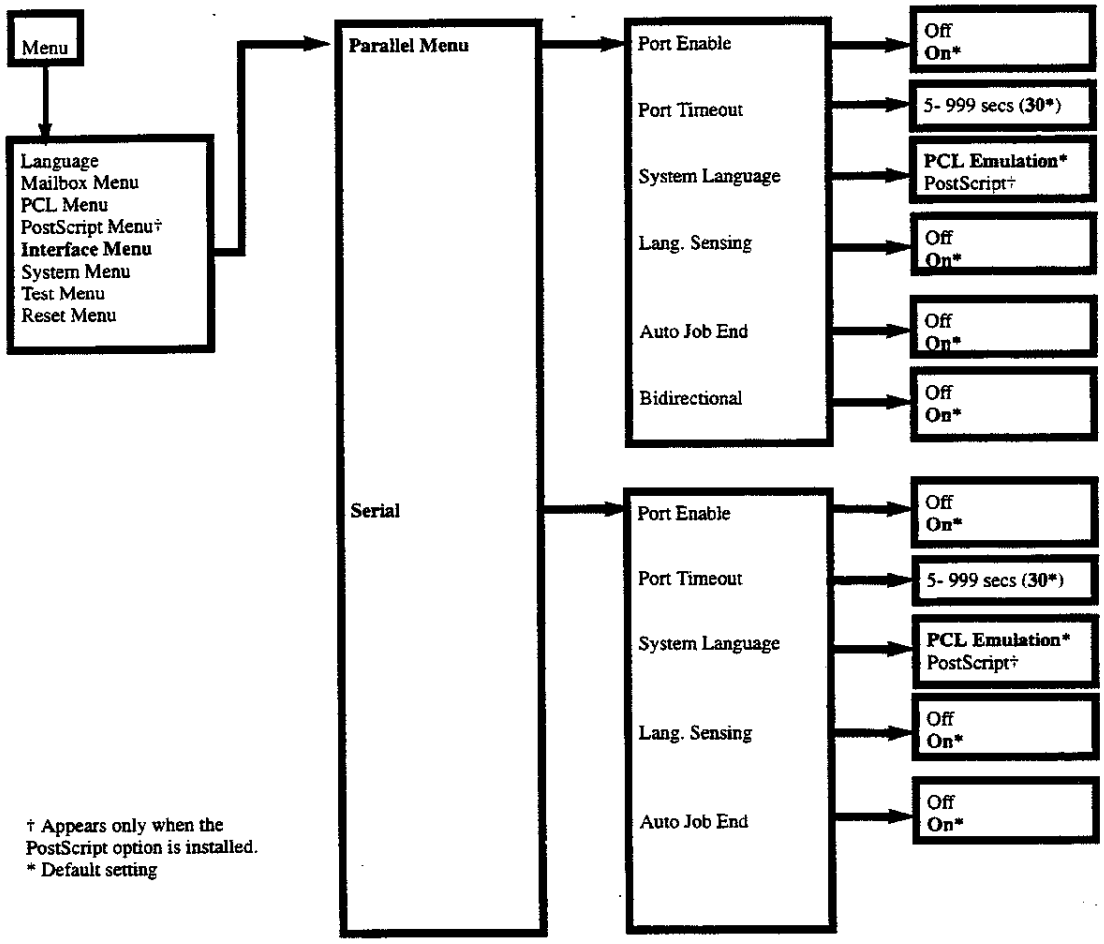
†Appears only when the option is installed.
*Default setting

5.1.4.6 Interface Menu

The Interface Menu contains submenus for the parallel port as well as submenus for network interface ports when a network option is installed. To select the Interface Menu:

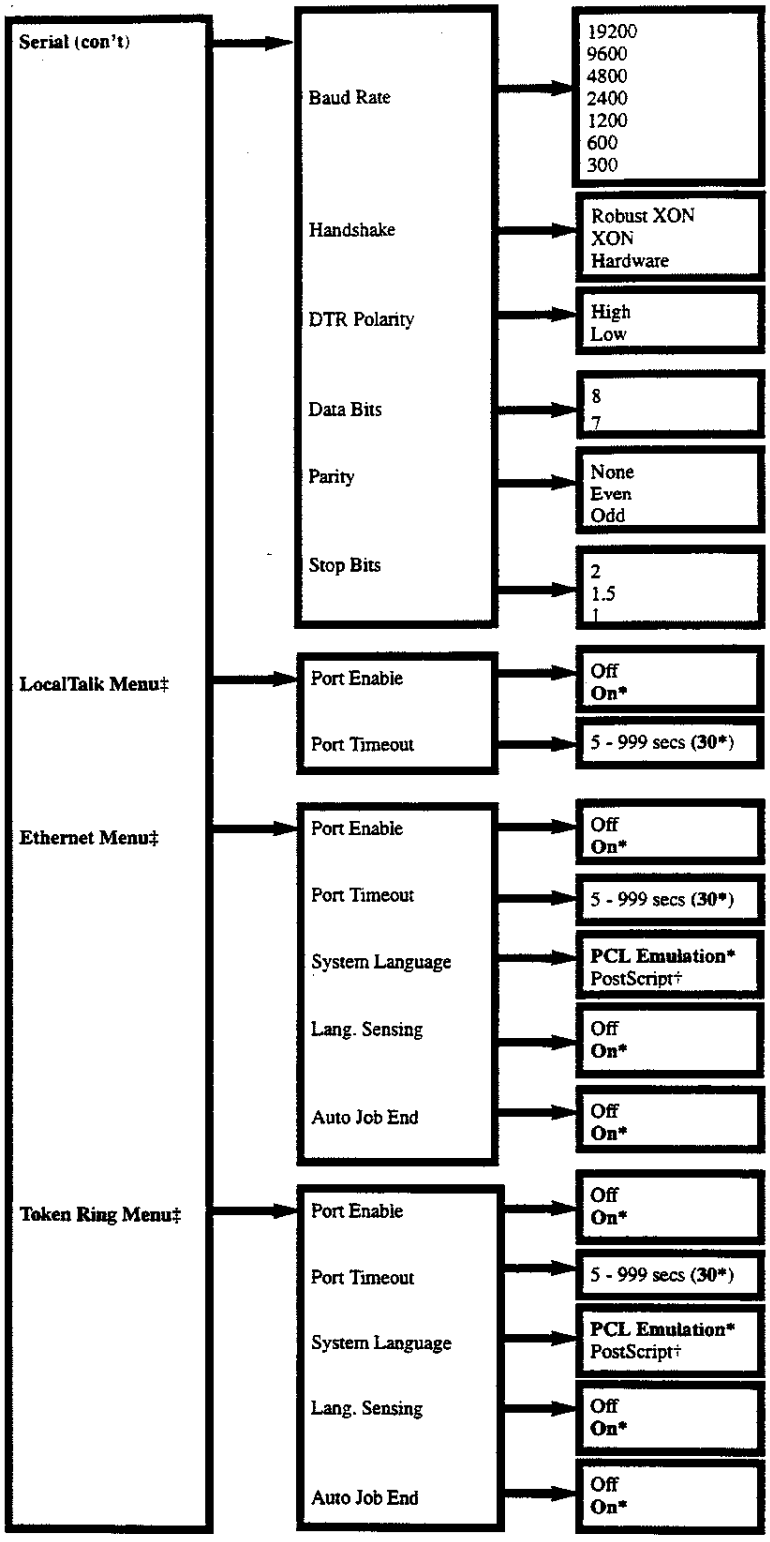
1. From the Online Ready condition press the **Online** key.
2. Press the **Menu** key.
3. When **Main Menu/Language** is displayed, press the **Down** arrow key until **Interface Menu** is displayed.
4. Press the **Enter** key.
5. Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the Interface submenu items.
6. When the desired submenu is displayed, press **Enter**.
7. Press the **Up** or **Down** arrow key to move through the menu settings.
8. When the desired menu setting is displayed, press **Enter**.

Figure 5.1.4.6.1 Interface Menu



NOTE: The Interface Menu is continued on the next page.

Figure 5.1.4.6.2 Interface Menu (continued)



† Appears only when the PostScript option is installed.
‡ Appears only when the option is installed.
*Default setting

5.1.4.7 System Menu

The System Menu has options that allow you to set printer features. To select the System Menu:

1 From the Online Ready condition, press the **Online** key.

2 Press the **Menu** key.

3 When **Main Menu/Language** is displayed, press the **Down** arrow key until **System Menu** is displayed.

4 Press the **Enter** key.

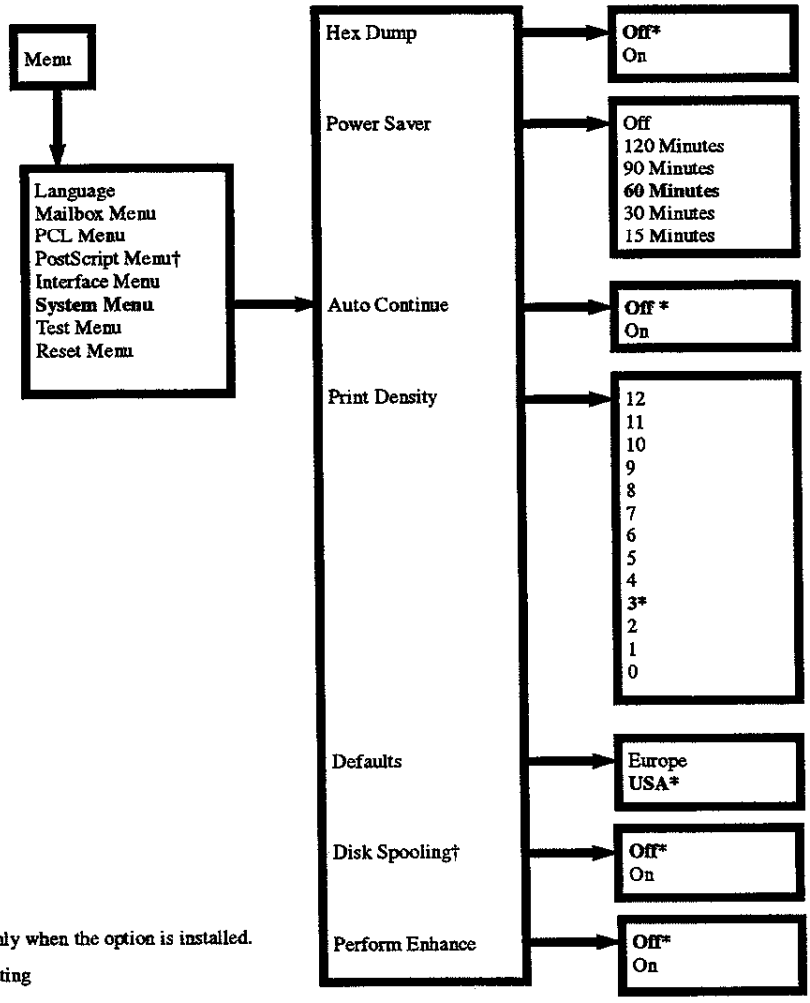
5 Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the System submenu items.

6 When the desired submenu is displayed, press **Enter**.

7 Press the **Up** or **Down** arrow key to move through the menu settings.

8 When the desired menu setting is displayed, press **Enter**.

Figure 5.1.4.7.1 System Menu



† Appears only when the option is installed.

* Default setting

5.1.4.8 Test Menu

The Test Menu options are functions that provide output to help you maintain high quality printing. The options in the Test Menu are functions to be performed by the printer rather than settings. To select the Test Menu:

1 From the Online Ready condition press the **Online** key.

2 Press the **Menu** key.

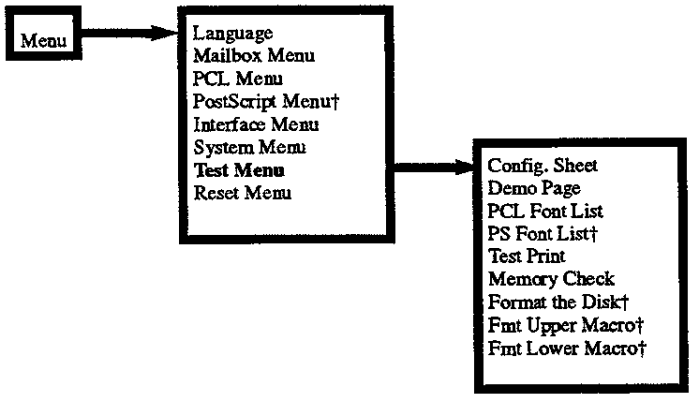
3 When **Main Menu/Language** is displayed, press the **Down** arrow key until **Test Menu** is displayed.

4 Press the **Enter** key.

5 Press the **Down** arrow key to move from left to right or the **Up** arrow key to move from right to left through the Test submenu items.

6 When the desired submenu is displayed, press **Enter.**

Figure 5.1.4.8.1 Test Menu



† Appears only when the option is installed.

5.1.4.9 Reset Menu

The Reset Menu is used to reset various printer functions. Selecting Reset Printer resets the printer to its factory default settings. Selecting Reset I/F Cards resets the network interface card to its power-on state.

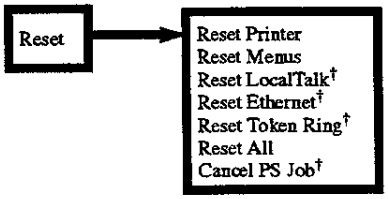
NOTE: The printer clears any temporary downloaded fonts and print macros from memory, and ejects any partially printed pages when you select Reset Printer, Reset Menus, or Reset All.

To select the Reset Menu:

1. From the Online Ready condition press the **Online** key.
2. Press the **Reset** key.
3. When "Reset Menu" "Reset Printer" is displayed, press the **Up** or **Down** arrow key until the desired option is displayed.
4. Press the **Enter** key to execute the selected option

NOTE: Once the option is entered, the printer will reset itself and return to the online mode.

Figure 5.1.4.9.1 Reset Menu



† Appears only when the option is installed.

5.2 Diagnostics Mode

The Diagnostics Mode allows you to test various switches and sensors, turn on various output devices, adjust printer functions, and display the total number of prints produced. There are three different Diagnostic Modes. The Diagnostic Mode and the options available depend upon the mode of entry.

- Diagnostic Mode 1 - Press and hold the **Down** arrow key while switching ON the printer.

  Release the **Down** arrow key when the LCD reads "IOT?".
  This Diagnostic Mode tests various switches and sensors and shows printer fuser settings.

- Diagnostic Mode 2 - Press and hold the **Enter** key while switching ON the printer.

  This Diagnostic Mode prints a grid test pattern in either simplex or duplex mode.

- Diagnostic Mode 3 - Press and hold the **Down** arrow and the **Enter** keys as you switch ON the printer.

  This Diagnostic Mode allows the adjustment of the setup parameters.

5.2.1 Diagnostic Mode 1

Table 5.2.1.1 lists the tests contained in Diagnostic Mode 1

Table 5.2.1.1 Diagnostic Mode 1 Tests

Test Type	DG Code	LCD Display Message	Test Function
Total Print Count	30	PRINT COUNTER	Shows the total number of prints made.
Input Test	02	SENSOR CHECK	Tests a sensor or switch function.
Output Test	07	FUSER TEMP. SET	Shows the Fuser temperature setting (temperature code).
Output Test	08	FUSER TEMP.	Shows the actual temperature of the Fuser.
Output Test	81	MBF SOLENOID	Tests the MBF Feed Solenoid function.
Output Test	82	TRAY 1 SOLENOID	Tests the Tray 1 (top) Feed Solenoid function.
Output Test	83	TRAY 2 SOLENOID	Tests the Tray 2 (lower 1) Feed Solenoid function.
Output Test	84	TRAY 3 SOLENOID	Tests the Tray 3 (lower 2) Feed Solenoid function.
Output Test	85	ENVE SOLENOID	Tests the Envelope Tray (optional) Feed Solenoid function.
Output Test	86	DIRECT SOLENOID	Tests the Exit Direction Solenoid function.
Output Test	87	REGISTRATION SOLENOID	Tests the Registration Solenoid
Output Test	90	MAIN MOTOR	Tests the Main Motor function.
Output Test	91	DUPLEX MOTOR H.S.	Tests the Duplex Motor function (high-speed rotation).
Output Test	92	DUPLEX MOTOR L.S.	Tests the Duplex Motor function (low-speed rotation).
Output Test	93	EXIT MOTOR C.W.	Tests the Exit Motor Clockwise (C.W.) function.
Output Test	94	EXIT MOTOR C.C.W.	Tests the Exit Motor Counter Clockwise (C.C.W.) function.
Output Test	95	OCT MOTOR	Tests the Offset Catch Tray (OCT) Motor function.
Output Test	96	OFFSET MOTOR CW	Tests the Offset Motor Clockwise (C.W.) function.
Output Test	97	OFFSET MOTOR CCW	Tests the Offset Motor Counter Clock-wise (C.C.W.) function.
Output Test	70	HVPS (C. ROLL AC)	Tests the High Voltage Power Supply (HVPS) AC voltage to the Charge Roll

Test Type	DG Code	LCD Display Message	Test Function
Output Test	71	HVPS (C. ROLL DC)	Tests the High Voltage Power Supply (HVPS) DC voltage to the Charge Roll
Output Test	72	HVPS (DEV. BIAS DC)	Tests the High Voltage Power Supply (HVPS) AC voltage to the Developer Bias Charge Roll.
Output Test	73	HVPS (DEV.BIAS AC)	Tests High Voltage Power Supply (HVPS) DC voltage to the Developer Bias Charge Roll.
Output Test	74	HVPS (DETACK SAW)	Tests High Voltage Power Supply (HVPS) DC voltage to the Detack Saw.
Output Test	75	HVPS (T.ROLL -)	Tests High Voltage Power Supply (HVPS) negative DC voltage to the Bias Transfer Roll.
Output Test	76	HVPS (T.ROLL +)	Tests High Voltage Power Supply (HVPS) positive DC voltage to the Bias Transfer Roll.
Output Test	00	EXIT DIAG.	Exits the diagnostic test(s) currently running.
Output Test	00	CHECK SUM	Displays the Print Engine Controller ROM check sum.
Output Test	00	SIZE SENSOR	Shows the paper size reported from each Paper Size Sensor.

To enter Diagnostic Mode 1:

1 Switch off the printer power
2 Press and hold the **Down** arrow key while switching ON the printer power.
3 Release the key when "IOT?" is displayed.

The LCD displays *"Print Counter" "Selecting DG* 30". This message indicates that the printer is in the Diagnostics Mode. The number after *DG* is the diagnostic test currently selected; DG 30 is the default test.

PRINT COUNTER
SELECTING DG 30

NOTE: You cannot enter a Diagnostics Mode if Power-On Diagnostic Sequence finds an error in ROM/ RAM Check.

NOTE: When running any diagnostic test, press the ***Enter*** *key to get to the beginning of the test and then press the* ***Up*** *or* ***Down*** *arrow key to exit the test and enter another DG code.*

NOTE: Throughout this manual, the term Tray 1 refers to the tray loaded into the Standard paper tray, the term Tray 2 refers to the tray loaded into the optional lower 1 paper tray, and the term Tray 3 refers to the tray loaded into the optional lower 2 paper tray.

NOTE: DG 00 [EXIT DIAG.] does not have a test function and is used to exit the output test mode.

NOTE: When electing a Diagnostic Code, the DG code initially displayed on the LCD is DG 30 (Print Counter). To select a desired DG code, press the **Up** or **Down** arrow key until the DG code is displayed on the LCD. DG codes are displayed one by one in the order they appear on the Diagnostic Code Table on the previous page.

5.2.1.1 DG 30 Print Counter

This diagnostic code displays the total number of print cycles. This print count is taken from the actuator signals sent to the Feed Solenoid. The total count increments even when paper jams in the paper tray and is not actually output.

Running DG 30:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

2 Press the **Enter** arrow key.

The LCD displays the print total.

PRINT COUNTER
013456 **DG 30**

In this example the total count is 13,456.

3 If you wish to exit this test and enter another test, press the **Escape** key. When the LCD displays **PRINT COUNTER/SELECTING DG 30**, press the **Up** or **Down** arrow key.

4 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.2 DG 02 Sensor Check

This diagnostic test allows you to check the function of the sensors and switches. In this mode, the number on the LCD (at the rightmost position on the bottom line, (as shown in step 2 below), increments by one each time the transition of the signal from any sensor or switch is detected. You can check the function of the sensors and switches from this change of the number. The sensors and switches checked by this input test are as follows:

- Keypad keys on the Control Panel (except **Enter**)
- Exit Sensor
- Duplex Sensor*
- Registration Sensor
- Paper Size Sensor (Trays 1, 2* and 3*)
- No paper Sensor (Trays 1, 2*, 3*, Front Tray and Envelope*)
- Front Cover Interlock Switch
- Rear Cover Interlock Switch
- EP Cartridge Sensor
- Toner Empty Sensor
- Full Stack Sensor
- Full Stack (OCT) Sensor*
- OCT Home Sensor*
- OCT Exit Sensor*

NOTE: The sensors marked with (*) are sensors of optional units.

Running DG 02:

1 Select DG 02 by pressing the **Up** or **Down** arrow key in the Diagnostic Mode until DG 02 appears on the LCD.

SENSOR CHECK
SELECTING DG 02

2 Press **Enter** to run the input test. The **EXECUTING DG 00** message is displayed on the LCD, and now you can check the sensors and switches. Press **Enter** again to stop the input test and return to the state in which DG 02 is selected.

SENSOR CHECK
EXECUTING DG 00

3 Check the function of the sensors and switches by manually actuating with your finger or a screw driver. If the sensor or switch is functioning correctly, the number at the position on the bottom line of the LCD increments by one each time you actuate the sensor or switch. If the number does not increment, the sensor or switch may be faulty.

SENSOR CHECK	
EXECUTING	DG 01

SENSOR CHECK	
EXECUTING	DG 02

4 If you wish to exit this test and enter another test, press the **Enter** key until the LCD displays **SENSOR CHECK/DG 02**, then press the **Up** or **Down** arrow key.

5 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

WARNING! ***Never run input test DG 02 with the Front Cover open because the laser light is emitted if you press on the interlock switch and LD switch simultaneously by actuating or cheating. Disconnect connector P/J 118 on the CRU Sensor PWB or connector P/J 12 on the Print Engine Controller PWB before running DG 02 when you must perform the input test with the Front Cover open.***

5.2.1.3 DG 07 Fuser Temperature Set

NOTE: DG 07 and DG 08 display the current fuser setting. If you wish to change the fuser setting, you must enter Diagnostic Mode 3 and perform "Fuser Temp. Set" (NV 70).

This diagnostic code displays the current setting for the fuser temperature. The setting is displayed as a two digit hexadecimal code. The setting has 16 steps (Table 5.2.1.4).

Running DG 07:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays DG 07.

3 Press the **Enter** key to start the test.

The LCD displays a two-digit temperature code that corresponds to one of the 16 temperature steps.

4 If you wish to exit this test and enter another test, press the **Escape** key then scroll to another test.

5 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.4 DG 08 Fuser Temperature

This diagnostic code displays the current temperature of the fuser.

Running DG 08:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays *DG 08.*

3 Press the **Enter** key to start the test.

The LCD displays a two-digit temperature code within the range that corresponds to the 16 temperature steps (see Table 5.2.1.4.1).

4 The temperature code displayed will continually change as the fuser heats up and cools down.

5 If you wish to exit this test and enter another test, press the **Enter** key then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

Table 5.2.1.4.1 Fuser Temperature Codes

Code Displayed in DG 07	Code Displayed in DG 08	Code Displayed in NV 70	Fuser Temperature (°C)
AF	A8~B1	0	165
AA	A4~AD	1	168
A6	A0~A9	2	171
A2	9C~A5	3	174
9E	97~A0	4	177
99	93~9C	5	180
95	8F~98	6	183
91	8A~94	7	186
8D	87~8F	8	189
88	84~8B	9	192
84	7F~87	A	195
80	7A~83	B	198
7C	77~7E	C	201
77	73~7A	D	204
73	6F~76	E	207
6F	6A~72	F	210

5.2.1.5 DG 81 Solenoid MBF

This diagnostic code tests the MBF Feed Solenoid.

Running DG 81:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **DG 81**.

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 81** message.

SOLENOID MBF
EXECUTING DG 81

4 Verify that when you press the **Enter** key, the Front Tray Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.6 DG 82 Tray 1 Solenoid

This diagnostic code tests the paper feed solenoid in Tray 1.

Running DG 82:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **TRAY 1 SOLENOID/ SELECTING DG 82** message.

TRAY 1 SOLENOID
SELECTING DG 82

3 Press the **Enter** key to start the test.

The LCD displays the **TRAY 1 SOLENOID/EXECUTING DG 82** message.

TRAY 1 SOLENOID
EXECUTING DG 82

4 Verify that when you press the **Enter** arrow key, Tray 1 Feed Solenoid energizes momentarily (about .5 seconds).

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.7 DG 83 Tray 2 Solenoid

This diagnostic code tests the paper feed solenoid in Tray 2.

Running DG 83:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the ***TRAY 2 SOLENOID/ SELECTING DG 83*** message.

TRAY 2 SOLENOID
SELECTING DG 83

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 83** message.

TRAY 2 SOLENOID
EXECUTING DG 83

4 Verify that when you press the **Enter** key, Tray 2 Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.8 DG 84 Tray 3 Solenoid

This diagnostic code tests the paper feed solenoid in Tray 3.

Running DG 84:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **SOLENOID TRAY 3/SELECTING DG 84** message.

TRAY 3 SOLENOID
SELECTING DG 84

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 84** message.

TRAY 3 SOLENOID
EXECUTING DG 84

4 Verify that when you press the **Enter** key, Tray 3 Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.9 DG 85 Envelope Solenoid

This diagnostic code tests Envelope Tray Feed Solenoid function.

Running DG 85:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **SOLENOID ENVE/SELECTING DG 85** message.

SOLENOID ENVE
SELECTING DG 85

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 85** message.

SOLENOID ENVE
EXECUTING DG 85

4 Verify that when you press the **Enter** key, the Envelope Tray Feed Solenoid energizes momentarily.

5 If you wish to exit this test and enter another test, press the **Escape** key; then scroll to another test.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.10 DG 86 Exit Direction Solenoid

This diagnostic code tests the Exit Direction Solenoid function.

Running DG 86:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **SOLENOID DIRECT/SELECTING DG 86** message.

SOLENOID DIRECT
SELECTING DG 86

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 86** message.

DIRECT SOLENOID
EXECUTING DG 86

4 Verify that the Exit Direction Solenoid energizes momentarily.

NOTE: The Direction Solenoid is physically located in the Offset Catch Tray and Mailbox Collator accessory. One of these options must be installed to verify operation of the Exit Direction Solenoid.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.11 DG 87 Registration Solenoid

This diagnostic code tests the Registration Solenoid

Running DG 87:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **SOLENOID REG/SELECTING DG 87** message.

SOLENOID REG
SELECTING DG 87

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 87** message.

SOLENOID REG
EXECUTING DG 87

4 Verify that the Registration Solenoid energizes momentarily each time the **Enter** key is pressed

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.12 DG 90 Main Motor

This diagnostic code tests the Main Drive Motor.

WARNING! DG 90 switches on the Main Motor. Be careful around the Motor and Drive Assembly.

Running DG 90:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MAIN MOTOR/SELECTING DG 90** message.

MAIN MOTOR
SELECTING DG 90

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 90** message.

MAIN MOTOR
EXECUTING DG 90

4 Verify that when you press the **Enter** key, the Motor and Drive Assembly turn.

5 If you wish to exit this test and enter another test, press the **Up** or **Down** arrow key to scroll to **EXIT DIAG SELECTING DG 00**. Then press the **Enter** key. Refer to *5.2.1.27 DG 00 Exit Diagnostics.*

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.13 DG 91 Duplex Motor H.S.(High Speed)

This diagnostic code tests the Duplex Motor function (high speed rotation)

Running DG 91:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR DUPLEX H.S./SELECTING DG 91** message.

MOTOR DUPLEX H.S.
SELECTING DG 91

3 Press the **Enter** key to start the test.

The LCD displays the **EXECUTING DG 91** message.

MOTOR DUPLEX H.S.
EXECUTING DG 91

4 Verify that when you press the **Enter** key, the Duplex Motor turns at a high speed.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.14 DG 92 Duplex Motor L.S. (Low Speed)

This diagnostic code tests the Duplex Motor function (low-speed rotation)

Running DG 92:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR DUPLEX L.S./SELECTING DG 92** message.

MOTOR DUPLEX L.S.
SELECTING DG 92

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 92** message.

MOTOR DUPLEX L.S.
EXECUTING DG 92

4 Verify that each time the **Enter** key is pressed the Duplex Motor rotates at low speed.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.15 DG 93 Exit Motor CW (Clockwise)

This diagnostic code tests the Exit Motor clockwise function.

Running DG 93:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR EXIT C.W./SELECTING DG 93** message.

MOTOR EXIT C. W.
SELECTING DG 93

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 93** message

MOTOR EXIT C. W.
EXECUTING DG 93

4 Verify that each time the **Enter** key is pressed the Exit Motor rotates clockwise.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.16 DG 94 Exit Motor CCW (Counter Clockwise)

This diagnostic code tests the Exit Motor counterclockwise function.

Running DG 94:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR EXIT C. C. W./SELECTING DG 94** message.

MOTOR EXIT C. C. W.
SELECTING DG 93

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 94** message.

MOTOR EXIT C. C. W.
EXECUTING DG 94

4 Verify that each time the **Enter** key is pressed the Exit Motor rotates counter clockwise.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.17 DG 95 Offset Catch Tray (OCT) Motor

This diagnostic code tests the OCT Motor function.

Running DG 95:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR OCT/SELECTING DG 95** message.

MOTOR OCT
SELECTING DG 95

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 95** message

MOTOR OCT
EXECUTING DG 95

4 Verify that the Offset Catch Tray Motor rotates momentarily each time the **Enter** key is pressed.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.18 DG 96 Offset Motor CW (Clockwise)

This diagnostic code tests the Offset Motor clockwise function.

Running DG 96:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **MOTOR OFFSET C.W./SELECTING DG 96**.

OFFSET MOTOR CW
SELECTING DG 96

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 96** message.

OFFSET MOTOR CW
EXECUTING DG 96

4 Verify that the Offset Catch Tray (OCT) Motor rotates clockwise each time the **Enter** key is pressed.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.19 DG 97 Offset Motor CCW (Counter Clockwise)

This diagnostic code tests the Offset Motor counter clockwise function.

Running DG 97:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **MOTOR OFFSET C.C.W./SELECTING DG 97.**

MOTOR OFFSET CCW
SELECTING DG 97

3 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 97** message.

MOTOR OFFSET CCW
EXECUTING DG 97

4 Verify that the Offset Motor rotates in a Counter Clockwise direction each time **Enter** is pressed.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.20 DG 70 HVPS (Charge Roll AC)

This diagnostic code tests HVPS AC voltage to the Bias Charge Roll.

WARNING! ***DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.***

Running DG 70:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS (C ROLL AC)/SELECTING DG 70.**

HVPS (C ROLL AC)
SELECTING DG 70

3 Remove the EP Cartridge from the printer.

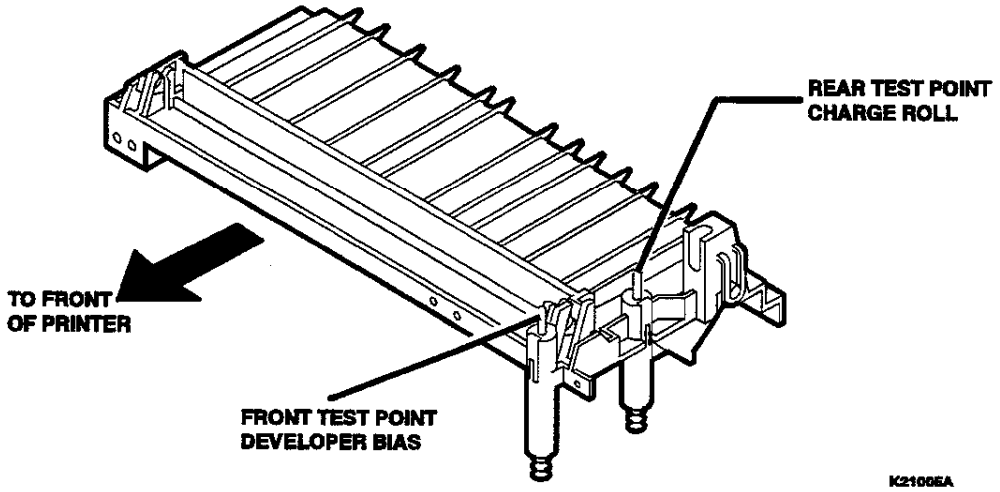
4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** AC voltage (approximately one second in duration) in the 1k VAC range.

6 Using alligator clips, connect the multimeter to the following terminals:

- Positive test probe to the rear pin of the two voltage supply pins on the right side of the Transfer Chute Assembly (see Figure 5.2.1.20.1).
- Negative test probe to the LVPS frame or the printer frame.

Figure 5.2.1.20.1 Test Point Locations



7 Press the **Enter** key to execute the test.

NOTE: Voltage is present for approximately one second each time the Enter key is pressed to execute the test.

The LCD displays the **EXECUTING DG 70** message.

HVPS C ROLL AC
EXECUTING DG 70

8 The normal momentary output voltage to the Charge Roll is approximately 820 VAC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.21 DG 71 HVPS (Charge Roll DC)

This diagnostic code tests HVPS DC voltage to the Bias Charge Roll.

WARNING! ***DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.***

Running DG 71:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS C ROLL DC/SELECTING DG 71**.

HVPS C ROLL DC
SELECTING DG 71

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** minus DC voltage (approximately one second in duration), in the 500 to 600 VDC range.

6 Using alligator clips, connect the multimeter to the following terminals:

- Positive test probe to the rear pin of the two voltage supply pins on the right side of the Transfer Chute Assembly (see Figure 5.2.1.20.1).
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 71** message.

HVPS (C ROLL DC)
EXECUTING DG 71

NOTE: Voltage is present for approximately one second each time the **Enter** *key is pressed.*

8 The normal momentary HVPS Charge Roll output voltage is approximately -510 VDC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.22 DG 72 HVPS (Developer Bias DC)

This diagnostic code tests the HVPS DC voltage to the Developer Bias Charge Roll. During this test the high voltage will be present for only a few seconds.

WARNING! DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.

Running DG 72:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS DEV. BIAS DC/SELECTING DG 72.**

HVPS DEV. BIAS DC
SELECTING DG 72

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** minus DC voltage (approximately one second in duration), in the 500 to 600 VDC range.

6 Using alligator clips, connect the multimeter to the following terminals:

- Positive test probe to the front pin of the two voltage supply pins on the right side of the Transfer Chute Assembly (see Figure 5.2.1.20.1).
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 72** message.

HVPS DEV. BIAS DC
EXECUTING DG 72

NOTE: Voltage is present for approximately one second each time the **Enter** *key is pressed.*

8 The normal momentary HVPS Developer Bias output voltage is approximately -400 VDC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.23 DG 73 HVPS (Developer Bias AC)

This diagnostic code tests HVPS AC voltage to the Developer Bias Charge Roll.

WARNING! ***DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.***

Running DG 73:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS DEV BIAS AC/SELECTING DG 73.**

HVPS DEV BIAS AC
SELECTING DG 73

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** voltage (approximately one second in duration), in the 2500 VAC range.

6 Using alligator clips, connect the multimeter to the following terminals:

- Positive test probe to the front pin of the two voltage supply pins on the right side of the Transfer Chute Assembly (see Figure 5.2.1.20.1).
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 73** message

HVPS DEV. BIAS AC
EXECUTING DG 73

*NOTE: Voltage is present for approximately one second each time **Enter** is pressed.*

8 The normal momentary HVPS Developer Bias output voltage is approximately 2.0 KVAC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.24 DG 74 HVPS (Detack Saw)

This diagnostic code tests HVPS AC voltage to the Detack Saw.

WARNING! ***DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.***

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER	
SELECTING	**DG 30**

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS DETACK SAW/SELECTING DG 74.**

HVPS DETACK SAW	
SELECTING	**DG 74**

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** voltage (approximately one second in duration), in the 750 VAC range.

6 Connect the multimeter to the following terminals:

- Positive test probe directly probing the Detack Saw
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 74** message

HVPS DETACK SAW	
EXECUTING	**DG 74**

NOTE: Voltage is present for approximately one second each time the **Enter** *key is pressed.*

8 The normal momentary HVPS Detack Saw output voltage is approximately 430 VAC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.25 DG 75 HVPS (Bias Transfer Roll -)

This diagnostic code tests HVPS negative DC voltage to the Bias Transfer Roll.

WARNING! DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays HVPS (T ROLL -)/SELECTING **DG 75**.

HVPS (T ROLL -)
SELECTING DG 75

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** minus DC voltage (approximately one second in duration), in the 1000 VDC range.

6 Connect the multimeter to the following terminals:

- Positive test probe directly to the shaft of the Bias Transfer Roll
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 75** message

HVPS (T Roll -)
EXECUTING DG 75

NOTE: Voltage is present for approximately one second each time the **Enter** *key is pressed.*

8 The normal momentary HVPS Bias Transfer Roll output voltage is approximately -900 VDC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch the printer power OFF and then switch it ON.

5.2.1.26 DG 76 HVPS (Bias Transfer Roll +)

This diagnostic code tests HVPS positive DC voltage to the Bias Transfer Roll.

WARNING! DG 70 through DG 76 each switch on the HVPS. Never touch the parts supplied with a high voltage from the HVPS when running DG 70 through DG 76. The HVPS output voltages switched on by DG 71 and DG 72 can be measured by means of a multimeter. Be sure to observe the following procedures to check the voltages.

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **HVPS (T ROLL +)/SELECTING DG 76.**

HVPS (T ROLL +)
SELECTING DG 76

3 Remove the EP Cartridge from the printer.

4 Bypass the Front Cover interlock switch and the EP Cartridge interlock switch with an Interlock Bypass key or equivalent.

5 Set the multimeter to read a **momentary** DC voltage (approximately one second in duration), in the 1000 VDC range.

6 Connect the multimeter to the following terminals:

- Positive test probe directly to the shaft of the Bias Transfer Roll
- Negative test probe to the LVPS frame or the printer frame.

7 Press the **Enter** key to execute the test.

The LCD displays the **EXECUTING DG 76** message

HVPS (T ROLL +)
EXECUTING DG 76

NOTE: Voltage is present for approximately one second each time the **Enter** *key is pressed.*

8 The normal momentary HVPS Bias Transfer Roll output voltage is approximately +2.7 KVDC.

9 If you wish to exit this test and enter another test, press the **Escape** key.

10 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.27 DG 00 Exit Diagnostics

This diagnostic code exits the diagnostic test currently running.

Running DG 00:

1 Press the **Up** or **Down** arrow key until the LCD displays the **EXIT DIAG/SELECTING DG 00** message.

EXIT DIAG
SELECTING DG 00

2 Press the **Enter** key.

EXIT DIAG
EXECUTING DG 00

3 To exit this test and enter another test, press the **Escape** key.

4 To exit and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.28 DG 00 Checksum

This diagnostic code displays the Print Engine Controller ROM checksum.

Running DG 00:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays **CHECKSUM/SELECTING DG 00** message.

CHECKSUM
SELECTING DG 00

3 Press the **Enter** key.

The LCD displays the **CHECKSUM** message.

CHECKSUM
CHECKSUM IS ####

NOTE: #### = ROM Checksum value.

4 If you wish to exit this test and enter another test, press the **Escape** key.

5 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.1.29 DG 00 Size Sensor

This diagnostic code shows the contact actuation (combination of closed contacts) of each Paper Size Sensor.

Running DG 00:

1 Enter Diagnostics Mode 1.

The LCD displays the **PRINT COUNTER/SELECTING DG 30** message, indicating the printer is in Diagnostics Mode.

PRINT COUNTER
SELECTING DG 30

2 Press the **Up** or **Down** arrow key until the LCD displays the **SIZE SENSOR/SELECTING DG 00** message.

SIZE SENSOR
SELECTING DG 00

3 Press the **Enter** key.

The LCD displays the **SIZE SENSOR** message along with the paper size.

SIZE SENSOR
Paper Type Size XX

NOTE: Paper Type = Letter (8.5 x 11), Folio (8.5 x 13), Legal (8.5 x 14).

4 Press the **Enter** key to scroll to the next paper tray.

5 If you wish to exit this test and enter another test, press the **Escape** key.

6 To exit this test and return to normal operation, switch OFF the printer power then switch it ON.

5.2.2 Diagnostic Mode 2

To enter Diagnostic Mode 2:

1 Switch off the printer power.

2 Remove paper from all trays except the one under test.

3 Press and hold the **Enter** key as you switch ON the printer power.

4 Release the **Enter** key when the LCD displays the "IOT?" message.

The LCD displays the **READY TO PRINT/TEST PRINT ( ) 00** message. This message indicates that the printer is in the Diagnostics Mode and ready to produce test prints. The letter within the parentheses ( ) indicates the mode, (S = Simplex, D = Duplex). The number after **TEST PRINT ( )** is the number of test prints produced. Each time a test print is produced, the number will increment by one.

READY TO PRINT
TEST PRINT ( ) 00

NOTE: You cannot enter a Diagnostics Mode if the Power-On Diagnostic Sequence finds an error in ROM/RAM Check.

To run a test print:

1 Enter Diagnostics Mode 2.

2 Press the **Up** or **Down** arrow key to choose simplex or duplex mode.

NOTE: Duplex mode can only be selected when a duplex option is installed.

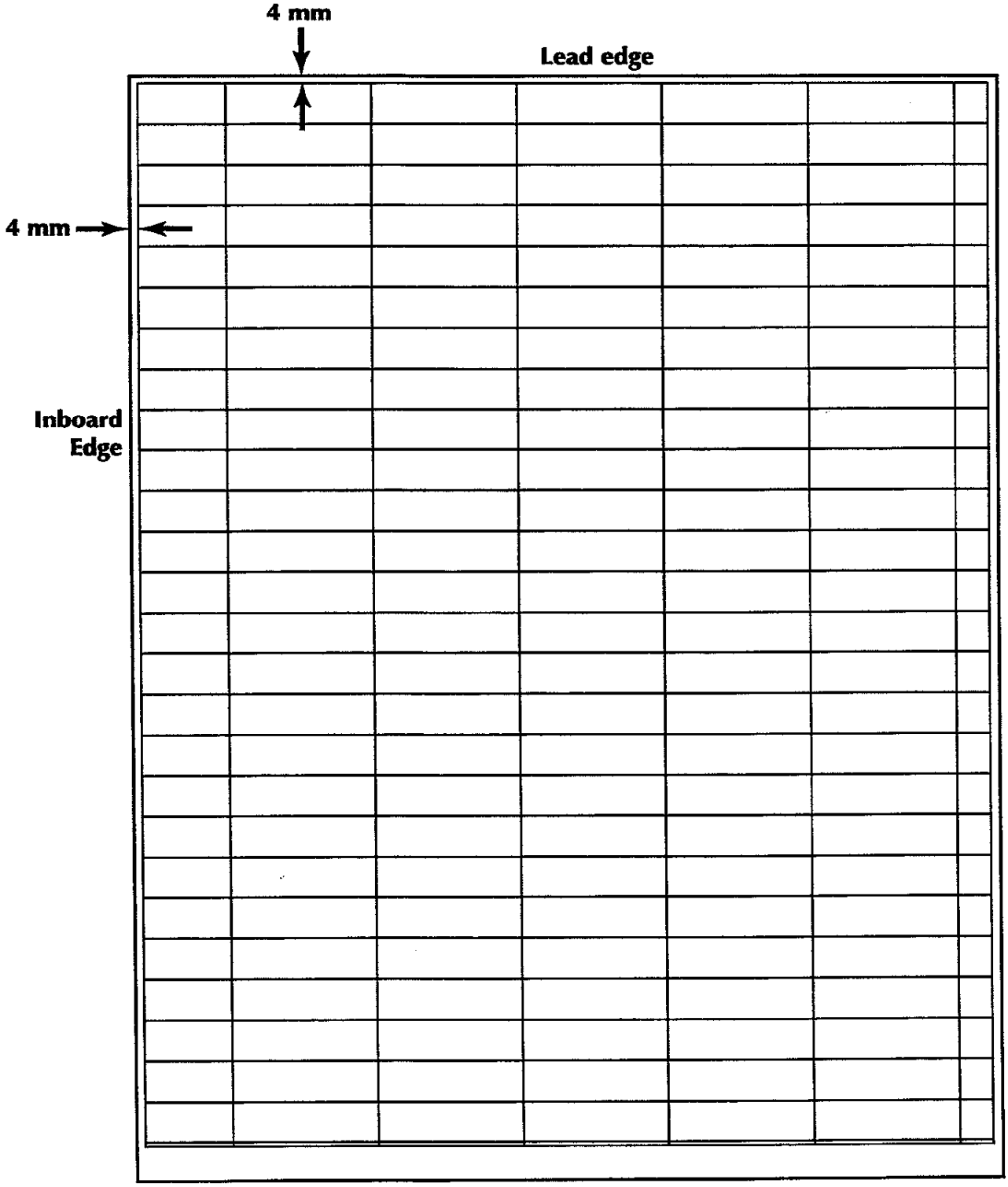
3 Press the **Enter** key to start printing test patterns. (See Figure 5.2.2.1 for an example of an IOT Test Print.)

4 The printer will continue to print test patterns until the **Enter** key is pressed a second time.

5 To exit the test, switch off the printer power.

NOTE: In order to manually produce an IOT Test Print, refer to the procedure in 5.2.4 Print Engine Controller Test Print.

Figure 5.2.2.1 IOT Test Print

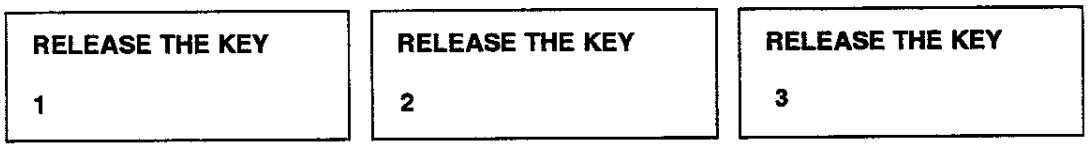


5.2.3 Diagnostic Mode 3

To enter Diagnostic Mode 3:

1 Switch off the printer power.

2 Press and hold the **Down** arrow key and the **Enter** key as you switch ON the printer power. When the **IOT?** message is displayed, release the **Down** arrow key; but continue to hold the **Enter** key. The LCD display will start counting. Release the **Enter** key when the LCD displays **3**.



3 The LCD displays the **REG. PROCESS 1/SELECTING NV 10**. This message indicates that the printer is in Diagnostic Mode 3.

To select, adjust, or change any of the functions in Diagnostic Mode 3, perform the following:

1 Enter Diagnostic Mode 3.

2 Press the **Down** arrow key until the desired function is displayed on the LCD panel.

3 Press the **Enter** key to select the function.

4 Press the **Up** or **Down** arrow key until the desired setting is displayed.

5 Press the **Enter** key to lock in the setting.

6 Press the **Escape** key to exit this step.

7 Switch off the printer to exit the Diagnostic Mode.

NV	Message Displayed on LCD (Top Line)	Option Values [Factory Defaults]	Are Changes Possible?
	Function	Option Description	
10	REG.PROCESS 1	0 to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for paper fed from Tray 1.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.5mm per step.	
20	REG.PROCESS 2	0 to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for paper fed from Tray 2.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.5mm per step.	

NV	Message Displayed on LCD (Top Line)	Option Values [Factory Defaults]	Are Changes Possible?
	Function	Option Description	
30	REG.PROCESS 3	0 to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for paper fed from Tray 3.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.5mm per step.	
40	REG.SCAN 1	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for paper fed from Tray 1.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step.	
50	REG.SCAN 2	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for paper fed from Tray 2.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step.	
60	REG.SCAN 3	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for paper fed from Tray 3.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step.	
70	FUSER TEMP. SET	0 to F (16 steps) [Factory default value: 5]	Yes
	Sets the Fuser temperature.	"0" sets the lowest temperature. "F" sets the highest temperature. Approximately 3°C per step.	
80	REG.PROCESS DUP.	to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for duplex print.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.54mm per step.	
90	REG. SCAN DUP.	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for duplex print.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step	

Code	Message Displayed on LCD (Top Line)	Option Values [Factory Defaults]	Are Changes Possible?
	Function	Option Description	
A0	REG.PROCESS MBF	0 to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for paper fed from MBF.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.54mm per step.	
B0	REG.SCAN MBF	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for paper fed from MBF.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step.	
C0	REG.PROCESS ENV	0 to F (16 steps) [Factory default value: A]	Yes
	Sets the lead edge registration for envelope fed from Envelope Tray.	"0" sets the narrowest lead edge registration gap. "F" sets the widest lead edge registration gap. Approximately 0.54mm per step.	
D0	REG.SCAN ENV	0 to 8 (9 steps) [Factory default value: 4]	Yes
	Sets the side edge registration for envelope fed from Envelope Tray.	"0" sets the narrowest left side edge registration gap. "8" sets the widest left side edge registration gap. Approximately 0.5mm per step	
E3	TEST PRINT	Press the Enter key to produce the grid test print shown in Figure 5.2.2.1.	

5.2.3.1 Setting and Verification of Registration

This section covers setting and verifying registration of the printer.

WARNING! Make sure the printer has all the covers in place when you perform the test print.

To **set the printer registration**, do the following:

1 Remove all paper from trays except the tray to be tested/adjusted.
2 Enter Diagnostic Mode 3.
3 Press the **Down** arrow key until **TEST PRINT/SELECTING NV E3** is displayed on the LCD panel.
4 Press the **Enter** key.
5 Compare the printed test pattern with Figure 5.2.2.1.

NOTE: Refer to the procedure in to verify the registration.

6 If the printed test pattern is within specifications, go to step 13.
7 If the test pattern is not within specifications, press the **Down** arrow key until the Registration message for the tray selected is displayed.
8 Press the **Enter** key. The LCD displays "SELECTING PAR" (Selecting Parameters).
9 Note the current setting displayed on the LCD panel.
10 Press the **Up** or **Down** arrow key until the desired setting is displayed.
11 Press the **Enter** key to write the new value into NVM.
12 Repeat steps 3 through 11 until the printed test pattern is within specification.
13 Switch the printer power off; then switch the printer power on.
14 Select the desired paper tray by entering the Menu Mode and selecting the default tray in either PCL or PostScript.
15 Enter the Menu Mode, enter the Test Menu, and run a test print. (See Figure 5.2.3.1.1).
16 If the test print is within specification, exit the Menu Mode. (See Procedure).
17 If the test print is not within specification, enter Diagnostic Mode 3 and repeat steps 7 through 15.
18 If another tray needs to be checked/adjusted, repeat steps 2 through 17.

The two methods to verify registration are:

1. IOT Test Print (see Figure 5.2.2.1):
   - Measure 4mm from the top edge (lead edge) of the paper to the top edge of the IOT Test Print.
   - Measure 4mm from the left edge of the paper to the left edge of the IOT Test Print.

NOTE: The ideal registration should measure 4mm in both directions to properly register the test pattern on the page.

2. System Controller Test Print (see Figure 5.2.3.1.1):
   - Fold the top edge (lead edge) of the test print down to the top edge of the scan direction ladder chart. This folded edge should occur directly on the scan line of the Registration Target in order to center the scan direction registration. (See Figure 5.2.3.1.2).
   - Fold the left edge of the test print over to the left edge of the process direction ladder chart. This folded edge should occur directly on the process line of the Registration Target in order to center the process direction registration. (See Figure 5.2.3.1.3).

NOTE: The ideal registration for the System Controller Test Print is for the two fold lines (in the scan direction and in the process direction) to intersect at the center of the registration target.

Figure 5.2.3.1.1 System Controller Test Print

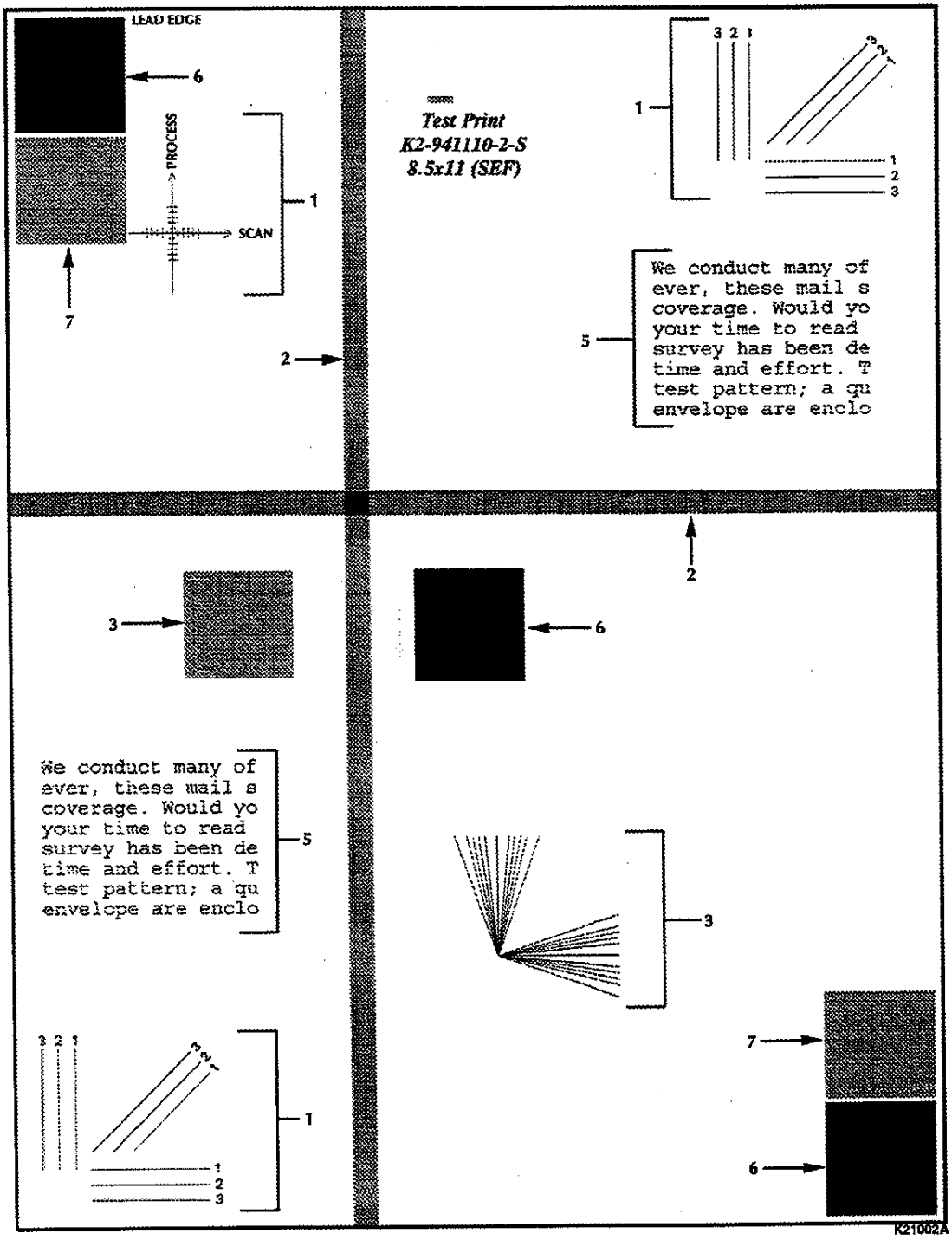


Figure 5.2.3.1.2 Lead Edge-to-Trail Edge Registration

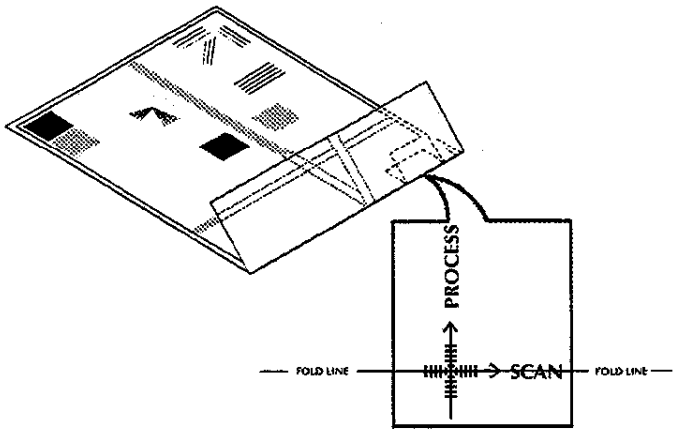
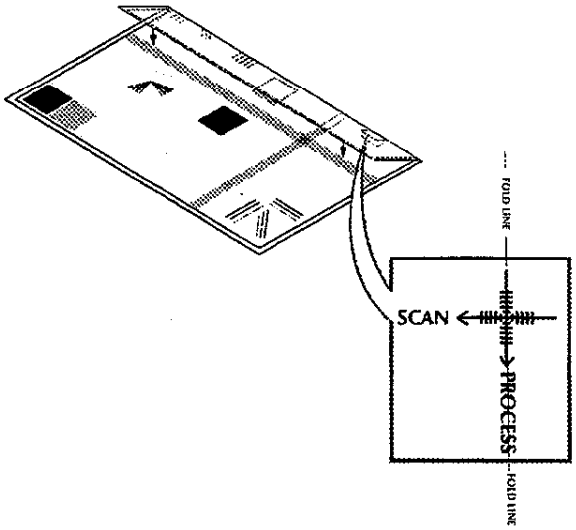


Figure 5.2.3.1.3 Side-to-Side Registration



5.2.4 Print Engine Controller Test Print

There are three methods to produce a Print Engine Controller Test Print.

NOTE: The System Controller must be installed to enter diagnostics.

1 Enter Diagnostic Mode 2 and then press **Enter** after **READY TO PRINT/TEST PRINT (S/D) 00** is displayed on the LCD. The printer will continue to produce test prints until you again press **Enter** to stop the test prints.

2 Enter Diagnostic Mode 3 and then press the **Up** arrow key or **Down** arrow key until **TEST PRINT/ SELECTING NV E3** is displayed on the LCD. Press the **Enter** key to produce the test print. One Print Engine Controller test print is produced.

3 The following method bypasses the System Controller.

NOTE: The System Controller does not have to be in the printer for this method to produce a Print Engine Controller Test Print.

- Switch off the printer power.
- Short the two male pins of P/J35 on the Print Engine Controller.

NOTE: No damage is caused if the shorting tool comes into contact with the metal parts of the printer frame.

- Turn on the printer power.

NOTE: P/J35 is a white plug located directly above P/31, the Print Engine Controller-to-System Controller plug.

NOTE: Each time the two pins of P35 are momentarily shorted together, one Print Engine Controller Test Print is produced. However, if the pins are held shorted, the test pattern prints continuously.

5.2.5 System Controller Test Print

NOTE: The System Controller must be installed to produce System Controller test prints.

1. Press the **Online** key to enter the Offline Mode.
2. Press **Menu** and scroll with the **Up** and **Down** arrow keys until **MAIN MENU/TEST MENU** is displayed.
3. Press **Enter** and scroll with the **Up** and **Down** arrow key until **TEST MENU/TEST PRINT** is displayed.
4. Press **Enter**. **TEST PRINT/PRINTING** is displayed and the System Controller Test Print is produced.

5.3 Diagnostic Mode 2 Error and Status Codes

NOTE: These error codes may be displayed on the printer control panel if a fault condition is detected during Diagnostic Mode 2 operation when the print engine cannot access the normal system error messages. See 5.3.2 Error/Status Code Display Conditions, Printer Action, and Recovery Procedures for more detailed information on these status codes.

Table 5.3.1 Error and Status Code Table

Error/Status Code	Message Displayed on LCD	Description
U6	NV MEMORY FAIL	There is a problem in the Print Engine Controller Nonvolatile Memory (CPU).
U2	LASER FAILURE	There is a problem in the Laser Assembly.
U4	FUSER FAILURE	There is a problem in the Fuser.
U5	FAN FAILURE	There is a problem in the Fan.
U1	MOTOR FAILURE	There is a problem in the Main Motor.
E11	LOWER 1 OUT/LOWER 2 OUT	Paper Tray 2 or 3 is removed.
E10	MAILBOX FAILURE	The Mail Box Unit is removed.
E9	OFFSET TRAY FAILURE	The OCT Unit is removed.
E5	CLOSE COVERS	An interlock switch is open. (Front Cover or Rear Cover)
E8	ENVELOPE FEEDER FAILURE	The Envelope Feeder is not in place.
E7	DUPLEX UNIT FAILURE	The Duplex Module is not in place.
E4	PAPER JAM/OPEN REAR COVER	There is a paper jam in the Exit Sensor area. (Exit jam)
E3	PAPER JAM/POPEN FRONT COVER	There is a paper jam between the Registration Sensor and the Exit sensor. (Registration jam)
E2	OPEN FRONT COVER/ REMOVE JAM SHEET	There is a paper jam between the current Feeder Assembly and the Registration Sensor. (Misfeed jam)
E1	PAPER JAM/OPEN REAR COVER	There is a paper jam in the Duplex Module. (Refeed jam)
E6	OPEN REAR COVERS/OFFSET JAM	There is a paper jam in the OCT Unit. (OCT jam)
J3	INSTALL PRINT CART	The EP Cartridge is not in place.

Error/Status Code	Message Displayed on LCD	Description
P1	FUSER PAUSE MODE	The printer is in the Fuser Pause Mode. (The printer received the SET PAUSE command.)
C3	MAIN TRAY OUT (TRAY 1)	Tray 1 is not in place.
C3	LOWER 1 OUT (TRAY 2)	Tray 2 is not in place (in a printer with the optional lower 1 tray).
C3	LOWER 2 OUT (TRAY 3)	Tray 3 is not in place (in a printer with the optional lower 2 tray).
C5	MANUAL	Paper or envelope needs to be fed through the front tray, and printing is in the manual feed mode.
C5	FULL STACK	The Exit Tray is full.
C5	MAIN TRAY	Tray 1 is empty.
C5	LOWER 1 TRAY	Tray 2 is empty (in a printer with the optional lower 1 tray).
C5	LOWER 2 TRAY	Tray 3 is empty (in a printer with the optional lower 2 tray).
C5	MAIN - FRONT TRAY	The MBF is empty.
C5	ENVELOPE FEEDER	The Envelope tray is empty.
	PAPER SIZE JAM/OPEN REAR COVER	The paper size detected is different than the paper size setting in the Nonvolatile memory.
J5	REPLACE PRINT CARTRIDGE * This message is displayed alternately with "READY TO PRINT" at five second intervals.	The EP Cartridge is near the end of its life, or the Toner is running low.

5.3.2 Error/Status Code Display Conditions, Printer Action, and Recovery Procedures

Table 5.3.2 Error/Status Code Display Conditions, Printer Action, and Recovery Procedures

Code	Display Conditions	Printer Action	Recovery Procedures
U6	1. A Nonvolatile Memory read error occurred when the printer power was switched on. 2. Nonvolatile Memory write error occurred during write to the Non-volatile Memory.	Immediately or after completing the current cycle when printing, the printer shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Switch off the printer power, then back on again.
U2	1. The SOS signal intervals are longer than the set READY interval after 20 seconds from the start of Laser warm up. (Warm up Failure) 2. The actual LD output is lower than the LD power setting. 3. The SOS signal intervals become longer than the set Fail interval after the Laser warm up is completed.	Immediately or after completing the current cycle when printing, the printer shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Switch off the printer power, then back on again.
U4	1. The Fuser warm up does not finish within 80 seconds. 2. The Fuser temperature becomes lower than the set LOW Trouble temperature after the Fuser warm up is completed. 3. The Fuser temperature rises higher than the set HIGH Trouble temperature after the Fuser warm up is completed. 4. Discontinuity is detected in the Thermistor circuit of the Heater Assembly. 5. The power supply to the Heater Quartz continues for 10 or more seconds while the Main Motor is stopping after the Fuser warm up is completed. (S.T.S Failure) * When the software is overrun, or removed, the printer is reset by the watch dog timer.	Immediately or after completing the current cycle when printing, the printer shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Switch off the printer power, then back on again.

Code	Display Conditions	Printer Action	Recovery Procedures
U5	The FAN ALM (Fan Alarm) signal becomes active (High) after a specified period of time from the printer power being switched on. * The active (High) state of the FAN ALM signal indicates that the Fan Motor is stopping.	Immediately or after completing the current cycle when printing, the printer shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Switch off the printer power, then switch it back on again.
U1	The MOT ALM (Main Motor Alarm) signal becomes active (High) after 50 milliseconds from the printer power being switched on.	Immediately or after completing the current cycle when printing, the printer shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Switch off the printer power, then switch it back on again.
E11	Tray 2 or 3 is removed after the printer power is switched on.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Reinstall the removed tray.
E10	The Mail Box Unit is removed while it is selected.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Reinstall the Mail Box.
E9	The OCT Unit is removed while it is selected.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Reinstall the OCT.
E5	An Interlock Switch opens. * The Front or Rear Cover is opened.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Close the open cover.
E8	The Envelope Feeder is removed while it is selected.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Reinstall the Envelope Feeder.
E7	The Duplex Module is removed while the Duplex Print Mode is selected.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Open the Rear Cover, reinstall the Duplex Module, and close the Rear Cover.

Code	Display Conditions	Printer Action	Recovery Procedures
E4	1. The Exit Sensor is not deactuated in the specified time after the actuation of the Registration Sensor. 2. The Exit Sensor is being actuated when the printer is switched on. 3. The Exit Sensor is being actuated when an Interlock Switch is closed. 4. The Exit Sensor is actuated during an Erase Cycle.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser. When the actual paper length is greater than the paper length detected, however, the printer ejects the paper and then stops the Main Motor.	Open the Front or Rear Cover, remove the jamming paper, then close the cover.
E3	The Exit Sensor is not actuated within the specified time after the actuation of the Registration Sensor.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser. When the actual paper length is greater than the paper length detected, however, the printer ejects the paper and then stops the Main Motor.	Open the Front or Rear Cover, remove the jamming paper, then close the cover.
E2	1. The Registration Sensor is actuated before the specified time after the actuation of the Feed Roll Clutch. (Too Soon Jam) 2. The Registration Sensor is not actuated within the specified time after the actuation of the Feed Roll Clutch. (Misfed Jam) 3. The Registration Sensor is being actuated when the printer is switched on. 4. The Registration Sensor is being actuated when an interlock switch is closed. 5. The Registration Sensor is actuated during an Erase cycle.	For the first sheet of paper, the printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser. For the second and following sheet of paper, the printer complete the current print cycle and then shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Open the Front or Rear Cover, remove the jamming paper, then close the cover.

Code	Display Conditions	Printer Action	Recovery Procedures
E1	1. The Duplex Sensor is not actuated within the specified time after the actuation of the Exit Sensor. (Duplex Jam) 2. The Duplex Sensor is not deactuated within the specified time after its actuation. (Duplex Jam) 3. The Duplex Sensor is being actuated when an interlock switch is closed. 4. The Duplex Sensor is being actuated when an interlock switch is closed. 5. The Duplex Sensor is actuated during an Erase cycle.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Open the Rear Cover, remove the jamming paper, then close the cover.
E6	1. The OCT Sensor is not actuated within the specified time after the actuation of the Exit Sensor. (OCT Jam) 2. The OCT Sensor is not deactuated within the specified time after its actuation. (OCT Jam) 3. The OCT Sensor is being actuated when an interlock switch is closed. 4. The OCT Sensor is being actuated when an interlock switch is closed. 5. The OCT Sensor is actuated during an Erase cycle.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Open the Rear Cover, remove the jamming paper, then close the cover.
J3	The EP Cartridge switch becomes open.	The printer immediately shuts down the Main Motor, Laser Motor, and the power supply to the Fuser.	Install an EP Cartridge.
P1	The printer receives the SET PAUSE command.	The printer immediately stops the power supply to the Fuser.	Send the RESET PAUSE command to the printer.
C3	1. Tray 1 is not in place (in a standard printer). 2. Tray 2 is not in place (with the optional lower 1 tray). 3. Tray 3 is not in place (with the optional lower 2 tray).	The printer immediately stops the Main Motor and Laser Motor.	Insert the tray.

Code	Display Conditions	Printer Action	Recovery Procedures
C5	1. The selected paper feeder is out of paper. 2. The Exit Tray is full. (The Full Stack Sensor is actuated.)	The printer completes the current print cycle.	1. Supply the paper feeder with paper, or select another paper feeder. 2. Take the prints out of the tray.
PAPER SIZE ERROR	The actual paper size is different from the paper size detected or set in the Nonvolatile memory.	In Online Mode, the printer completes the current print cycle. In Offline Mode, the printer competes the current print cycle and is immediately ready to print.	Send the RESET MISPRINT command to solve the PAPER SIZE MISMATCH state.
J5	The printer made ten prints since the Toner Empty Sensor is actuated.	Display of warning message only (Intermittent Display)	Replace the EP Cartridge with a new one.

5.4 Supplemental Tools, Supplies, and Hardware

Tools

Description	Part Number
150mm Rule	600T41503
Anacom G80 (or similar)	600T80138
Digital Multimeter	600T1616
ESD Field Service Kit (RX)	600T91802
ESD Field Service Kit (USCO)	600T42001
Eye Loupe	600T42008
Filtration Module	600T1832
Grounded Vacuum Cleaner	600T1820
Interlock Cheater	3E85271
Meter Leads Kit	600T1617
Metric Multinational Tool Kit	600T1880
Output Reference Document	82P520
Toner Disposal Bag (Vacuum)	99E3270
Visual Scale	82P284
Vacuum Nozzle Tool	600T1940

Supplies

Description	Part Number
Cleaning Cloth (treated)	35P1538
Cleaning Pads	600S4372
Cotton Swabs	35P2162
Disposable Gloves	99P3082
Disposable Plastic Bags	99P3023
Drop Cloth	5P1737
Film Remover	43P45
Formula A Cleaner	43P48
Glue Capsule	63P560
Polyurethane Pads	600S4653
Towel (Heavy Duty)	35P3191
RX Unique Cleaner	8R90175
Cleaning Pad Kit	600S4372
Cloth	8R90019
Fuser Cleaning Solvent Pads	43P83
General Cleaning Solvent	8R90176
Lens Cleaner	8R90177

Hardware Kit (Part 600K50560)

5.5 Service Cleaning Procedure

Proper diagnosis of printer problems requires that the printer be cleaned before troubleshooting begins. This section directs you in performing the cleaning and preliminary checkout procedures.

5.5.1 Preparation Procedure

1 Switch off the printer power.

2 Disconnect the power cord from the AC outlet.

3 Open the Front Cover.

4 Remove the EP Cartridge and store it in a safe, dark place.

5 During the cleaning procedure, check for foreign objects, such as staples, paper clips, etc., in the printer. Also check for other problems, such as damaged or crimped wires, loose connectors or terminals, and worn or damaged parts.

5.5.2 Paper Path Cleaning Procedure

1 Remove the Transport Chute Assembly. Use a brush to clean the Detack Saw.

2 Check the paper path and the rollers along the path for the presence of foreign object. If any, remove it. Then, use a brush or dry cloth to clean the paper path and the rollers.

NOTE: Do not use the brush on the BTR surface. If the surface is heavily contaminated, use a vacuum cleaner to clean the surface.

NOTE: For heavy contamination, use a damp cloth (water or cleaning solvent) to clean the rollers. Dry them with a clean cloth.

3 Remove the Top Cover. Use a brush to clean the Fan and the Top Cover portion around the Fan Exhaust.

NOTE: Suffocated exhaust area may cause an overheat of the printer interior.

4 Run a few test prints again to check for proper printer operation and print quality.

5.6 Printer Data and Tag Information

5.6.1 Printer Data Labels

The printer serial number, data label, and retrofit (change) tag matrix are located on the printer as illustrated in Figure 5.6.1.1 and Figure 5.6.1.2.

Figure 5.6.1.1 Printer Tag Matrix

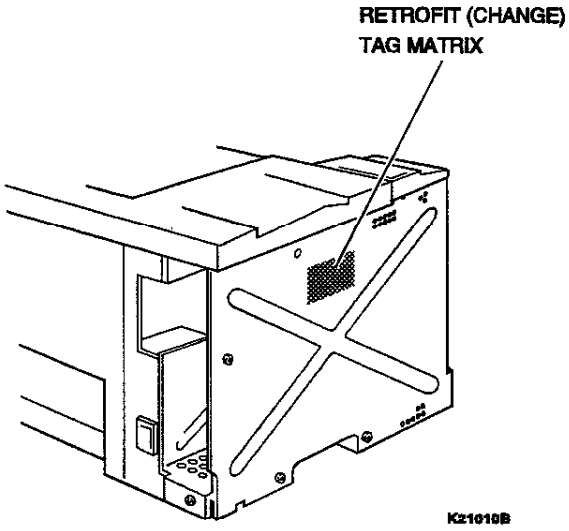
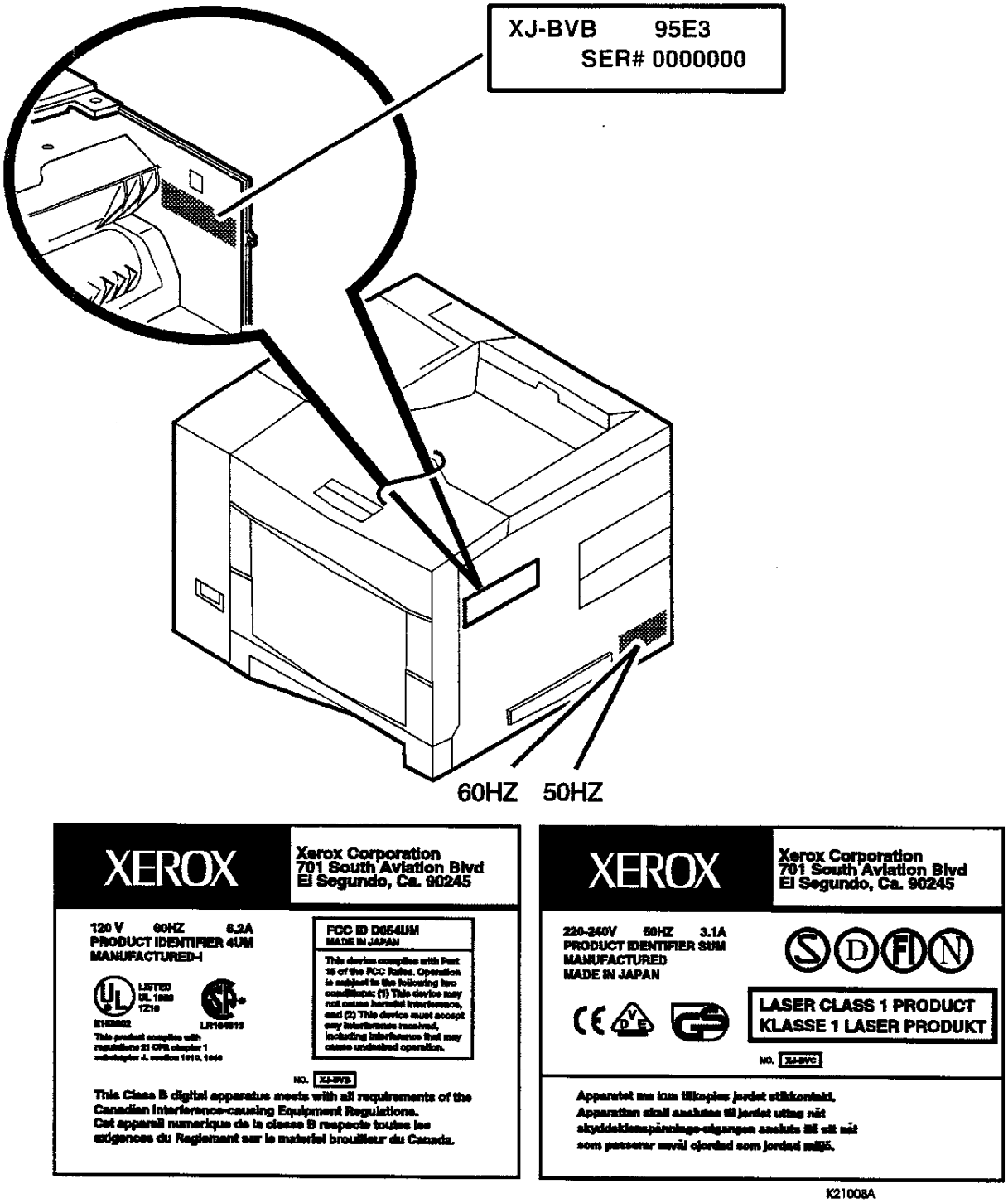


Figure 5.6.1.2 Printer Data Label and Serial Number Plate



5.6.2 Retrofit (Change) Tag/MOD Matrix

All important modifications are identified by a Retrofit Tag/MOD number on the matrix card attached to the System Controller Chassis of each 4517/4517mp printer (see *RAP 5.6.1 Printer Data Labels*). This section describes all of the tags as well as multinational applicability, classification codes, and permanent or temporary modification information.

Classification codes

A Retrofit Tag/MOD number may be required to identify differences between parts that cannot be interchanged, or differences in diagnostic, repair, installation, or adjustment procedures. A Retrofit Tag/MOD number may also be required to identify the presence of optional hardware, special nonvolatile memory programming, or if mandatory modifications have been installed. Each Retrofit Tag/MOD number is given a classification code to identify the type of change the Retrofit Tag/MOD has made.

- M Mandatory
- N Not installed in the field
- O Optional
- R Repair
- S Situational

Change Tag/MOD Index

- Tag/MOD:
- Class:
- Mfg. Serial No.:
- Name:
- Purpose:
- Kit Number:
- Reference:

Section 6

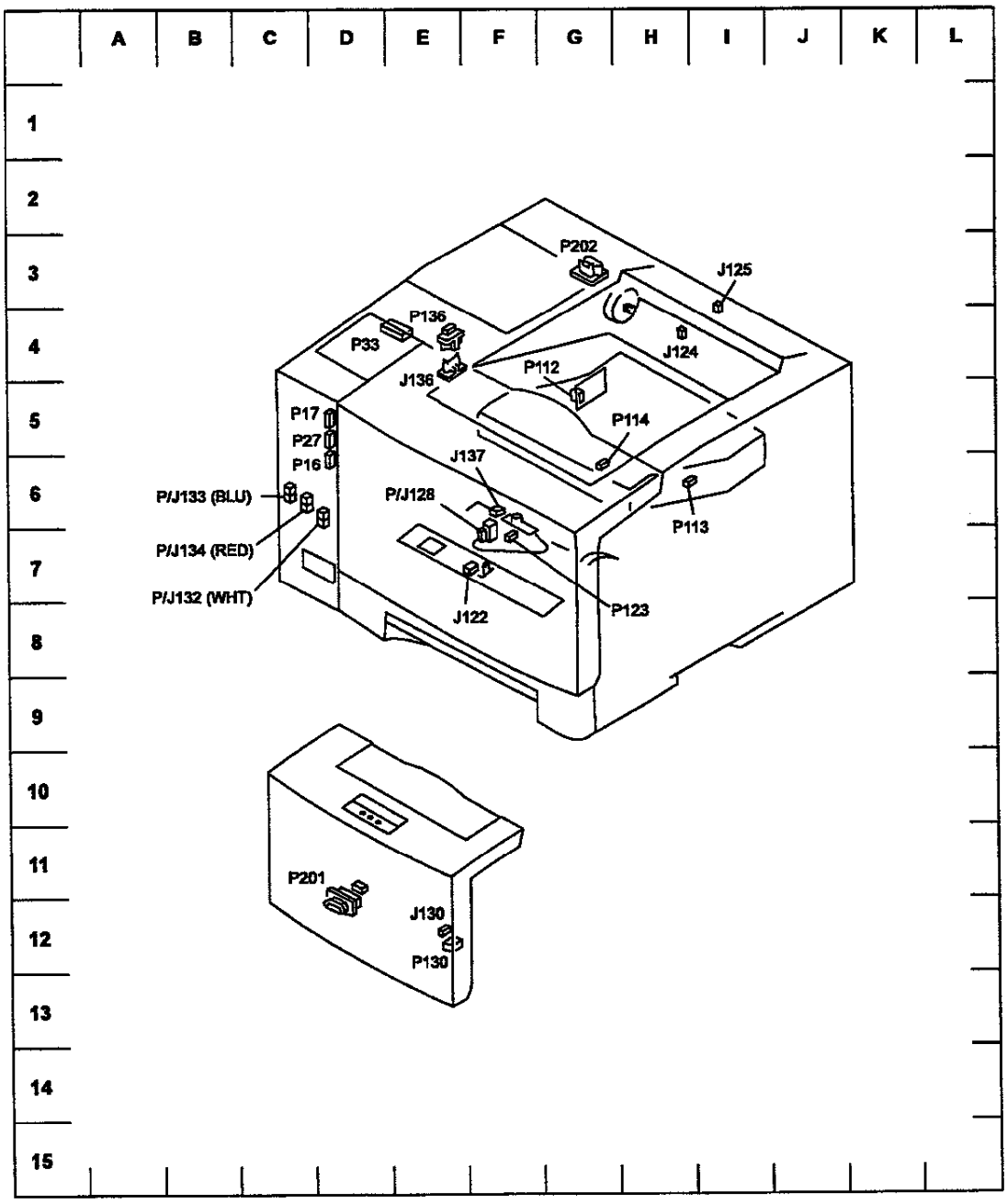
Wiring Data

Wiring Diagrams **6-3**
Base Engine Connector Locators 6-3
Base Engine PWB Connector Locators 6-4
HVPS Connector Locators 6-5
P/J Table 6-6

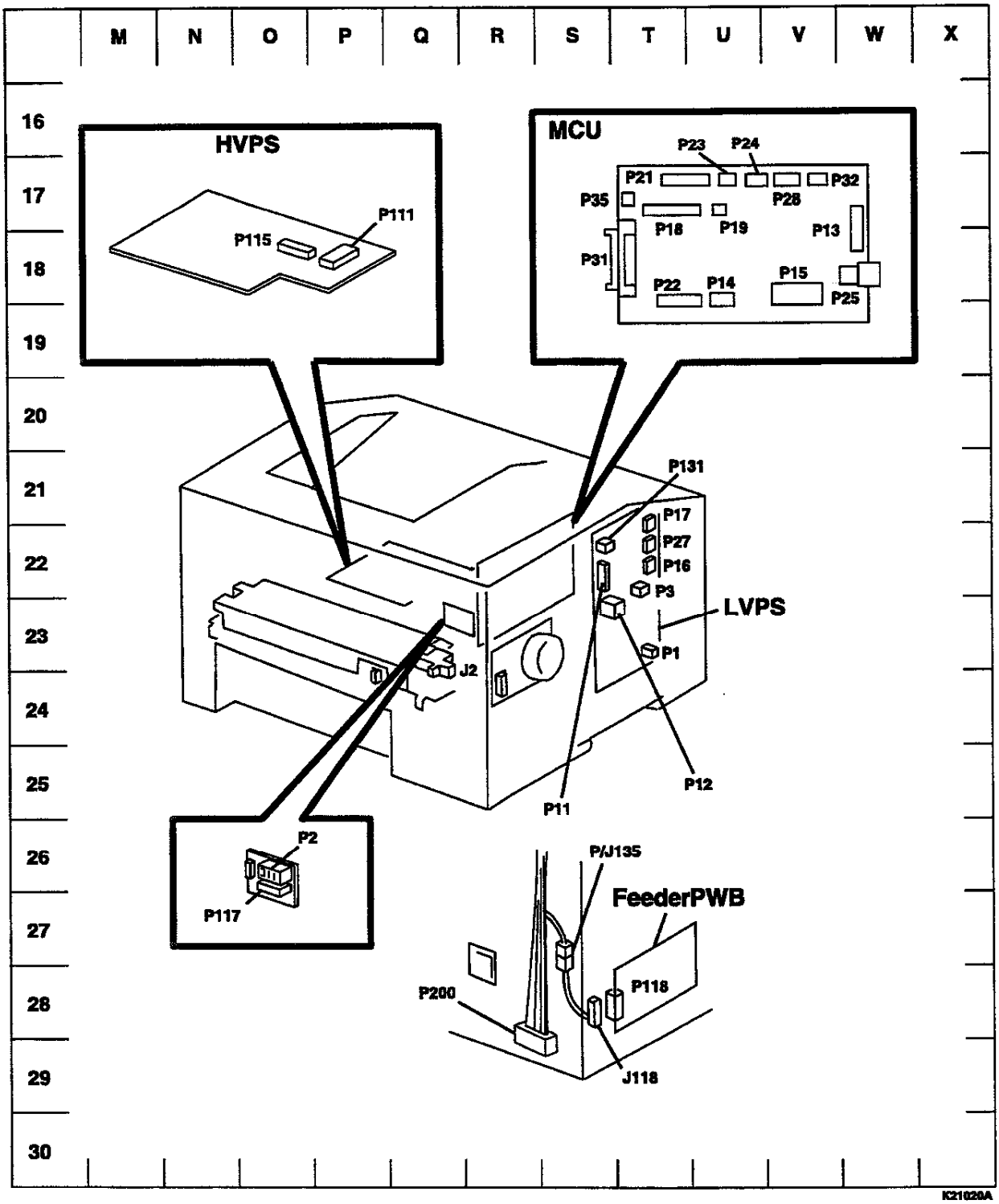
Wiring **6-10**
General Wiring Diagram 6-10
Wiring for Connection between Components 6-11
Organization 6-11
Wiring Diagram Notation 6-12
Connection and Wiring between Components 6-14

6.1 Wiring Diagrams

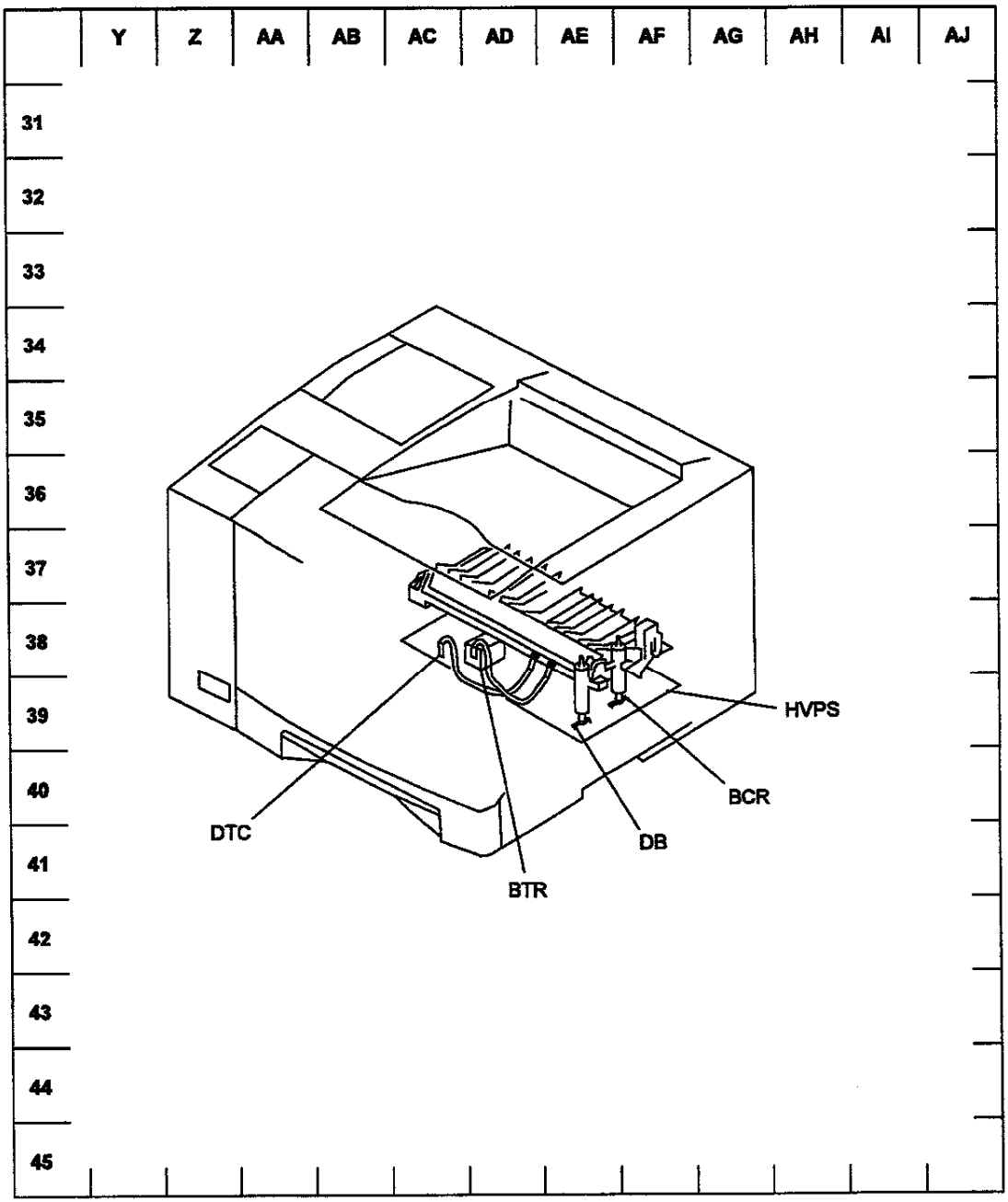
6.1.1 Base Engine Connector Locators



6.1.2 Base Engine PWB Connector Locators



6.1.3 HVPS Connector Locators



6.1.4 P/J Table

P/J	Coordinates	Mounting (1*)		Harness (2*)		Description
		Mounting Part	PL	Name (*3)	PL	
1	T23	LVPS	11-1	@Inlet Assembly	11-23	Connection between LVPS and Main Switch
2	Q26 Q23	P2:Fuser PWB J2:Fuser Unit	11-4 7-1	No harness	-	Connection between Fuser PWB and Fuser Unit
3	T22	LVPS	11-1	@Fuser PWB	11-4	Connection between LVPS and Fuser PWB
11	S22	MCU	11-2	@LVPS	11-1	Connection between MCU and LVPS
12	S22	MCU	11-2	@LVPS	11-1	Connection between MCU and LVPS
13	W17	MCU	11-2	@LVPS	11-1	Connection between MCU and LVPS
14	U18	MCU	11-2	@Main Motor	9-12	Connection between MCU and Main Motor
15	V18	MCU	11-2	Harness Assembly HVPS	11-8	Connection between MCU and HVPS.
16	D6 T22	LVPS	11-1	Harness Assembly Env.	5-1	Connection between LVPS and Harness Assembly ENV, Front
17	D5 T21	LVPS	11-1	Harness Assembly P/H	5-21	Connection between LVPS and No Paper MBF sensor, Registration Sensor, and No Toner Sensor
18	T17	MCU	11-2	Harness Assembly Laser	11-11	Connection between MCU and LDD (laser) and Scanner (laser)
19	U17	MCU	11-2	Harness Assembly SOS	11-9	Connection between MCU and SOS
21	T17	MCU	11-2	Harness Assembly OCT	11-10	Connection between MCU and OCT
22	T18	MCU	11-2	Harness Assembly Tray	11-12	Connection between MCU and Deck2
23	U17	MCU	11-2	@Fan Assembly	10-3	Connection between MCU and Fan
24	U17	MCU	11-2	@Motor Assembly Step Exit	8-11	Connection between MCU and Exit Motor
25	W18	MCU	11-2	@LVPS	11-1	Connection between MCU and LVPS
27	D5 T22	LVPS	11-1	Harness Assembly Feed	11-18	Connection between LVPS and P/J132 (Feed Sol 1), P/J 133 (Turn Clutch), and P/J134 (MBF Sol)
28	V17	MCU	11-2	Harness Assembly Exit	8-22	Connection between MCU and Full Stack Sensor and Rear Cover Interlock
31	S18	MCU	11-2	No harness	-	Connection between MCU and Controller
32	V17	MCU	11-2	Harness Assembly Panel	10-4	Connection between MCU and Control Panel

(*1) PL in the "Mounting" column indicates the corresponding Parts List and Item number in Section 3.

(*2) PL in the "Harness" column indicates the corresponding Parts List and Item number in Section 3.

(*3) @ at the beginning of the harness name indicates that the harness is a part of the component.

6.1.5 P/J Table

P/J	Coor-dinates	Mounting (1*)		Harness (2*)		Description
		Mounting Part	PL	Name (*3)	PL	
33	E4	Control Panel Assembly	10-1	Harness Assembly Panel	10-4	Connection between Control Panel and MCU
35	T17	MCU	11-2	No harness	-	For printing test
111	P18	HVPS	11-3	Harness Assembly HVPS	11-8	Connection between HVPS and MCU
112	G5	LDD (laser)	9-14	Harness Assembly Laser	11-11	Connection between LDD (laser) and MCU
113	H6	SOS (laser)	9-14	Harness Assembly SOS	11-9	Connection between SOS (laser) and MCU
114	G6	Scanner (laser)	9-14	Harness Assembly Laser	11-11	Connection between Scanner (laser) and MCU
115	O18	HVPS	11-3	@Fuser PWB	11-4	Connection between HVPS and Fuser PWB
117	O27	Fuser PWB	11-4	No harness	-	Connection between Fuser PWB and Duplex Unit
118	S28	Size Sensor Assembly	3-1	Harness Assembly Size	3-2	Connection between Feeder PWB and MCU
122	F7	MBF Chute Assembly	5-2	Harness Assembly P/H	5-21	Connection between No Paper MBF Sensor and LVPS
123	F7	MBF Chute Assembly	5-2	Harness Assembly P/H	5-21	Connection between Registration Sensor and LVPS
124	H4	Exit Assem-bly	8-6	Harness Assembly Exit	8-22	Connection between Rear Cover Interlock and MCU
125	I4	Top Cover	8-1	Harness Assembly Exit	8-22	Connection between Full Stack Sensor and MCU
128	F7	Bottom Chute	5-14	P: Toner Sensor Harness Assembly J: Harness Assembly P/H	5-22 5-21	Connection between Toner Sensor and LVPS
130	E12	Front Cover Assembly	2-1	P: Harness Assembly Env. Front J: Harness Assembly Env.	2-9 5-15	Relay between Envelope Feeder Unit and LVPS

(*1) PL in the "Mounting" column indicates the corresponding Parts List and Item number in Section 3.

(*2) PL in the "Harness" column indicates the corresponding Parts List and Item number in Section 3.

(*3) @ at the beginning of the harness name indicates that the harness is a part of the component.

6.1.6 P/J Table

P/J	Coordinates	Mounting (1*)		Harness (2*)		Description
		Mounting Part	PL	Name (*3)	PL	
131	S22	LVPS	11-1	Harness Assembly top	11-21	Connection between Top Cover Interlock and LVPS
132	D6	Chassis Assembly on Elec. Box front panel	11-(*4)	P: Harness Assembly Feed	11-18	Connection between Feed Solenoid 1 and LVPS
133	C6	Chassis Assembly on Elec. Box front panel	11-(*4)	P: Harness Assembly Feed	11-18	Connection between Turn Clutch and LVPS
134	C6	Chassis Assembly on Elec. Box front panel	11-(*4)	P: Harness Assembly Feed	11-18	Connection of MBF Solenoid
135	S27	Below MCU and above Inlet	11-(*5)	P: Harness Assembly Tray J: Harness Assembly Size	11-12 3-2	Relay of connection between Feeder PWB and MCU
136	E4 E5	P: Top Cover J: Frame (above LVPS)	10-(*6) 11-(*7)	P: Connector Assembly Cover Top J: Harness Assembly Top	10-6 11-21	Connection between Top Cover Interlock and LVPS
137	F6	Bottom Chute	5-14	Toner Sensor Harness Assembly	5-22	Connection between Toner Sensor and LVPS
200	R29	Frame (below MCU and above Inlet)	11-(*5)	Harness Assembly Tray	11-12	Connection between Deck 2 and MCU
201	D12	Front Cover Assembly	2-1	P: Harness Assembly Env. Front	2-9	Connection between Envelope Feeder and LVPS
202	G3	Frame	11-(*8)	Harness Assembly OCT	11-10	Connection between the OCT PWB and the MCU

(*1) PL in the "Mounting" column indicates the corresponding Parts List and Item number in Section 3.
(*2) PL in the "Harness" column indicates the corresponding Parts List and Item number in Section 3.
(*3) @ at the beginning of the harness name indicates that the harness is a part of the component.
(*4) Between the two clamps above the Power Switch
(*5) Beside the Inlet
(*6) Top Cover Connector Assembly is not detachable and is not listed in PL10.
(*7) On the LVPS
(*8) Secured together with Spring Earth Motor (PL11-22)

6.1.7 P/J Table

P/J	Coordinates	Mounting (1*)		Harness (2*)		Description
		Mounting Part	PL	Name (*3)	PL	
DTC	AC38	HVPS	11-3	Wire Assembly TDC (@HVPS)	11-3	Connection between HVPS and Transfer Chute Assembly
BTR	AD38	HVPS	11-3	Wire Assembly BTR (@HVPS)	11-3	Connection between HVPS and Transfer Chute Assembly
DB	AE39	HVPS	11-3	Spring DB (@Trans Chute Assembly (*4))	6-1	Connection between HVPS and Spring DB of Trans Chute Assembly by contact
BCR	AF39	HVPS	11-3	Spring BTR (@Trans Chute Assembly (*4))	6-1	Connection between HVPS and Spring DB of Trans Chute Assembly by contact

(*1) PL in the "Mounting" column indicates the corresponding Parts List and Item number in Section 3.

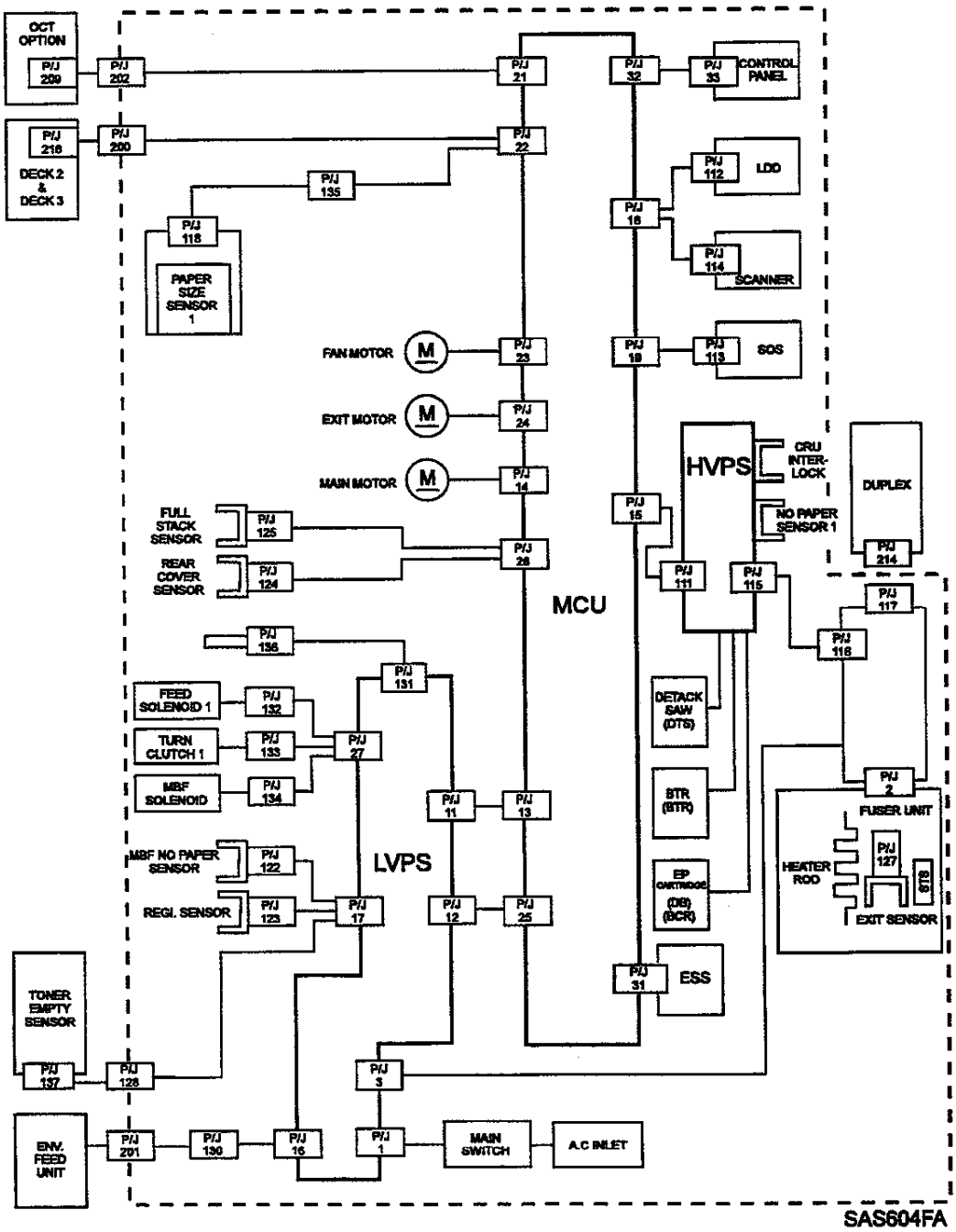
(*2) PL in the "Harness" column indicates the corresponding Parts List and Item number in Section 3.

(*3) @ at the beginning of the harness name indicates that the harness is a part of the component.

(*4) Wires are not used for connection. Connection is established by contact with the Spring.

6.2 Wiring

6.2.1 General Wiring Diagram



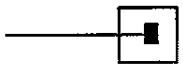
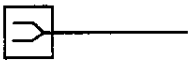
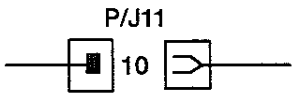
6.2.2 Wiring for Connection between Components

6.2.2.1 Organization

The general connection and wiring diagram is divided into the following 19 blocks and the wiring and signals between the components in each blocks are described.

1. LVPS ↔ MCU
2. LVPS ↔ Feed Solenoid 1, Turn Clutch, and MBF Feed Solenoid
3. LVPS ↔ MBF No Paper Sensor, Registration Sensor, and Toner Empty Sensor
4. LVPS ↔ Envelope Feeder Unit
5. MCU HVPS
6. HVPS EP Cartridge, Bias Transfer Roll, Detack Saw
7. HVPS ↔ Fuser PWB
8. Fuser PWB ↔ Fuser Unit
9. Fuser PWB ↔ Duplex PWB ↔ Duplex Motor and Feeder Sensor
10. MCU ↔ LDD and Scanner Motor
11. MCU ↔ SOS
12. MCU ↔ Control Panel
13. MCU ↔ Main Motor
14. MCU ↔ Fan Motor
15. MCU ↔ Exit Motor
16. MCU ↔ Full Stack Sensor and Rear Cover Sensor
17. MCU ↔ Deck1 PWB ↔ Deck2 PWB ↔ Deck3 PWB
18. OCT PWA ↔ OCT Stack Sensor, OCT Home Sensor, OCT Direct Solenoid, OCT Motor, and OCT Offset Motor
19. MCU ↔ ESS and LVPS ↔ ESS

6.2.2.2 Wiring Diagram Notation

	Description
	Represents a plug.
	Represents a jack.
	Represents the connection of Pin 10 of connectors P11 and J11.
5V INTLK	Shows the signal name of the wire.
/HEAT ON	A "/" at the beginning of the signal name indicates that the signal is a negative logic signal and true when it is Low.
5VDC	Shows the DC voltage measured with the negative probe of a meter connected to the SG.
SG, FG, RTN	SG: Signal Ground FG: Frame Ground RTN: Return line. There is a continuity between the Signal Ground and the RTN line. There are two types of machine with or without a continuity between the Signal Ground and Frame Ground according to the specifications.

NOTE: "TTL" in the "HIGH Level" and "LOW Level" columns of the signal tables indicates that the signal is TTL_CMOS compatible.

The HIGH and LOW levels of a TTL signal are as below.

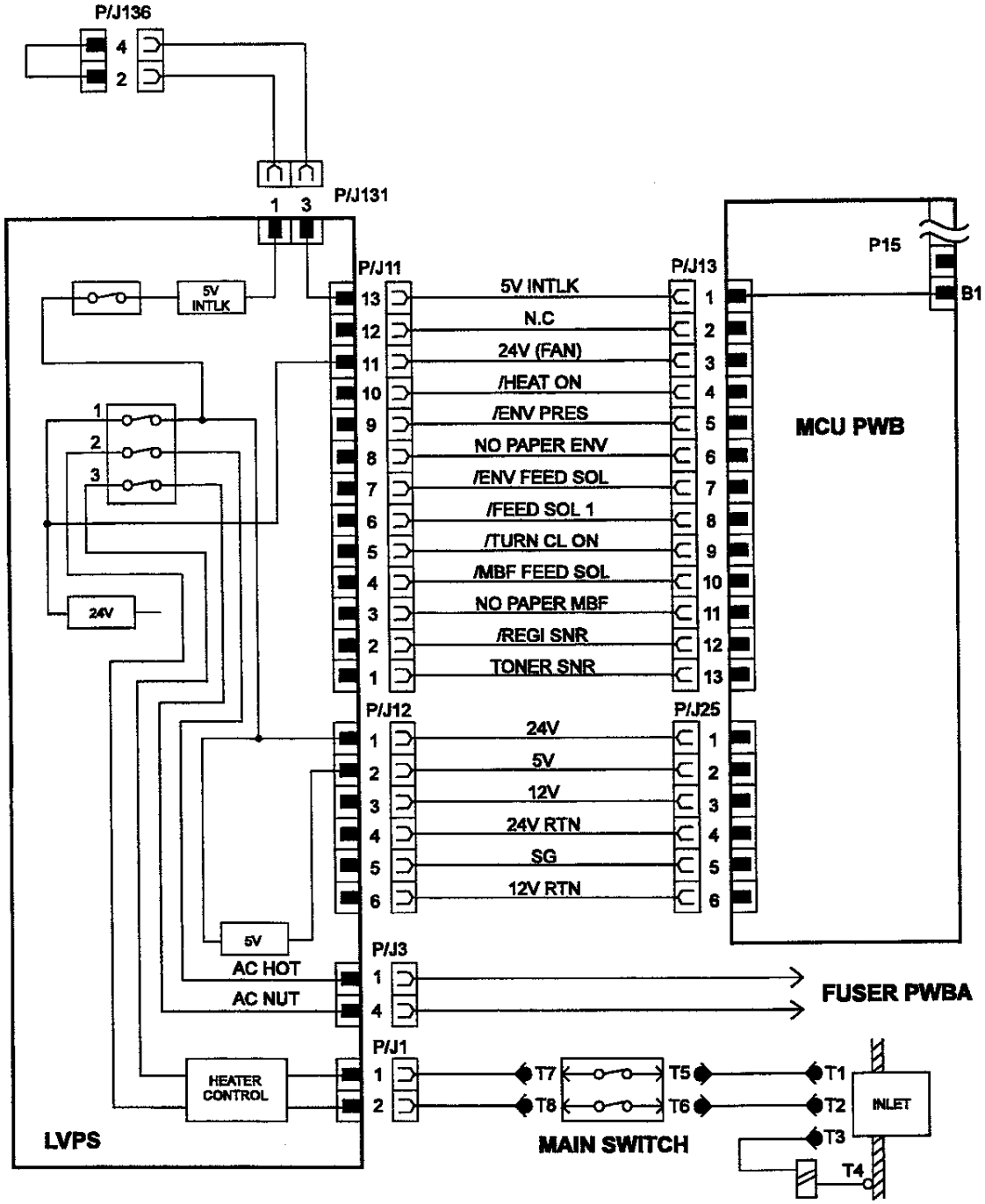
HIGH level: 4 to 5 volts

LOW level: 0 to 0.8 volts

This page intentionally blank.

6.2.3 Connection and Wiring between Components

1. LVPS ↔ MCU (XC SPECIFICATIONS)



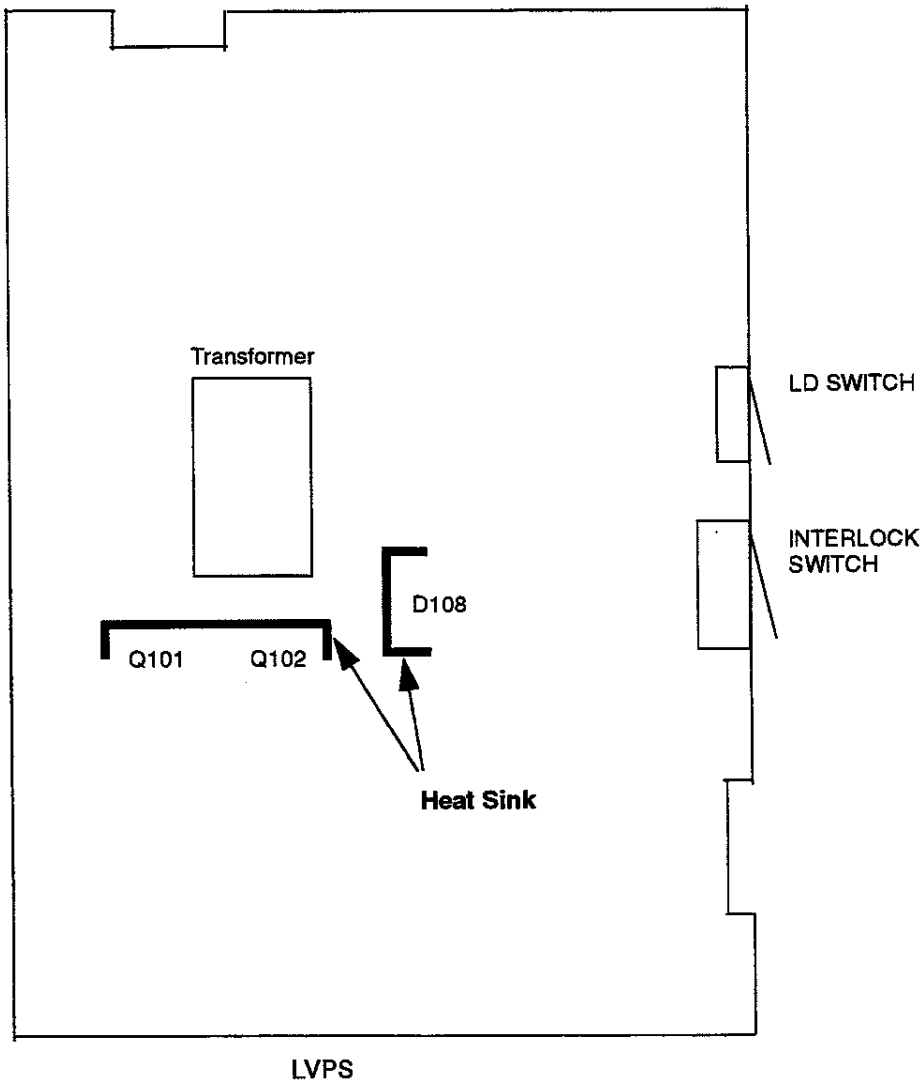
[SAS605F.CDR]

1. LVPS ↔ MCU (XC SPECIFICATIONS)

P11	P13	Signal Name	Signal Direction L: LVPS, M:MCU	Trigger	HIGH Level	LOW Level
13	1	5V INTLK	L → M	-	+5V	0V
11	3	24V (FAN)	L → M	-	+24V	0V
10	4	HEAT ON	L← M	Level	TTL	TTL
9	5	EVN PRES	L → M	Level	TTL	TTL
8	6	NO PAPER ENV	L → M	Level	TTL	TTL
7	7	ENV FEED SOL	L ← M	Level	+24V	0V
6	8	FEED SOL 1	L ← M	Level	+24V	0V
5	9	TURN CL ON	L ← M	Level	+24V	0V
4	10	MBF FEED SOL	L ← M	Level	24V	0V
3	11	NO PAPER MBF	L → M	Level	TTL	TTL
2	12	REGI SNR	L → M	Level	TTL	TTL
1	13	TONER SNR	L → M	Level	TTL	TTL

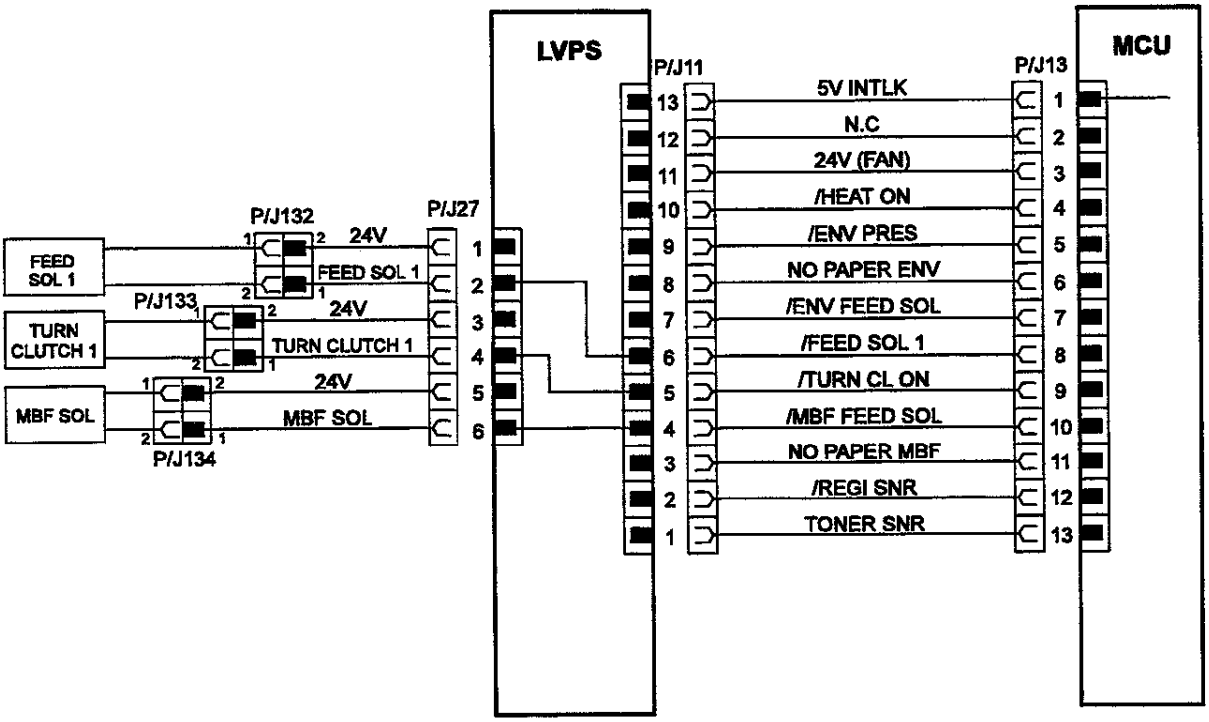
1. LVPS ↔ MCU (XC SPECIFICATIONS)

WARNING! You can be shocked by electricity if you simultaneously touch the two Heat Sinks shown in the Figure below.



This page intentionally blank.

2. LVPS ↔ FEED SOLENOID 1, TURN CLUTCH, AND MBF SOLENOID



2. LVPS ↔ FEED SOLENOID 1, TURN CLUTCH, AND MBF SOLENOID

Signal Name	Description
FEED SOL1	Signal to actuate the Feed Solenoid which feeds paper on Tray 1 (Normally LOW level, and HIGH level when paper is fed)
TURN CLUTCH1	Signal to make paper wait before the Registration Sensor (Normally LOW level, and HIGH level when making paper wait)
MBF SOL	Signal to actuate the Feed Solenoid which feeds paper on MB (Normally LOW level, and HIGH level when paper is fed)

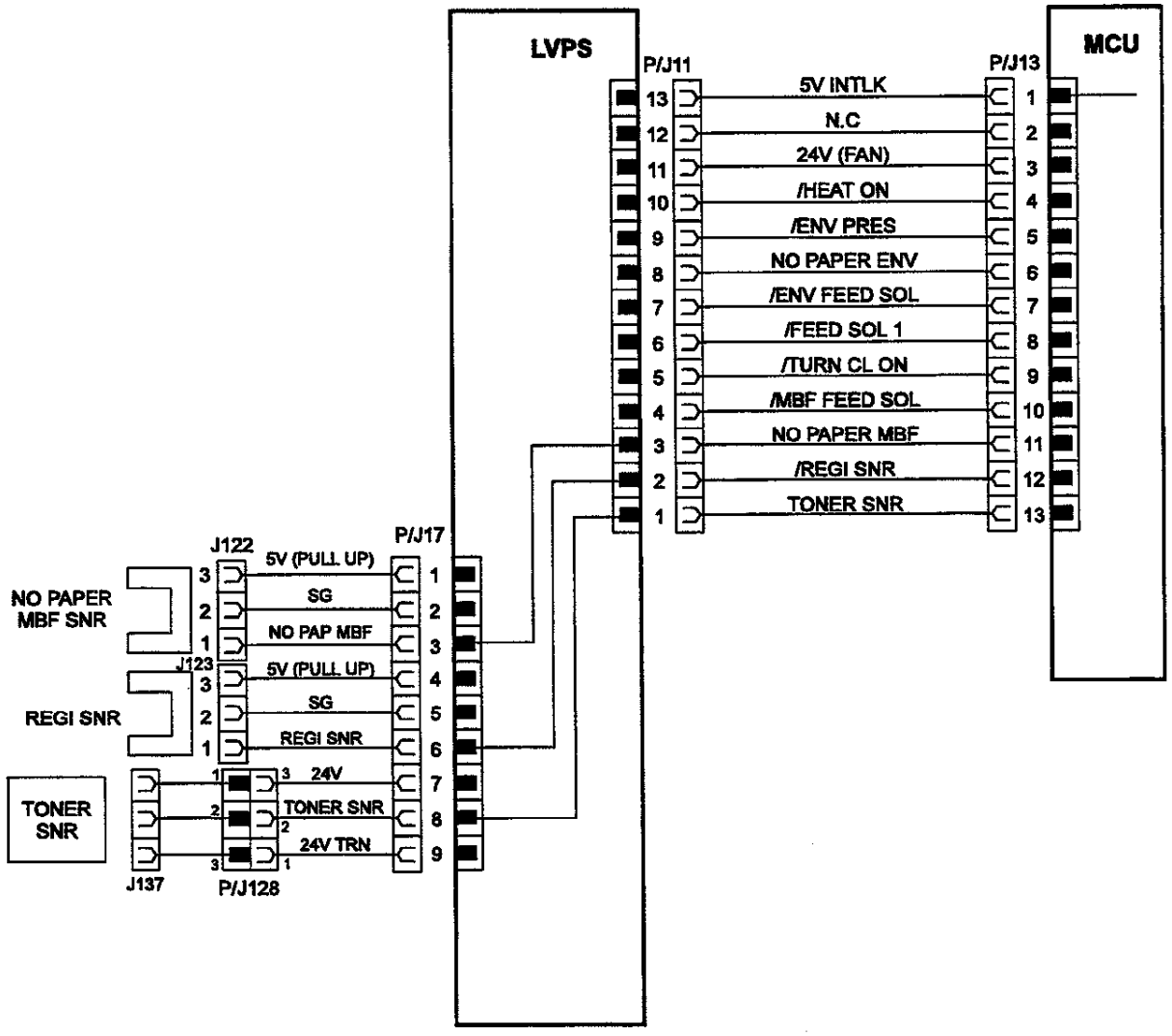
P13X	P13	Signal Name	Signal Direction S:SNR/SOL L:LVPS	Trigger	HIGH Level	LOW Level
P132-1	2	FEED SOL1	S ← L	Level	+24V	0V
P133-1	4	TURN CLUTCH1	S ← L	Level	+24V	0V
P134-1	6	MBF SOL	S ← L	Level	+24V	0V

P11	P13	Signal Name	Signal Direction M:MCU L:LVPS	Trigger	HIGH Level	LOW Level
6	8	/FEED SOL1	L ← M	Level	+24V	0V
5	9	/TURN CL ON	L ← M	Level	+24V	0V
4	10	/MBF FEED SOL	L ← M	Level	+24V	0V

*: The resistance of the Solenoids

Solenoid	Resistance (Ambient Temperature: 20 °C)
Feed Solenoid	96 Ω ± 10%
Turn Solenoid (Turn Clutch1)	250 Ω ± 10%
MBF Solenoid	96 Ω ± 10%

3. LVPS ↔ MBF NO PAPER SENSOR, REGISTRATION SENSOR, AND TONER EMPTY SENSOR



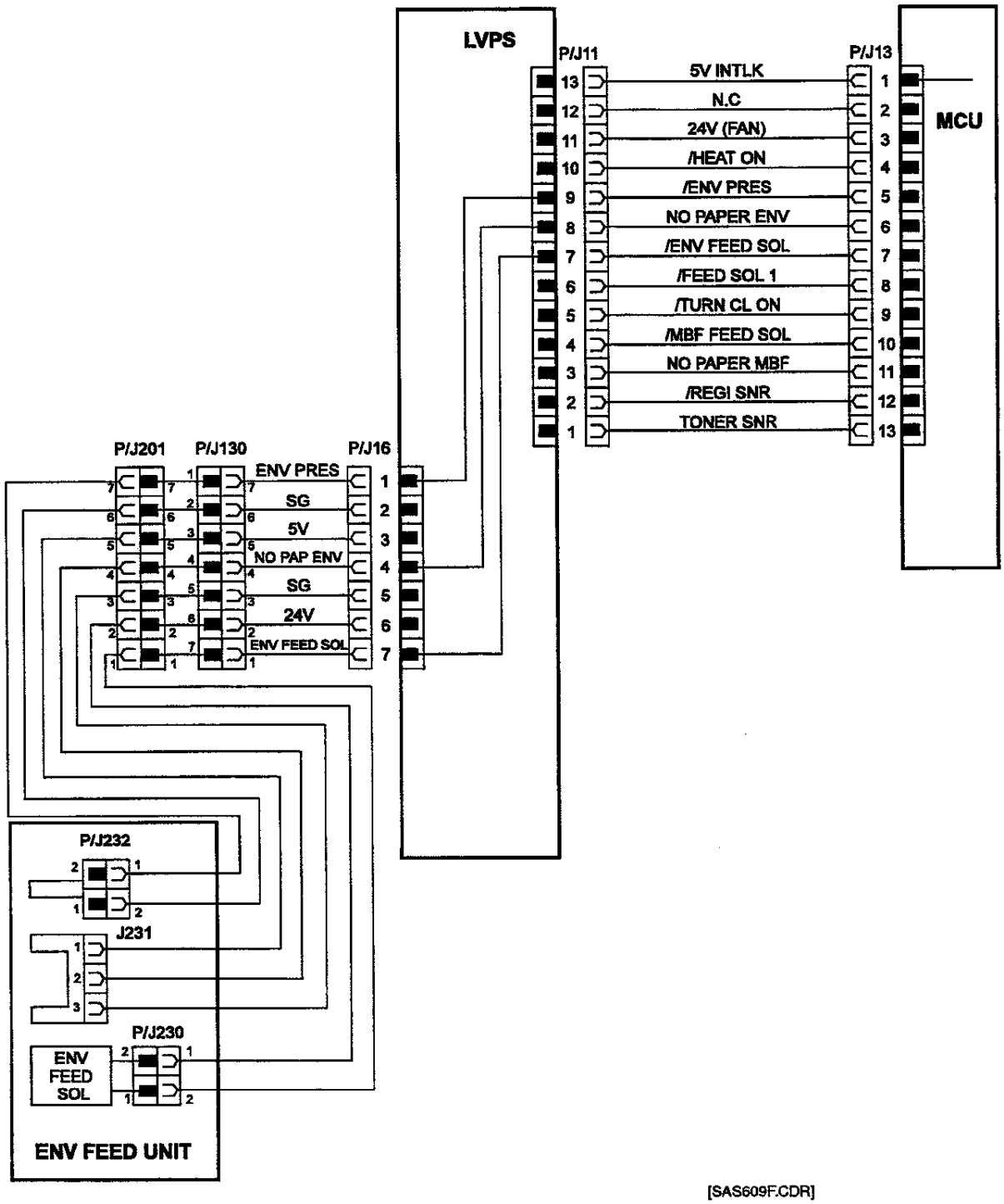
3. LVPS ↔ MBF NO PAPER SENSOR, REGISTRATION SENSOR, AND TONER EMPTY SENSOR

Signal Name	Description
NO PAP MBF	Signal for detecting the presence or absence of paper on the MBF (LOW level when paper is present and HIGH level when paper is not present)
REGI SNR	Signal for detecting the arrival of paper at the Registration Sensor in the P/H section (LOW level when paper is at the sensor, and HIGH level when no paper is at the sensor)
TONER SNR	Signal for monitoring the toner level in the CRU (LOW level when the toner is available, and HIGH level when the Cartridge is empty)

P12X	P13	Signal Name	Signal Direction S:SNR L:LVPS	Trigger	HIGH Level	LOW Level
P122-1	3	NO PAP MBF	S → L	Level	TTL	TTL
P123-1	6	REGI SNR	S → L	Level	TTL	TTL
P128-1	8	TONER SRN	S → L	Level	TTL	TTL

P11	P13	Signal Name	Signal Direction L: LVPS M: MCU	Trigger	HIGH Level	LOW Level
3	11	/NO PAPER MBF	L → M	Level	TTL	TTL
2	12	/REGI SNR	L → M	Level	TTL	TTL
1	13	TONER SNR	L → M	Level	TTL	TLL

4. LVPS ↔ ENVELOPE FEEDER UNIT



4. LVPS ↔ ENVELOPE FEEDER UNIT

Signal Name	Description
ENV PRES	Signal for detecting if the optional Envelope Feeder is installed or not (LOW level when the Envelope Feeder is in place, and HIGH level when it is not in place)
NO PAP ENV	Signal for detecting the absence of envelopes on the Envelope Feeder (LOW level when envelopes are present, and HIGH level when no envelope is present)
ENV FEED SOL	Signal to actuate the Feed Solenoid which feeds en envelope on MBF (Normally LOW level, and HIGH level when feeding)

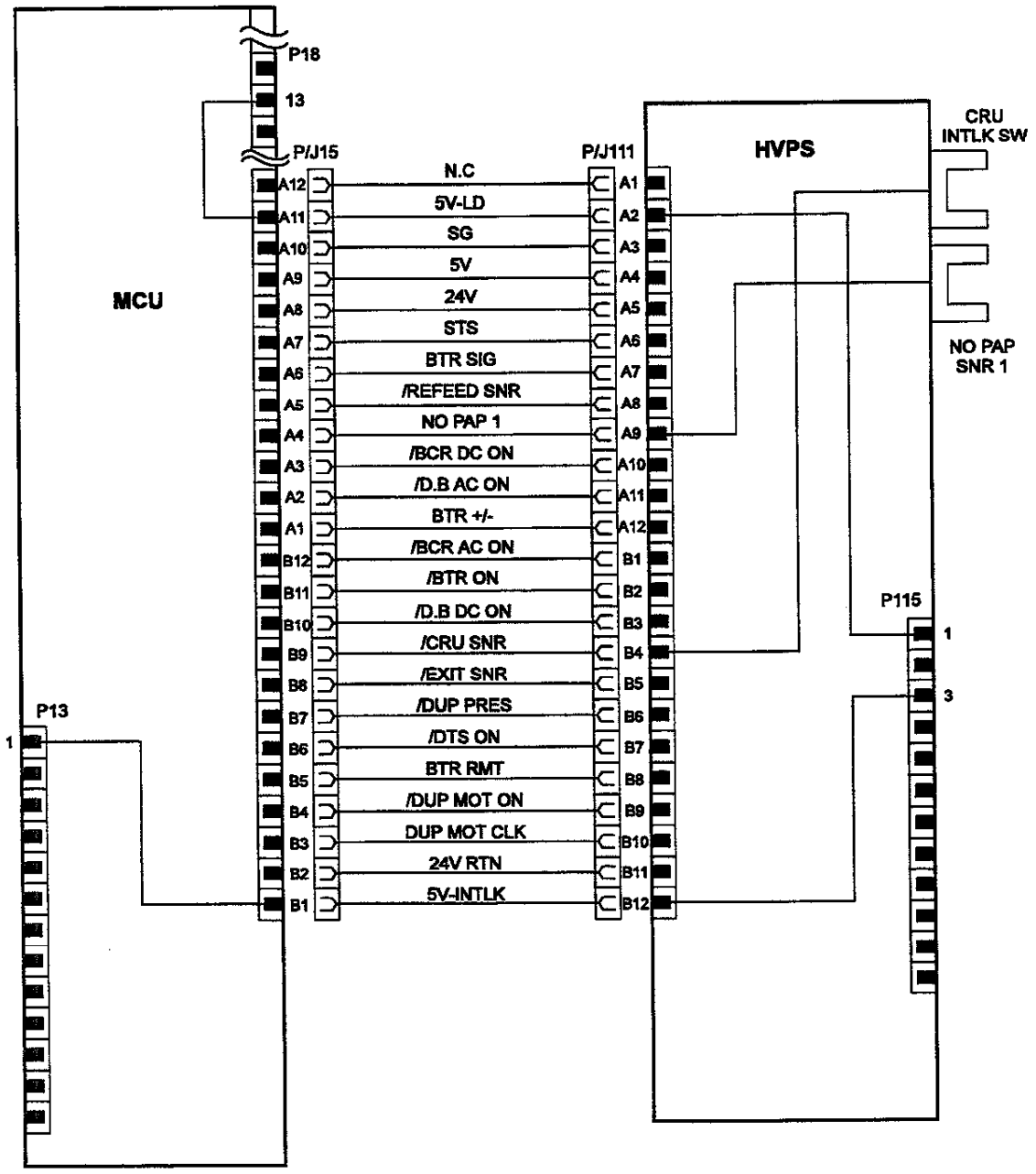
P130	P16	Signal Name	Signal Direction E: ENV L: LVPS	Trigger	HIGH Level	LOW Level
7	1	ENV PRE	E → L	Level	TTL	TTL
4	4	NO PAP ENV	E → L	Level	TTL	TTL
1	7	ENV FEED SOL	E ← L	Level	+24V	0V

P11	P13	Signal Name	Signal Direction L: LVPS M: MCU	Trigger	HIGH Level	LOW Level
9	5	/ENV PRES	L → M	Level	TTL	TTL
8	6	NO PAPER ENV	L → M	Level	TTL	TTL
7	7	/ENV FEED SOL	L ← M	Level	+24V	0V

**: The resistance of the Envelope Feed Solenoid*

Solenoid	Resistance (Ambient Temperature: 20 °C)
Electromagnetic Clutch	172 Ω ± 10%

5. MCU ↔ HVPS



[SAS610F.CDR]

5. MCU ↔ HVPS

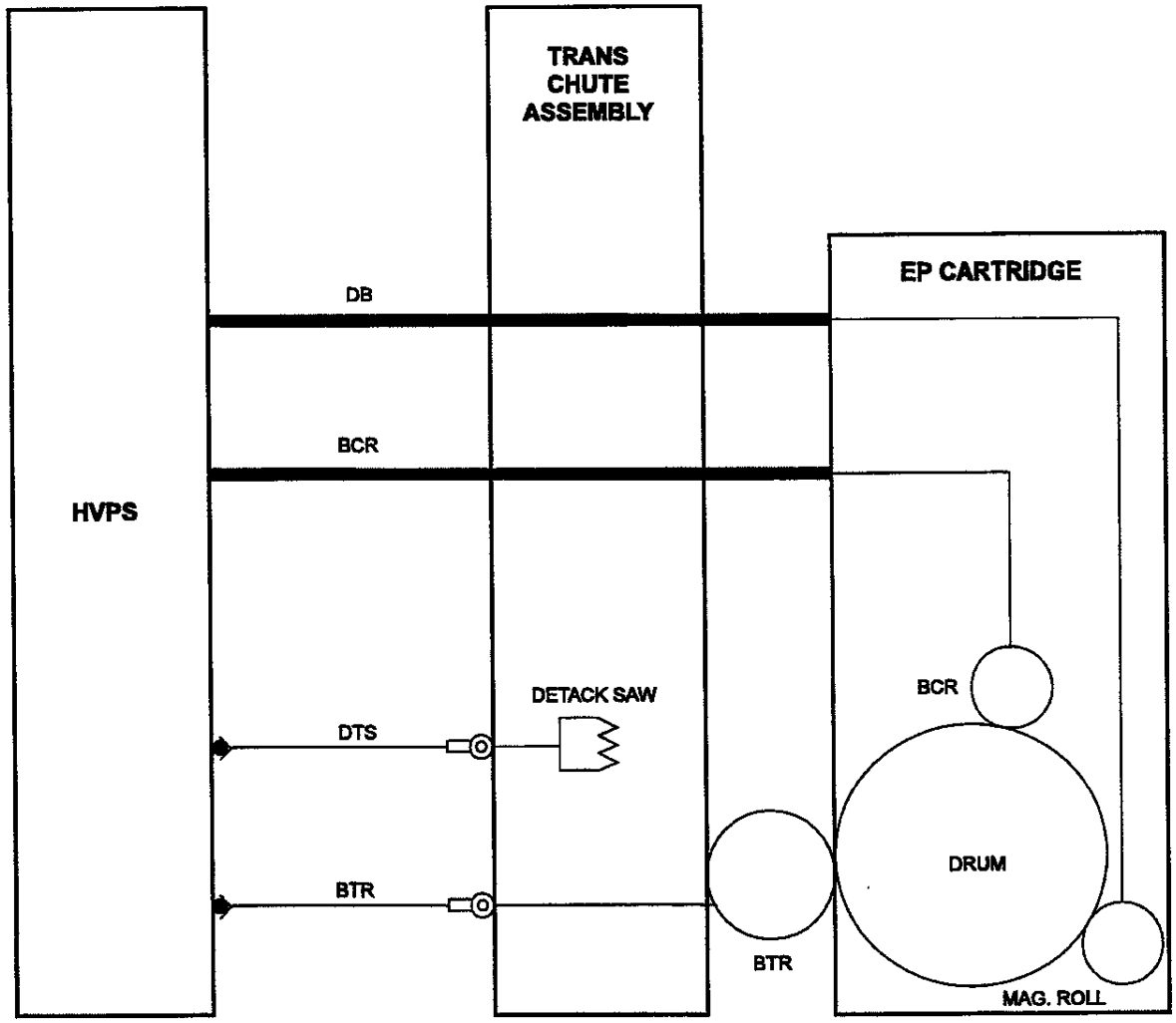
Signal Name	Description
5V-LD	+5V power source to the Laser Diode (0V when the Front Cover is open or when the Fuser Unit is not in place)
STS	Signal from the temperature sensor which detects the temperature of the Fuser Heat Roll (analog signal)
BTR SIG	Signal for setting the Transfer Current (analog signal)
/REFEED SNR	Signal for monitoring the paper passing through the Duplex Unit (Low level when paper is at the sensor, and HIGH level when paper is not at the sensor)
NO PAP1	Signal for detecting the presence/absence of paper in Tray 1.
/BCR DC ON	Signal for switching on or off the application of the Charge Voltage (DC component) to the BCR (Normally LOW level, and HIGH level only when applying the charge voltage)
/DB AC ON	Signal for switching on or off the application of the Development Voltage (AC component) to the Magnet Roll (Normally LOW level, and HIGH level only when the Development Voltage is applied)
BTR +/-	Signal for switching the polarity of the Transfer Voltage (LOW level when selecting "+" and HIGH level when selecting "-")
/BCR AC ON	Signal for switching on or off the application of the Charge Voltage (AC component) to the BCR (Normally LOW level, and HIGH level only when applying the Charge Voltage)
/BTR ON	Signal for switching on or off the application of the Transfer Voltage (Normally LOW level, and HIGH level only when applying the Transfer Voltage)
/DB DC ON	Signal for switching on or off the application of the Developing Voltage (Normally LOW level, and HIGH level only when applying the Transfer Voltage)
CRU SNR	Signal for detecting if the CRU is in place or not (LOW level when the CRU is in place and HIGH level when the CRU is not in place)
/EXIT SNR	Signal for monitoring the paper passing the exit part of the Fuser Unit
/DUP PRES	Signal for detecting if the Duplex Unit is installed or not (LOW level when the Duplex Unit is in place and HIGH level when the Duplex Unit is not in place)
/DTS ON	Signal for switching on or off the application of a voltage to the eliminator plate (Normally LOW level, and HIGH level only when applying the voltage)
BTR RMT	Signal used for measuring the Transfer Current on the BTR (analog signal)
/DUP MOT ON	Signal for switching on or off the Motor of the Duplex Unit
DUP MOT CLK	Reference clock for driving the Motor of the Duplex Unit
5V-INTLK	Refer to "1. LVPS ↔ MCU (XC Specifications)".

5. MCU ↔ HVPS

P15	P11	Signal Name	Signal Direction M: MCU H: HVPS	Trigger	HIGH Level	LOW Level
A11	A2	5V-LD	M ← H	-	+5V	0V
A7	A6	STS	M ← H	-	*	*
A6	A7	BTR SIG	M → H	-	*	*
A5	A8	/REFEED SNR	M ← H	Level	TTL	TTL
A4	A9	NO PAP1	M ← H	Level	TTL	TTL
A3	A10	/BCR DC ON	M → H	Level	TTL	TTL
A2	A11	/DB AC ON	M → H	Level	TTL	TTL
A1	A12	BTR +/-	M → H	Level	TTL	TTL
B12	B1	/BCR AC ON	M → H	Level	TTL	TTL
B11	B2	/BTR ON	M → H	Level	TTL	TTL
B10	B3	/DB DC ON	M → H	Level	TTL	TTL
B9	B4	CRU SNR	M ← H	Level	TTL	TTL
B8	B5	/EXIT SNR	M ← H	Level	TTL	TTL
B7	B6	/DUP PRES	M ← H	Level	TTL	TTL
B6	B7	/DTS ON	M → H	Level	TTL	TTL
B5	B8	BTR RMT	M ← H	-	*	*
B4	B9	/DUP MOT ON	M → H	Level	TTL	TTL
B3	B10	DUP MOT CLK	M → H	-	TTL	TTL
B1	B12	5V-INTLK	M → H	-	+5V	0V

This page intentionally blank.

6. HVPS ↔ EP CARTRIGE, BIAS TRANSFER ROLL, AND DETACK SAW

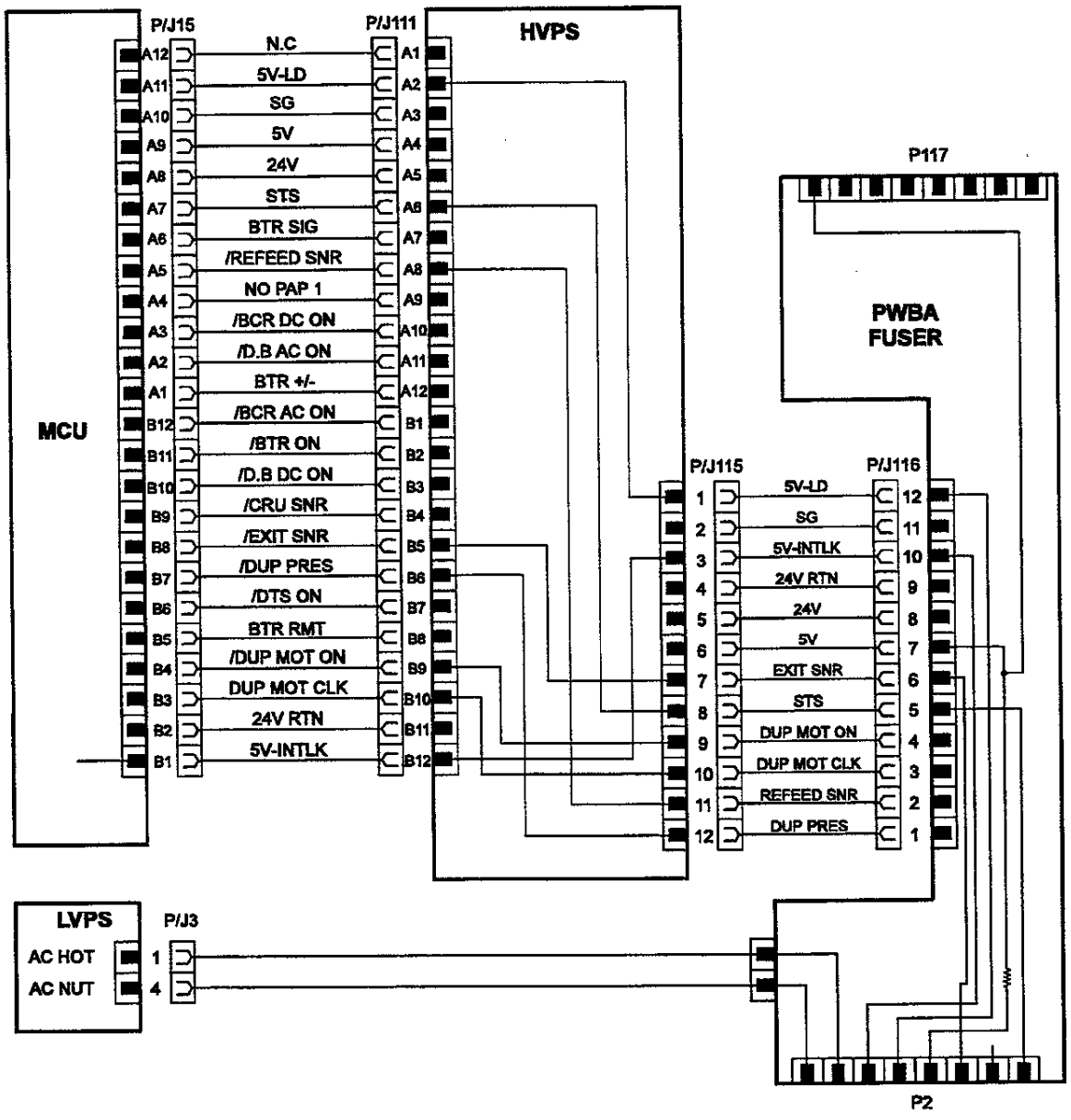


[SAS611F.CDR]

6. HVPS ↔ EP CARTRIGE, BIAS TRANSFER ROLL, AND DETACK SAW

Signal Name	Description
DB	HVPS output to the Magnet Roll
BCR	HVPS output to the BCR
DTS	HVPS output to the DTS
BTR	HVPS output to the BTR (+DC in Transfer Operation, and -DC when cleaning BTR)

7. HVPS ↔ FUSER PWB



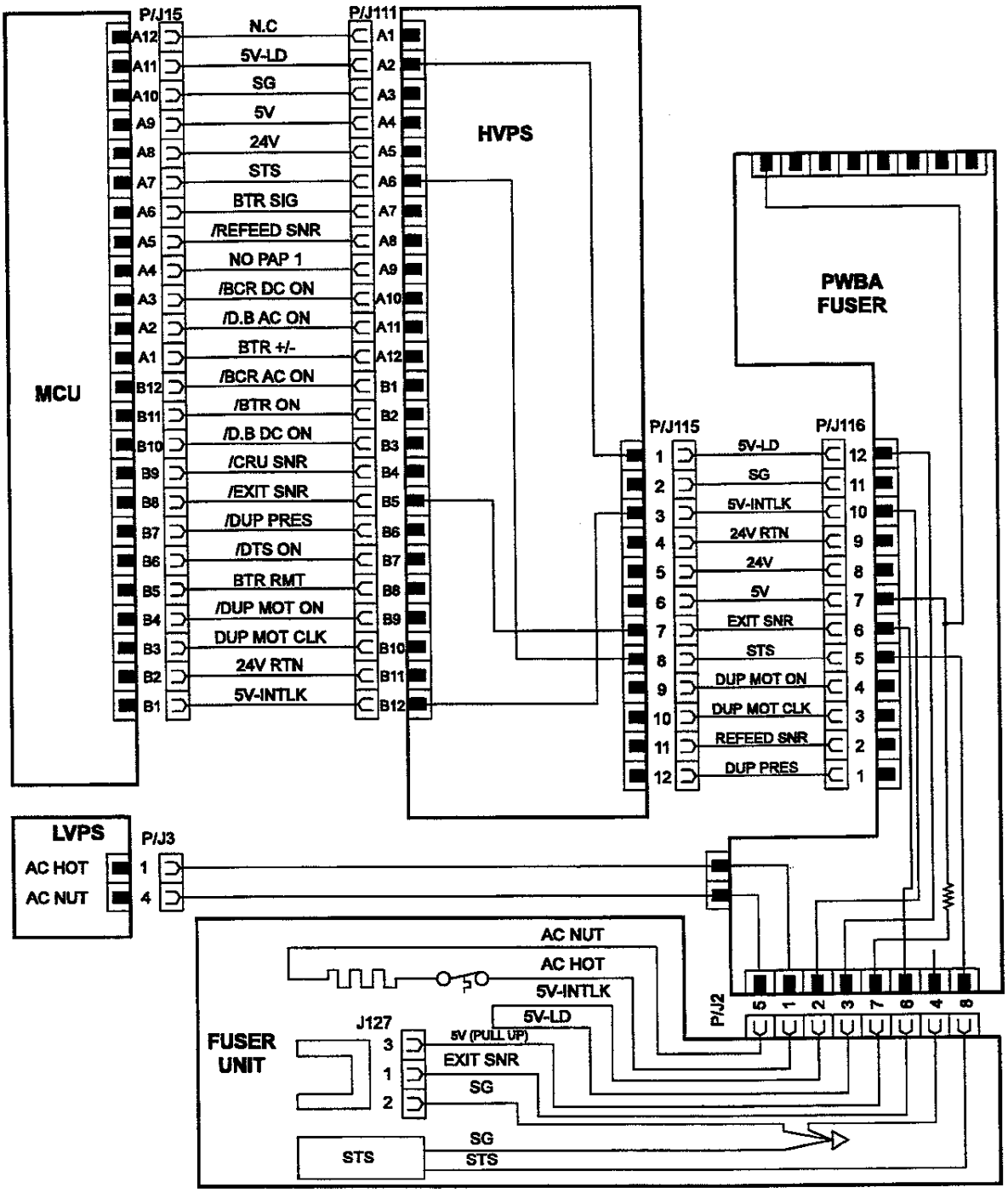
[SAS612F.CDR]

7. HVPS ↔ FUSER PWB

Signal Name	Description
5V-LD	Refer to "5. MCU ↔ HVPS".
5V-INTLK	Refer to "1. LVPS ↔ MCU (XC Specifications)".
EXIT SNR	Refer to "5. MCU ↔ HVPS".
STS	Refer to "5. MCU ↔ HVPS".
DUP MOT ON	Refer to "5. MCU ↔ HVPS".
DUP MOT CLK	Refer to "5. MCU ↔ HVPS".
REFEED SNR	Refer to "5. MCU ↔ HVPS".
DUP PRES	Refer to 5.

P115	P116	Signal Name	Signal Direction H: HVPS F: FUSER	Trigger	HIGH Level	LOW Level
1	12	5V-LD	H ← F	-	+5V	0V
3	10	5V-INTLK	H → F	-	+5V	0V
7	8	EXIT SNR	H ← F	Level	TTL	TTL
8	5	STS	H ← F	-	*	*
9	4	DUB MOT ON	H → F	Level	TTL	TTL
10	3	DUP MOT CLK	H → F	Level	TTL	TTL
11	2	REFEED SNR	H ← F	Level	TTL	TTL
12	1	DUP PRESS	H ← F	Level	TTL	TTL

8. FUSER PWB ↔ FUSER UNIT



[SAS613F.CDR]

8. FUSER PWB ↔ FUSER UNIT

Signal Name	Description
AC NUT	AC power for the Heat Quartz
AC HOT	AC power for the Heat Quartz
5V-INTLK	Refer to "1. LVPS ↔ MCU (XC Specifications)".
5V-LD	Refer to "5. MCU↔HVPS".
EXIT SNR	Refer to "5. MCU↔HVPS".
STS	Refer to "5. MCU↔HVPS".

P2	Signal Name	Signal Direction P: PWA FUSER F: FUSER UNIT	Trigger	HIGH Level	LOW Level
8	AC NUT	*	*	*	*
1	AC HOT	*	*	*	*
2	5V-INTLK	P → F	-	+5V	0V
3	5V-LD	P ← F	-	+5V	0V
6	EXIT SNR	P ← F	Level	TTL	TTL
5	STS	P ← F	-	*	*

*1: The temperature at which the Fuse melts: 141 °C (Nominal Temperature)

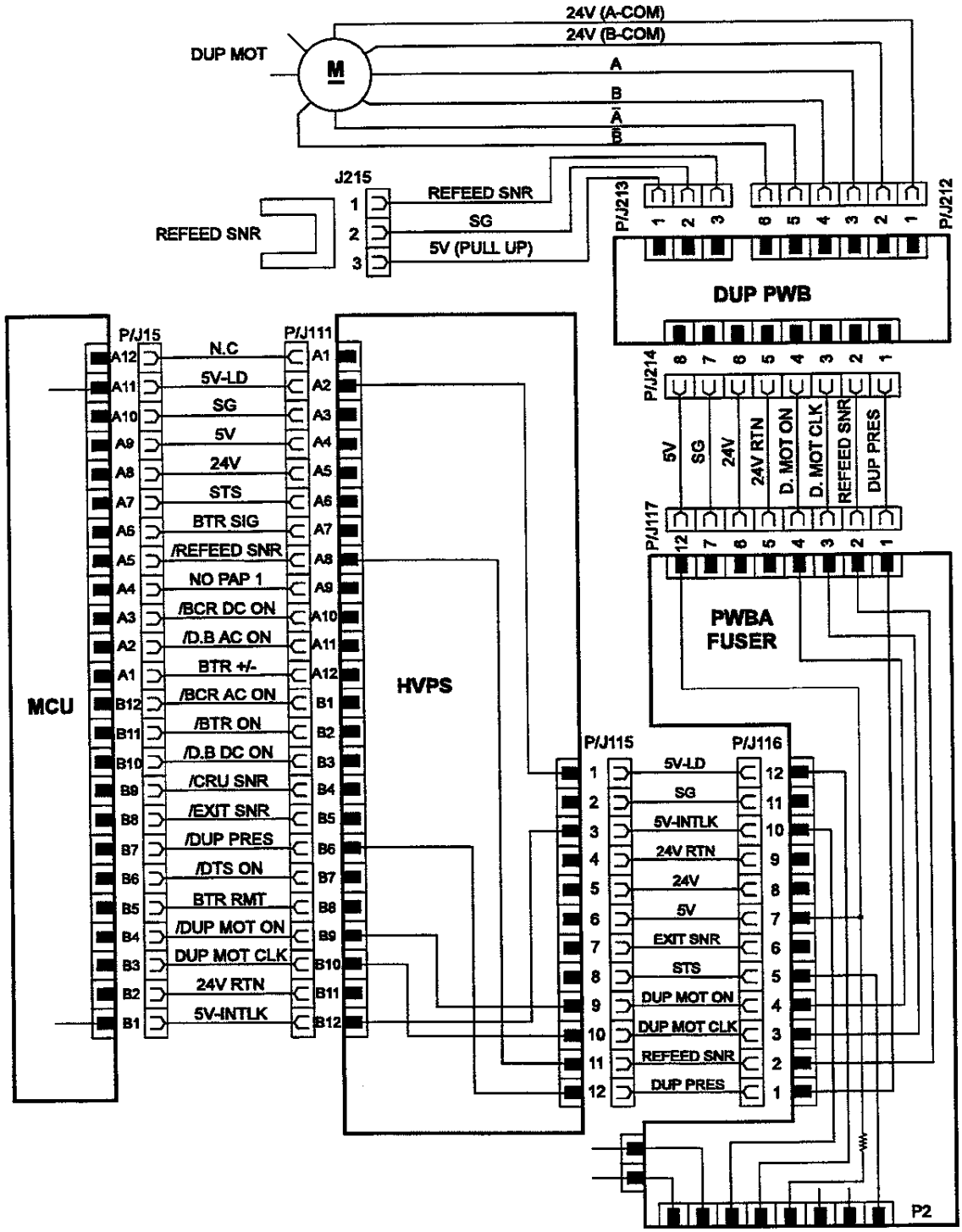
*2: The temperature at which the contacts of the Thermostat open:
Temperature of the contacts 150 °C (Non-contact type)

*3: The rated power of the Heater Rod:
100 V machine: 500 ± 25 W (for 115 Vr.m.s.)
220 V machine: 500 ± 25 W (for 220 Vr.m.s.)

*4: The resistance of the Thermistor in the Heater Assembly

Temperature(°C)	20	180
Resistance (kΩ)	223 - 327 (Ishizuka Electronic) 240 - 326 (Shibaura Electronic)	2.1 - 2.3

9. FUSER PWB ↔ DUPLEX PWB ↔ DUPLEX MOTOR, AND REFEED SENSOR

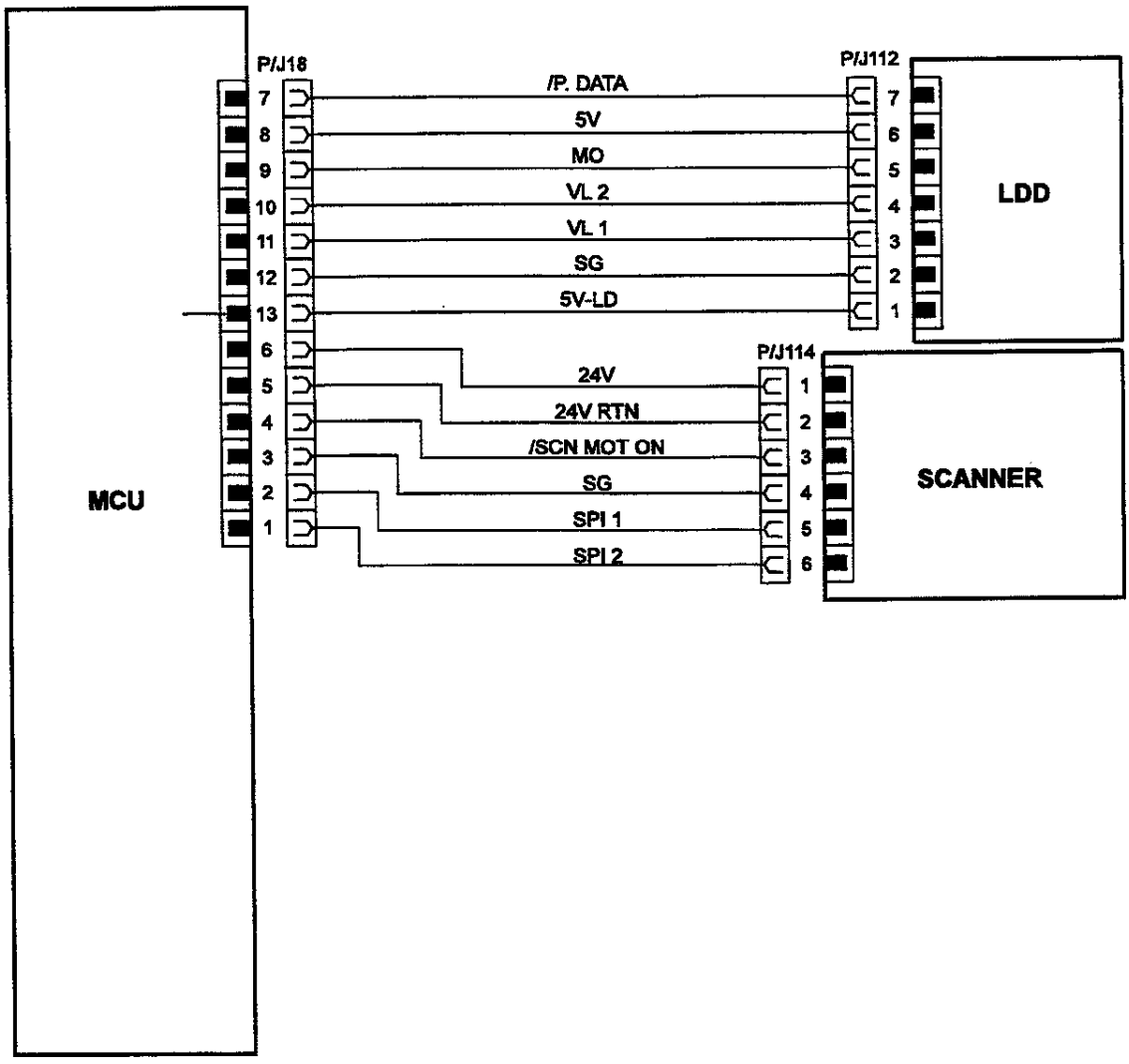


9. FUSER PWB ↔ DUPLEX PWB ↔ DUPLEX MOTOR, AND REFEED SENSOR

P117	P214	Signal Name	Signal Direction F: Fuser PWB D: Duplex PWB	Trigger	HIGH level	LOW level
4	4	D. MOT ON	F → D	Level	TTL	TTL
3	3	D. MOT CLK	F → D	Level	TTL	TTL
2	2	REFEED SNR	F ← D	Level	TTL	TTL
1	1	DUP PRES	F ← D	Level	TTL	TTL

P	P21X	Signal Name	Signal Direction M: Duplex Motor R: Refeed Sensor D: Duplex PWB	Trigger	HIGH Level	LOW Level
P215	P213-3	PREFEED SNR	R → D	Level	TTL	TTL
-	P212-3	A	M ← D	Level	+24V	0V
-	P212-4	B	M ← D	Level	+24V	0V
-	P212-5	/A	M ← D	Level	+24V	0V
-	P212-6	/B	M ← D	Level	+24V	0V

10. MCU ↔ LDD AND SCANNER MOTOR



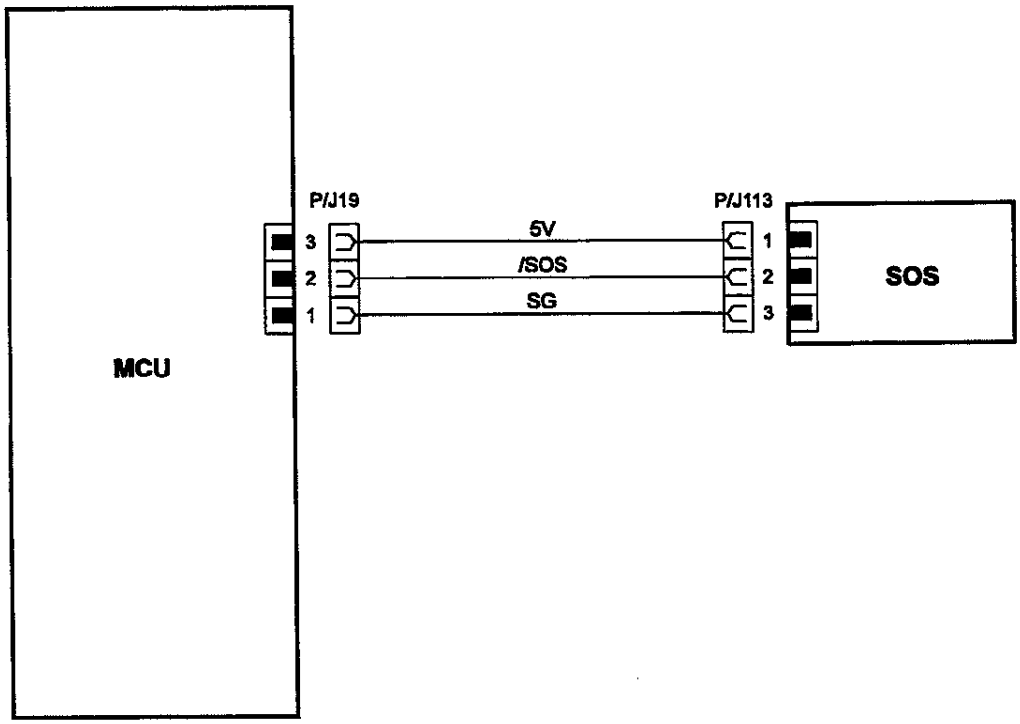
[SAS615F.CDR]

10. MCU ↔ LDD AND SCANNER MOTOR

Signal Name	Description
/P. DATA	Print Image Data (Black dot: LOW level, White dot: HIGH level)
MO	Signal for monitoring the electric current of the LD (Analog signal)
VL2	Sets the drive voltage for the LD. (Analog signal)
VL1	Sets the drive voltage for the LD. (Analog signal)
5V-LD	Refer to "5. MCU↔HVPS".
/SCAN MOT ON	Signal for switching on and off the Scanner Motor (LOW level when switching on and HIGH level when switching off)
SPI 1	Resolution switching signal 1 (600 dpi: High level)
SPI 2	Resolution switching signal 2 (600 dpi: High level)

P18	P11X	Signal Name	Signal Direction M: MCU L: LDD S: SCANNER	Trigger	HIGH Level	LOW Level	Note
7	P112-7	/P. DATA	M → L	Level	TTL	TTL	
9	P112-5	MO	M ← L	-	*	*	0.85 V (*1)
10	P112-4	VL2	M → L	-	*	*	0 - 3.5 V (*1)
11	P112-3	VL1	M → L	-	*	*	0 - 3.5 V (*1)
14	P112-1	5V-LD	M → L	-	5V	0V	
4	P114-3	/SCN MOT ON	M → S	Level	TTL	TTL	
2	P114-5	SPI 1	M → S	Level	TTL	TTL	Set to High
1	P114-6	SPI 2	M → S	Level	TTL	TTL	Set to High

11. MCU ↔ SOS



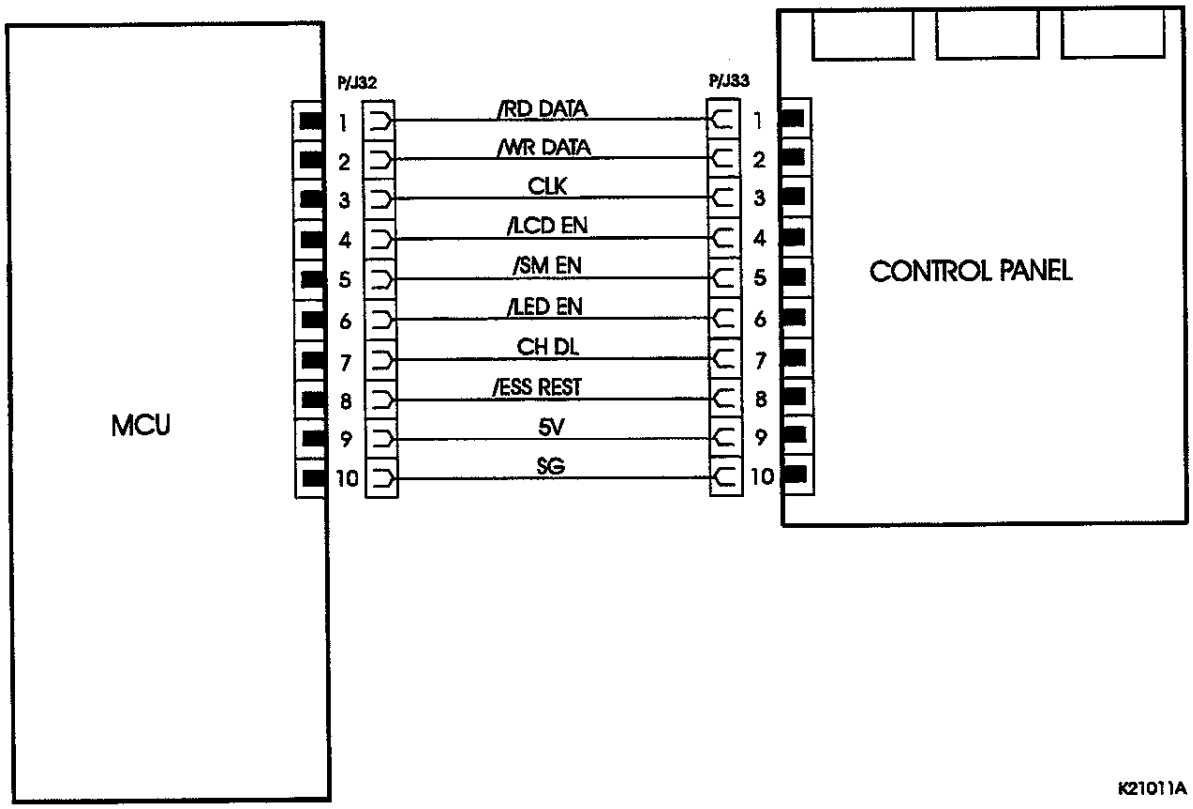
[SAS616F.CDR]

11. MCU ↔ SOS

Signal Name	Description
/SOS	SOS detection signal (normally HIGH level and LOW level when the laser light is detected).

P2	P113	Signal Name	Signal Direction M: MCU S: SOS	Trigger	HIGH Level	LOW Level
2	2	/SOS	M → S	Level	TTL	TTL

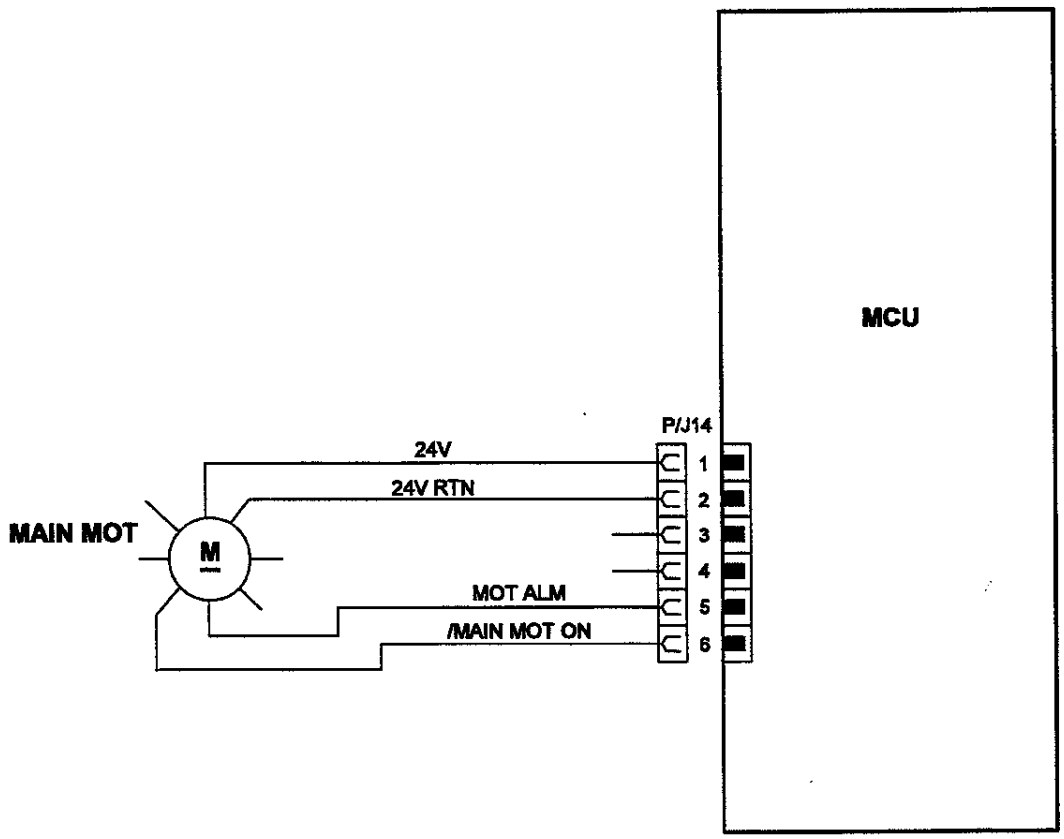
12. MCU ↔ CONTROL PANEL



12. MCU ↔ CONTROL PANEL

Signal Name	Description
/PD DATA	Data line for reading the information on the keys from the Control Panel (serial signal)
/WR DATA	Data line for writing the display data for the LCD and LEDs on the Control Panel (serial signal)
CLK	Synchronization signal for the data transmission
/LCD EN	Enable signal for selecting the LCD (LOW level when selecting the LCD, and HIGH level when not selecting the LCD)
/SW EN	Enable signal for selecting the Switches (LOW level when selecting the Switches, and HIGH level when not selecting the Switches)
/LED EN	ENABLE signal for selecting the LEDs (LOW level when selecting the LEDs, and HIGH level when not selecting the LEDs)
CH OL	Signal for selecting a register in the LCD controller (LOW level when selecting the Data Register and HIGH level when selecting the Instruction Register)
ESS RESET	Reset signal for the Control Panel (normally HIGH level, and LOW level when resetting the Control Panel)

13. MCU ↔ MAIN MOTOR



[SAS618F.CDR]

13. MCU ↔ MAIN MOTOR

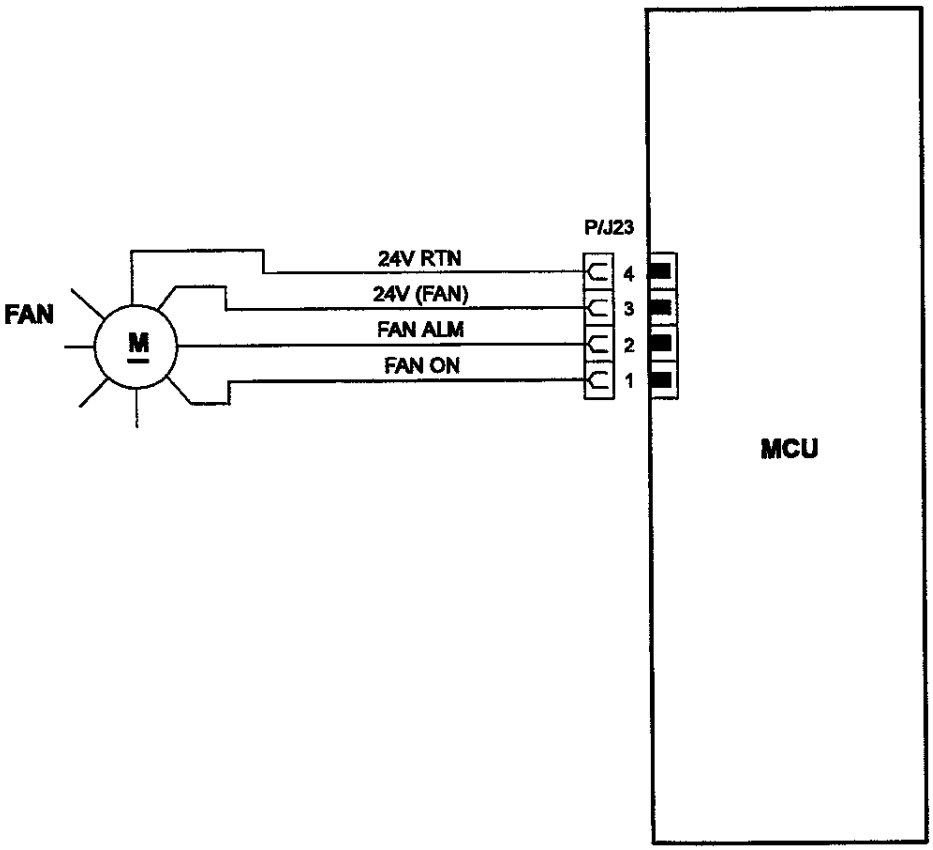
Signal Name	Description
MOT ALM	Signal for detecting a problem in the Main Motor (LOW level when the motor is normal, and HIGH level when the motor is abnormal)
/MAIN MOT ON	Signal for switching on and off the Main Motor (LOW level when switching on the motor, and HIGH level when switching off the motor)

P14	Signal Name	Signal Direction MO: Main Motor M: MCU	Trigger	HIGH Level	LOW Level
5	MOT ALM	MO → M	Level	TTL	TTL
6	/MAIN MOT ON	MO ← M	Level	TTL	TTL

The Main Motor also rotates in the following conditions:

1) When the power is turned on (boom operation): 1 second
2) When the cover is closed after a paper jam is cleared (boom operation and erase cycle): 1 sec. (Boom operation) + 2.4 sec. (Erase cycle) = 3.4 sec.

14. MCU ↔ FAN MOTOR



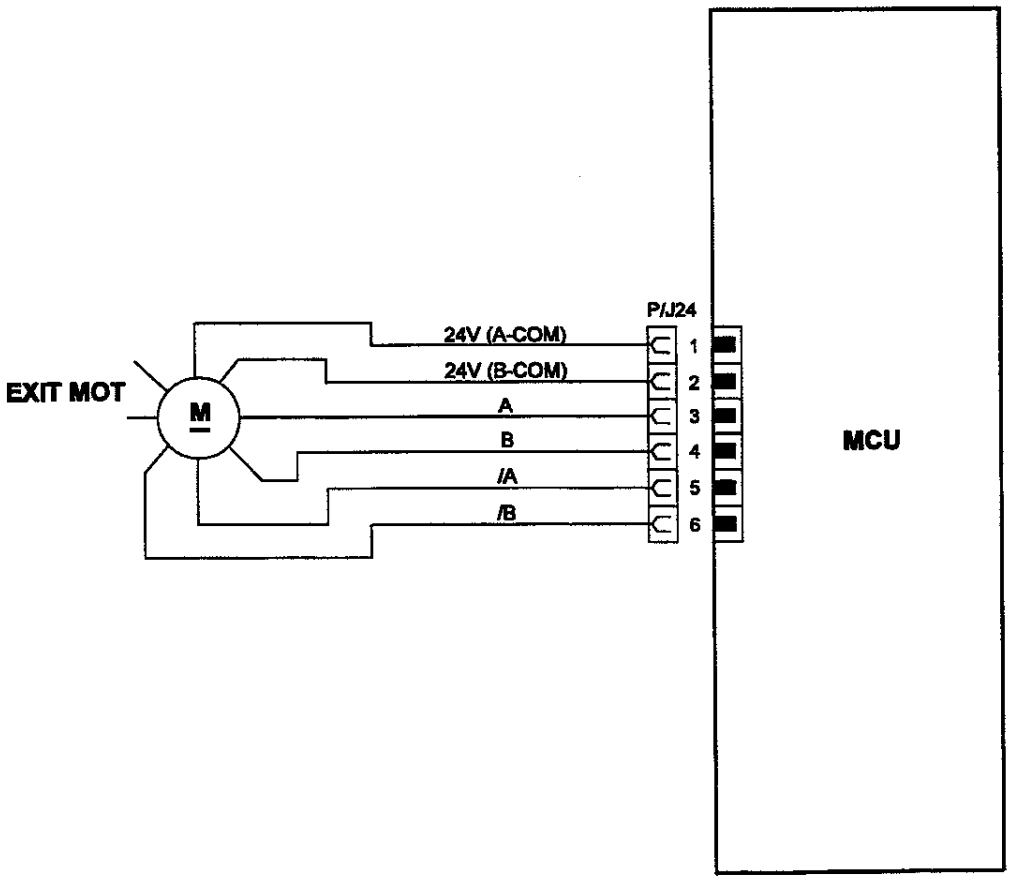
[SAS619F.CDR]

14. MCU ↔ FAN MOTOR

Signal Name	Description
FAN ALM	Signal for detecting a problem in the Fan Motor (LOW level when the motor is normal, and HIGH level when the motor is abnormal)
FAN ON	Control signal for switching the motor speed (LOW level for the High speed, and HIGH level for the Low speed)

P23	Signal Name	Signal Direction F: FAN M: MCU	Trigger	HIGH Level	LOW Level
2	FAN ALM	F → M	Level	TTL	TTL
1	FAN ON	F ← M	Level	TTL	TTL

15. MCU ↔ EXIT MOTOR



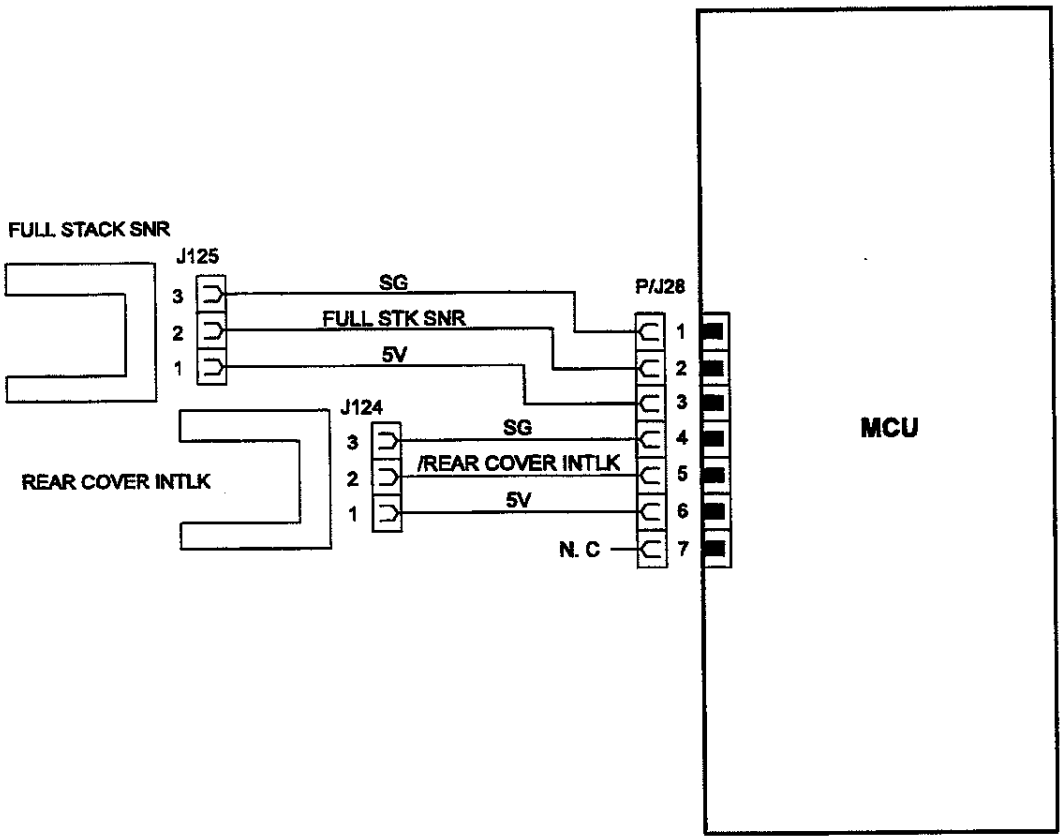
[SAS60F.CDR]

15. MCU ↔ EXIT MOTOR

Signal Name	Description
A	Phase A drive signal for the stepping motor (LOW level when driving, and HIGH level when not driving)
B	Phase B drive signal for the stepping motor (LOW level when driving, and HIGH level when not driving)
/A	Phase /A drive signal for the stepping motor (LOW level when driving, and HIGH level when not driving)
/B	Phase /B drive signal for the stepping motor (LOW level when driving, and HIGH level when not driving)

P24	Signal Name	Signal Direction E: Exit Motor M: MCU	Trigger	HIGH Level	LOW Level
3	A	E ← M	Level	24V	0V
4	B	E ← M	Level	24V	0V
5	/A	E ← M	Level	24V	0V
6	/B	E ← M	Level	24V	0V

16. MCU ↔ FULL STACK SENSOR AND REAR COVER SENSOR



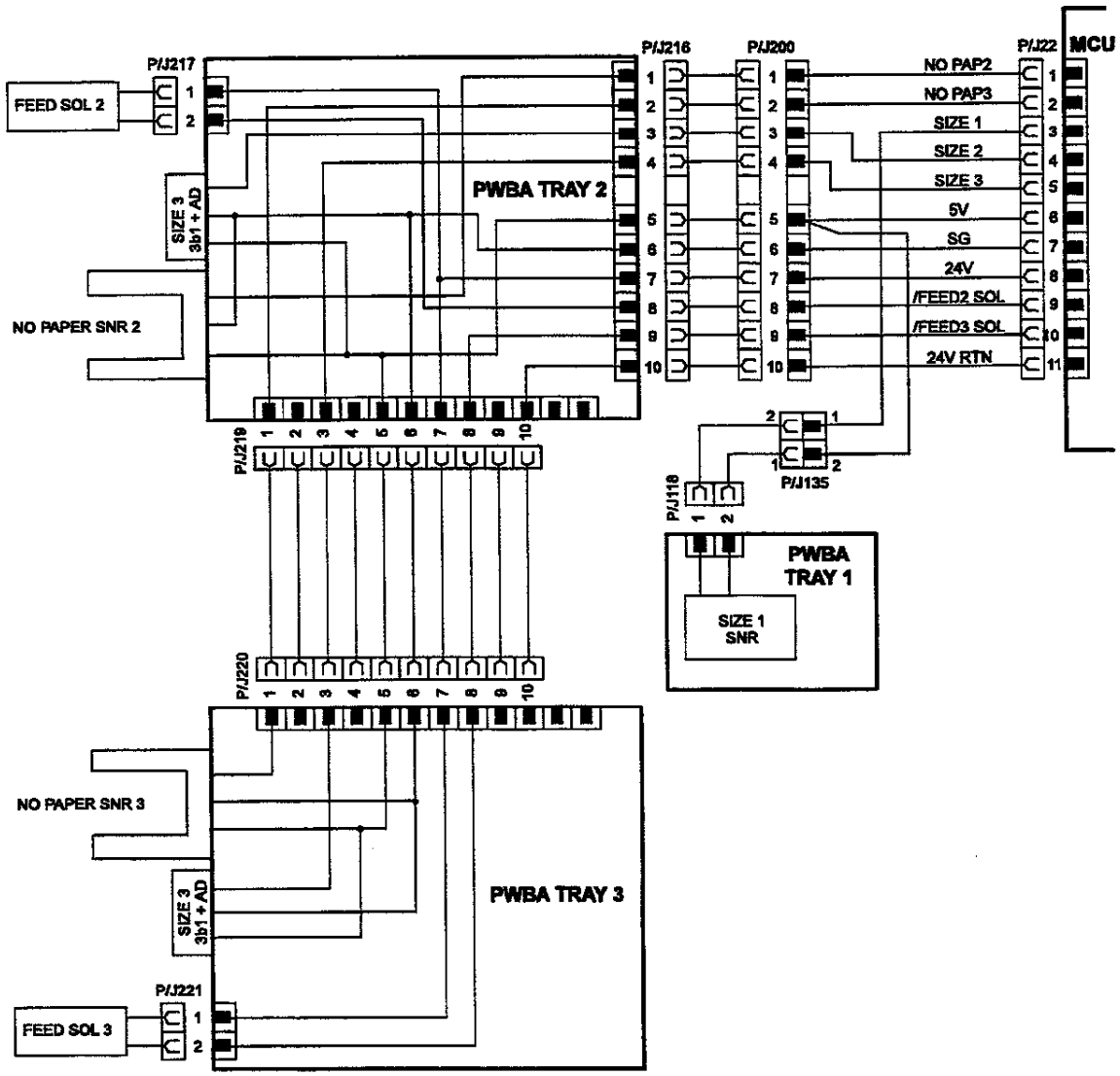
[SAS621F.CDR]

16. MCU ↔ FULL STACK SENSOR AND REAR COVER SENSOR

Signal Name	Description
FULLSTK SNR	Signal for detecting the amount of paper on the Exit Tray (LOW level when the Exit Tray is not full, and HIGH level when the Exit Tray is full)
/REAR COVER INTLK	Signal for detecting the Open/Close state of the Rear Cover (LOW level when the Rear Cover is closed, and HIGH level when the Rear Cover is opened)

P12X	P21	Signal Name	Signal Direction S: Sensor M: MCU	Trigger	HIGH Level	LOW Level
P125-2	2	FULLSTK SNR	S → M	Level	TTL	TTL
P124-2	5	/REAR COVER INTLK	S → M	Level	TTL	TTL

17. MCU ↔ DECK1 PWB ↔ DECK2 PWB ↔ DECK3 PWB



[SAS622F.CDR]

17. MCU ↔ DECK1 PWB ↔ DECK2 PWB ↔ DECK3 PWB

Signal Name	Function
NO PAP2	Detection signal on the presence/absence of paper in Tray 2. (Low when paper is present and High when out of paper)
NO PAP3	Detection signal on the presence/absence of paper in Tray 3. (Low when paper is present and High when out of paper)
SIZE2	Detection signal on the size of the paper in Tray 2. (Analog signal)
SIZE3	Detection signal on the size of the paper in Tray 3. (Analog signal)
/FEED2 SOL	Actuation signal of the Feed Solenoid which feeds out paper in Tray 2. (Low when feeding paper and High when not feeding paper)
/FEED3 SOL	Actuation signal of the Feed Solenoid which feeds out paper in Tray 3. (Low when feeding paper and High when not feeding paper)
SIZE1	Detection signal on the size of paper in Tray 1. (Analog signal).

P	P21	Signal Name	Signal Direction D: DECK M: MCU	Trigger	HIGH Level	LOW Level
P200-1	1	NO PAP2	D → M	Level	TTL	TTL
P200-2	2	NO PAP3	D → M	Level	TTL	TTL
P200-3	4	SIZE2	D → M	-	*	*
P200-4	5	SIZE3	D → M	-	*	*
P200-8	9	/FEED2 SOL	D ← M	Level	TTL	0V
P200-9	10	/FEED3 SOL	D ← M	Level	TTL	0V
P135-1	3	SIZE1	D → M	-	*	*

*1: The resistance of the Solenoid:

Solenoid	Resistance (Ambient Temperature: 20 °C)
Feed Solenoid 2	96 Ω ± 10%
Feed Solenoid 3	96 Ω ± 10%

17. MCU ↔ DECK1 PWB ↔ DECK2 PWB ↔ DECK3 PWBA

Table 6.2.3.1 Main Tray

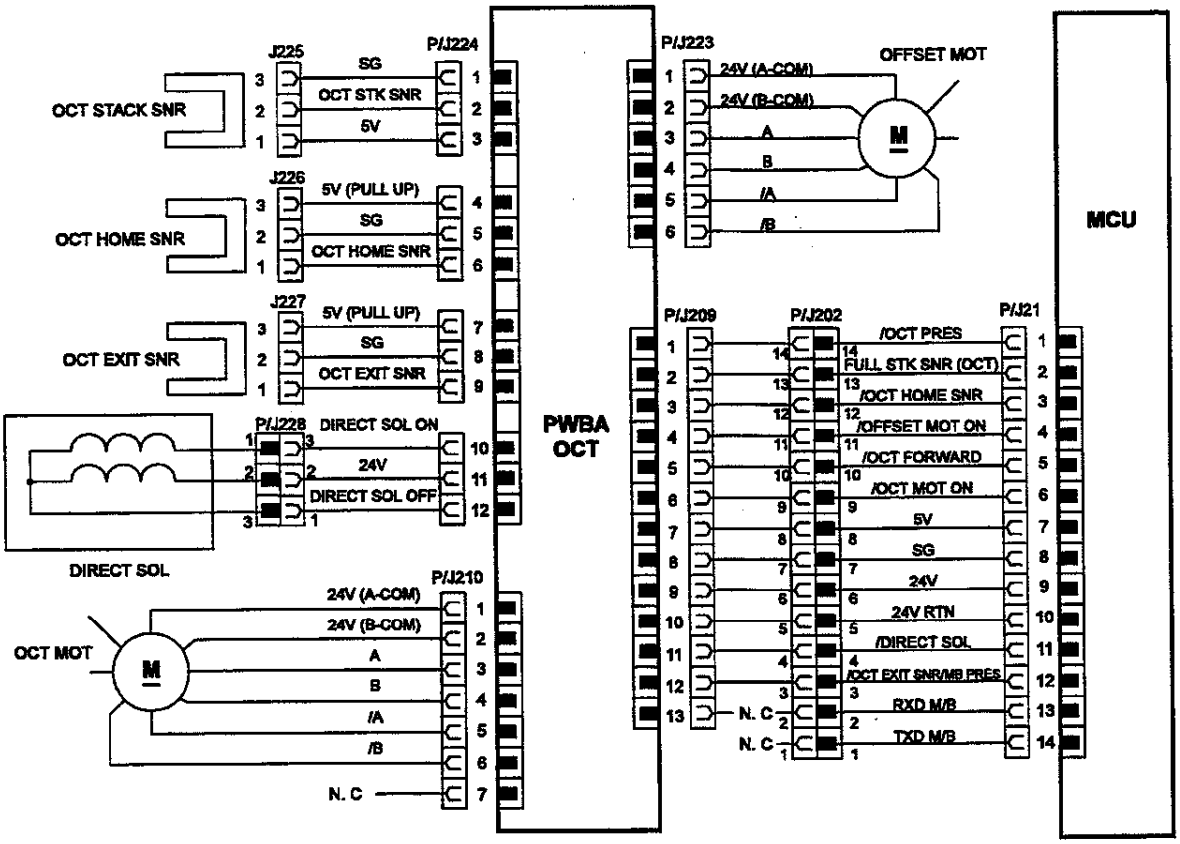
Size	Size SNR Voltage (V) Vsnr +5VDC Measured at P/J22-6			S2 (*)	S1 (*)	S0 (*)
	4.77V Min.	5.10V Typ.	5.44 Max.			
No Cassette	0.00	0.00	0.00	0	0	0
B5	1.01	1.10	1.19	1	0	0
Statement	1.67	1.81	1.95	0	1	0
Legal 13"	2.13	2.30	2.48	1	1	0
Letter	2.47	2.67	2.88	0	0	1
Executive	2.74	2.95	3.18	1	0	1
A4	2.95	3.18	3.41	0	1	1
Legal 14"	3.12	3.36	3.60	1	1	1

Table 6.2.3.2 Second and Third Trays

Size	Size SNR Voltage (V) Vsnr +5VDC Measured at P/J22-6			S2 (*)	S1 (*)	S0 (*)
	4.77V Min.	5.10V Typ.	5.44 Max.			
No Deck	0.00	0.00	0.00	0	0	0
No Tray	0.55	0.60	0.65	0	0	0
Legal 13"	2.31	2.49	2.69	1	1	0
Letter	3.19	3.43	3.68	0	0	1
A4	1.91	2.07	2.23	0	1	1
Legal 14"	3.03	3.27	3.51	1	1	1

This page intentionally blank.

18. MCU ↔ OCT STACK SENSOR, OCT HOME SENSOR, OCT EXIT SENSOR, OCT DIRECT SOLENOID, OCT MOTOR, AND OCT OFFSET MOTOR



[SAS623F.CDR]

18. MCU ↔ OCT STACK SENSOR, OCT HOME SENSOR, OCT EXIT SENSOR, OCT DIRECTION SOLENOID, OCT MOTOR, AND OCT OFFSET MOTOR

Signal Name	Function
/OCT PRES	Signal for detecting the presence of optional OCT (LOW level when installed, and HIGH level when not installed)
FULLSTK SNR (OCT)	Signal for monitoring the amount of paper ejected on the OCT tray (LOW level when not full, and HIGH level when full)
/OCT HOME SNR	Signal for detecting the home position of the Offset Motor (LOW level at the home position, and HIGH level not at the home position)
/OFFSET MOT ON	Signal for switching on and off the Paper Offset Motor (LOW level when switching on and HIGH level when switching off)
/OCT FORWARD	Signal for switching the direction of rotation of the Paper Offset Motor (LOW level for the offsetting (forward) direction, and HIGH level for the return direction)
/OCT MOT ON	Signal for switching on and off the OCT Motor (LOW level when switching on and HIGH level when switching Off)
/DIRECT SOL	Signal for switching the direction of paper ejection (LOW level to the standard tray and HIGH level to the optional unit)
/OCT EXIT SNR/MB PRES	Signal for monitoring paper when OCT is installed (LOW level when paper is present, and HIGH level when paper is not present) Signal for detecting the presence of optional Mail Box when OCT is not installed (LOW level when Mail Box is installed, and HIGH level when not installed)
RXD M/B	Signal for communication between ESS and Mail Box
TXD M/B	Signal for communication between ESS and Mail Box

J202	P21	Signal Name	Signal Direction O: PWB OCT M: MCU	Trigger	HIGH Level	LOW Level
P14(7)	1	/OCT PRES	O → M	Level	TTL	TTL
P13(6)	2	FULLSTK SNR (OCT)	O → M	Level	TTL	TTL
P12(5)	3	/OCT HOME SNR	O → M	Level	TTL	TTL
P11(4)	4	/OFFSET MOT ON	O ← M	Level	TTL	TTL
P10(3)	5	/OCT FORWARD	O ← M	Level	TTL	TTL
P9(2)	6	/OCT MOT ON	O ← M	Level	TTL	TTL
P4(4)	11	/DIRECT SOL	O ← M	Level	+5V	0V
P3(3)	12	/OCT EXIT SNR/MB PRES	O → M	Level	TTL	TTL
P2(2)	13	RXD M/B	O → M	Level	TTL	TTL
P1(1)	14	TXD M/B	O ← M	Level	TTL	TTL

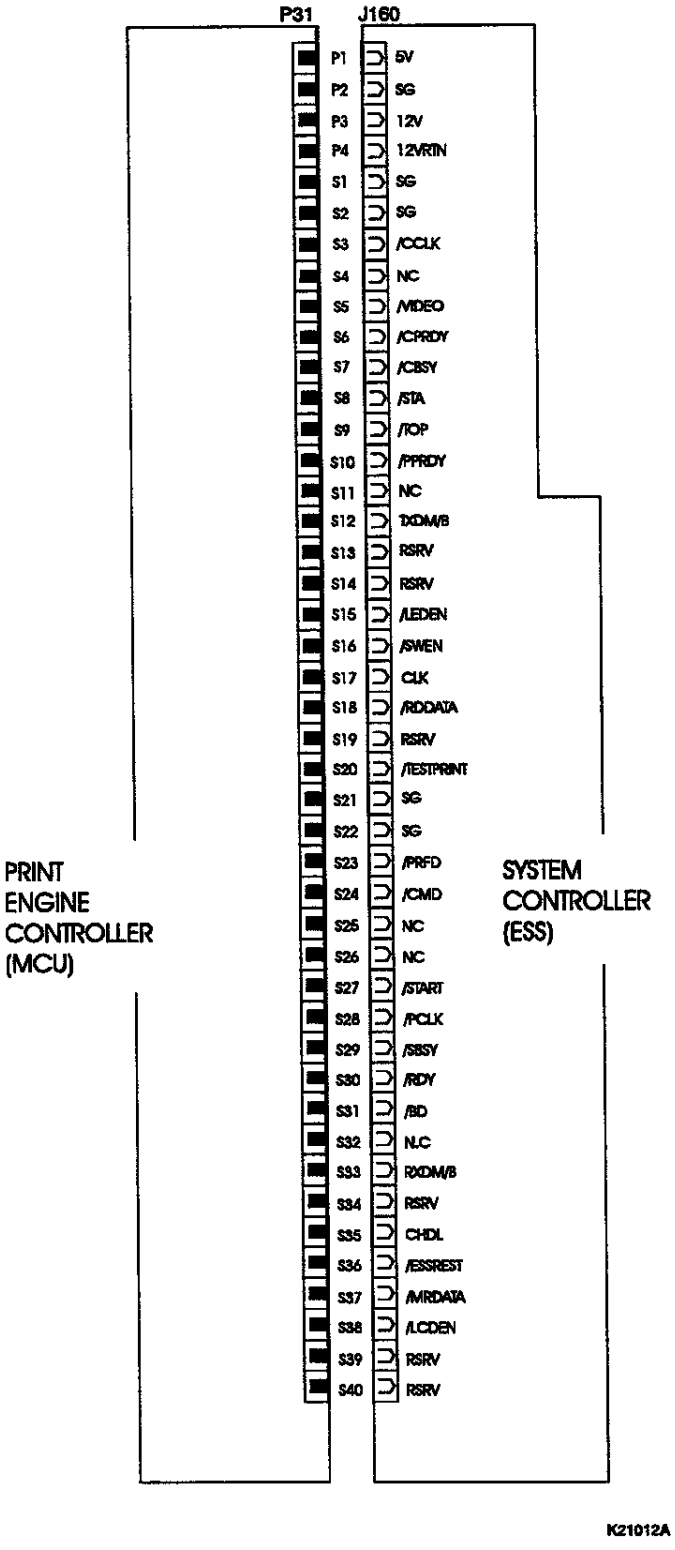
18. MCU ↔ OCT STACK SENSOR, OCT HOME SENSOR, OCT EXIT SENSOR, OCT DIRECT SENSOR, OCT MOTOR, AND OCT OFFSET MOTOR

Signal Name	Function
OCT STK SNR	Signal for monitoring the amount of paper on the OCT tray (LOW Level when not full, and HIGH Level when full)
OCT HOME SNR	Signal for detecting the home position of the Offset Motor (LOW Level at the home position, and HIGH Level not at the home position)
OCT EXIT SNR	Signal for monitoring paper when OCT is installed (LOW Level when paper is present, and HIGH level when paper is not present)
DIRECT SOL ON	Signal for switching the direction of paper ejection (LOW level to the standard tray and HIGH level to the optional unit)
OFFSET SOL OFF	Signal for switching the direction of paper ejection (LOW level to the standard tray and HIGH level to the optional unit)

J	P224	Signal Name	Signal Direction O: PWB OCT OS: OCT SNR/SOL	Trigger	HIGH Level	LOW Level
J225-2	2	OCT STK SNR	O ← OS	Level	TTL	TTL
J226-1	6	OCT HOME SNR	O ← OS	Level	TTL	TTL
J227-1	9	OCT EXIT SNR	O ← OS	Level	TTL	TTL
J228-3	10	DIRECT SOL ON	O → OS	Level	TTL	TTL
J223-1	12	DIRECT SOL OFF	O → OS	Level	TTL	TTL

This page intentionally blank.

19. MCU ↔ ESS AND LVPS ↔ ESS



Section 7

Repair Analysis Procedures

Using RAPs **7-5**

Preliminary Steps **7-6**
Entry Level RAP 7-7

RAPs with Fault Messages / Status Codes **7-9**
"NV Memory Fail" Message (U6) 7-9
"Laser Failure" Message (U2) 7-10
"Fuser Failure" Message (U4) 7-13
"Motor Failure" Message (U1) 7-14
"Fan Failure" Message (U5) 7-15
"Close Covers" Message (E5) 7-16
"Paper Jam Open Rear Cover/Clear Paper Path" Message (E4) 7-17
"Paper Jam Open Front Cover/Remove Print Cartridge Clear Paper Path" Message (E3) 7-19
"Main Tray Jam/Open Main Tray Open Front Cover/Remove Jam Sheet" Message (E2) or "Front Tray Jam/Remove All Paper Open Front Cover/Remove Jam Sheet" Message (E2) 7-22
"Paper Size Jam/Open Rear Cover" Message 7-25
"Paper Tray Out" Message (C3) 7-26
"Main Tray, Load xx x xx" Message (C5) 7-27
"Front Tray, Load xx x xx" Message (C5: MBF) 7-28
"Remove Output from Standard Tray" Message (C5: Stack Full) 7-29

"Replace Print Cartridge" Message (J5) 7-30
"Install Print Cartridge" Message (J3) 7-31
Error Codes 7-32
Power On Diagnostics (POD) Failure 7-32
Control Panel Displays Black Boxes 7-34
Error Code "0001" 7-35
Error Code "0040" 7-36
Error Code "0100" 7-37
Error Code "0101" 7-38

RAPs without Fault/Status Codes 7-39
Inoperative Printer 7-39
Malfunctioning LCD/Malfunctioning LED 7-41
Inoperative Keypad 7-42
Erratic Operation 7-43
Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC) 7-44
Low Voltage Power Supply (LVPS) Assembly Failure (+12VDC) 7-45
Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC) 7-46
Quartz Heater Failure 7-47
Temperature Sensor Assembly Failure 7-49
Exit Sensor Assembly Failure 7-50
Registration Sensor Failure 7-51
Front Tray/MBF No Paper Sensor Failure 7-52
Main Tray No Paper Actuator, No Paper Sensor Failure 7-53
Stack Full Sensor Failure 7-54
Size Sensor Assembly Failure 7-55
Front Tray Paper Handling Solenoid Failure 7-57
Paper Handling (Feed) Solenoid Assembly Failure (Tray 1) 7-58
Paper Handling Solenoid Assembly (Turn Clutch) Failure ... 7-59
Drive Assembly Failure 7-60
Fan Assembly Failure 7-62
Toner Sensor Assembly Failure 7-63
Exit Assembly Failure 7-64
Fuser PWB Failure 7-65
HVPS Failure 7-66
Electrical Noise 7-67
Mechanical Noise 7-70

Image Quality RAPs 7-72
Image Quality Entry Flowchart 7-73
Image Quality Defect Definitions 7-74
Image Quality Checkout 7-76
Non-Uniform Image Quality 7-88
Black Prints 7-89
Horizontal Band Deletions 7-90

Vertical Band Deletions 7-91
Spot Deletions 7-92
Light Prints 7-93
Blank Prints 7-94
Extraneous Marks 7-95
Character Defects 7-96
Spots 7-97
Unfused Image Procedure 7-98
Misregistered Image 7-99
Streaks 7-100
Residual Image 7-101
Background 7-102
Damaged Prints 7-103
True Res Smoothing 7-104
Resolution 7-105
Skewed Image 7-106
Skips/Smears 7-107

Communications Entry RAP 7-108
Serial / Parallel RAP 7-109
LocalTalk 7-110
Ethernet 7-112
Token Ring 7-114

7.1 Using RAPs

In each of the following Repair Analysis Procedures (RAPs), you are instructed to perform certain actions and make observations. The instruction is followed by a statement. If your response to the statement is "Yes", perform the action following the "Y". If your response to the question is "No", perform the action following the "N".

In addition, keep the following points in mind while performing any RAP:

1 If possible, have a spare EP Cartridge on hand. Some RAPs use this component as a troubleshooting tool.

2 RAPs use the following notation when referring to printer connections:

- P/JXX – indicates Plug/Jack XX is connected to a component.
- P XX – refers to the plug of P/J XX (except for connectors soldered directly to the board).
- J XX – refers to the jack on P/J XX (except for connectors soldered directly to the board).

CAUTION **Use an Electronic Discharge Kit (ESD) when handling sensitive electrical components.**

When you take a voltage reading at a P/J location, the notation "P/J A–B and P/J X–Y" indicates that you should place the red probe (+) of the voltmeter on pin B of P/J A, and place the black probe (-) of the voltmeter on pin Y of P/J X. In most cases the second P/J pin in the notation is a Return (RTN), Frame Ground (FG), or Signal Ground (SG).

3 When a RAP tells you to take a voltage reading between P/J X and P/J Y, with no pin numbers given, refer to the Wiring and Connection Diagrams in Section 6 and take reading on ALL pins.

4 Unless otherwise instructed by a RAP, take all voltage readings with the EP Cartridge and Paper Trays installed, and with the Top Cover and Exit Door closed.

5 Voltage values stated in RAPs are approximate. Actual voltages may differ slightly. A small difference in voltage is acceptable.

6 Refer to the appropriate Repair Procedures if you must remove or replace a component.

7 The term *replacement* means the named part or parts could be the cause of the initial problem. Replace the entire assembly that a RAP directs you to replace.

Image Quality Problems

Use letter-size paper (11") or A4 paper when troubleshooting an image quality problem.

Use the Test Print option, 5.1.4.8 Test Menu (System Controller Test Pattern), to determine whether an image quality problem is being caused by the printer or by the PC. The printer generates the Test Print. If the Test Print is normal but the regular prints have an image quality problem, the problem may be with the PC.

7.2 Preliminary Steps

If the printer is displaying an obvious failure or fault, go immediately to the appropriate Repair Procedure or Repair Analysis Procedure. If you are not sure where to begin troubleshooting, go to the Entry Level RAP.

7.2.1 Entry Level RAP

1 Switch printer off then switch it on. Within 2 minutes the printer displays ONLINE _ _ _ READY on the Control Panel Display.

Y: Go to step 5.

N: Go to step 2.

2 The printer displays a Fault Message or Error Code.

Y: Go to the appropriate Fault Message/Error Code RAP.

N: Go to step 3.

3 The LCD is blank.

Y: Go to *RAP 7.4.2 Malfunctioning LCD/Malfunctioning LED.*

N: Go to step 4.

4 The top line of the LCD is black squares.

Y: Go to *RAP 7.3.17.2 Control Panel Displays Black Boxes.*

N: Go to step 5.

5 The printer responds to keypad actions.

Y: Go to step 6.

N: Go to *RAP 7.4.3 Inoperative Keypad.*

6 Run a System Controller Test Print (*5.1.4.8 Test Menu*) from all trays. The printer displays a Fault Message/Error Code.

Y: Go to the appropriate Fault Message/Error Code RAP.

N: Go to step 7.

7 The printer produces a System Controller Test Print.

Y: Go to step 8.

N: Go to step 9.

8 The System Controller Test Print meets/surpasses the Image Quality Specifications.

Y: Go to step 12.

N: Go to *7.5 Image Quality RAPs* to identify the image quality defect(s).

9 Run a Print Engine Controller Test Print in Diagnostic Mode 2 or Diagnostic Mode 3.

Y: Replace the System Controller.

N: Go to step 10.

10 Produce a Print Engine Controller Test Print using procedure *5.2.4 Print Engine Controller Test Print*, step 3, shorting the two pins of P35 on the Print Engine Controller. A Print Engine Controller Test Print is produced.

Y: In the following order, replace the System Controller and the Print Engine Controller.

N: Go to step 11.

11 A fault condition exists that does not have an associated Fault Message/Error Code.

Y: Go to the appropriate RAP in *7.4 RAPs without Fault/Status Codes.*

N: Go to step 12.

12 Request the customer to send a print job from the host. The job prints successfully without defects.

Y: Go to Final Actions.

N: Go to *7.6 Communications Entry RAP.*

7.3 RAPs with Fault Messages / Status Codes

7.3.1 "NV Memory Fail" Message (U6)

NOTE: This problem may also be caused by external noise. If the problem still exists at the end of this RAP, go to RAP 7.4.25 Electrical Noise.

1 Switch the power OFF and then ON. The code reappears.

Y: Go to step 2.

N: Return to Final Actions.

2 Switch the power OFF and then ON. The code still appears when the power comes on.

Y: Go to step 4.

N: Go to step 3.

3 Repeat switching the printer power OFF and then ON. The code keeps appearing when the power comes on.

Y: Go to step 4.

N: The problem is corrected. Go to Final Actions.

4 Diagnostic Mode 3 can be accessed.

Y: Go to step 5.

N: Replace the Print Engine Controller.

5 The function values are correct.

Y: Replace the Print Engine Controller.

N: Go to step 6.

6 Correct the incorrect function values and switch the power OFF and then ON. The code reappears.

Y: Replace the Print Engine Controller.

N: Go to Final Actions.

7.3.2 "Laser Failure" Message (U2)

NOTE: Refer to Figure 7.3.2.1 U2 Message Troubleshooting Schematic while performing this RAP.

1 The Laser Scanner Motor is spinning after executing the Test Print Mode (Diagnostic Mode 2).

NOTE: If you find it difficult to hear the Scanner Motor spinning, disable the Main Motor by disconnecting P/J14 from it.

Y: Go to step 2.

N: Go to step 11.

2 There is +5VDC between P/J18-8 and P/J18-12.

Y: Go to step 5.

N: Go to step 3.

3 There is +5VDC between P/J25-2 and P/J25-6.

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 There is +5VDC between P/J12-2 and P/J12-6.

Y: Replace the LVPS.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

5 There is +5VDC between P/J18-13 (5V-LD) and P/J18-12 (SG).

Y: Go to step 14.

N: Go to step 6.

6 There is +5VDC between P/J112-1 (5V-LD) and P/J112-2.

Y: Replace the Laser Assembly.

N: Go to step 7.

7 There is +5VDC between P/J11-13 and P/J12-5.

Y: Go to step 8.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

8 Refer to Figure 7.3.2.1, and check for continuity between P/J112-1 and P/J11-13. There is an open circuit.

Y: Replace the open component.

N: Go to step 9.

9 There is +24VDC between P/J18-6 and P/J18-5.

Y: Go to step 10.

N: Go to *RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

10 With the printer's resolution set to 600 DPI, there is a high logic level (approximately +5VDC) measured between P/J18-2 and P/J18-3 and between P/J18-1 and P/J18-3.

NOTE: To perform this analysis, disconnect P/J15 from the Print Engine Controller and close all covers.

Y: Go to step 11.

N: Replace the Print Engine Controller.

11 Enter the Test Print Mode. Check for approximately +5VDC between P/J18-4 and P/J18-3. There is a low logic level (approximately 0VDC) when the Scanner Motor is turned on and a high logic level (approximately +5VDC) when the Scanner Motor is turned off.

Y: Go to step 12.

N: Replace the Print Engine Controller.

12 There is +5VDC between P/J19-3 and P/J19-1.

Y: Go to step 13.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

13 There is continuity between P/J18 and P/J112 and between P/J18 and P/J114.

Y: Go to step 14.

N: Replace the Laser Harness.

14 There is continuity between P/J19 and P/J113.

Y: Go to step 15.

N: Replace the SOS Harness.

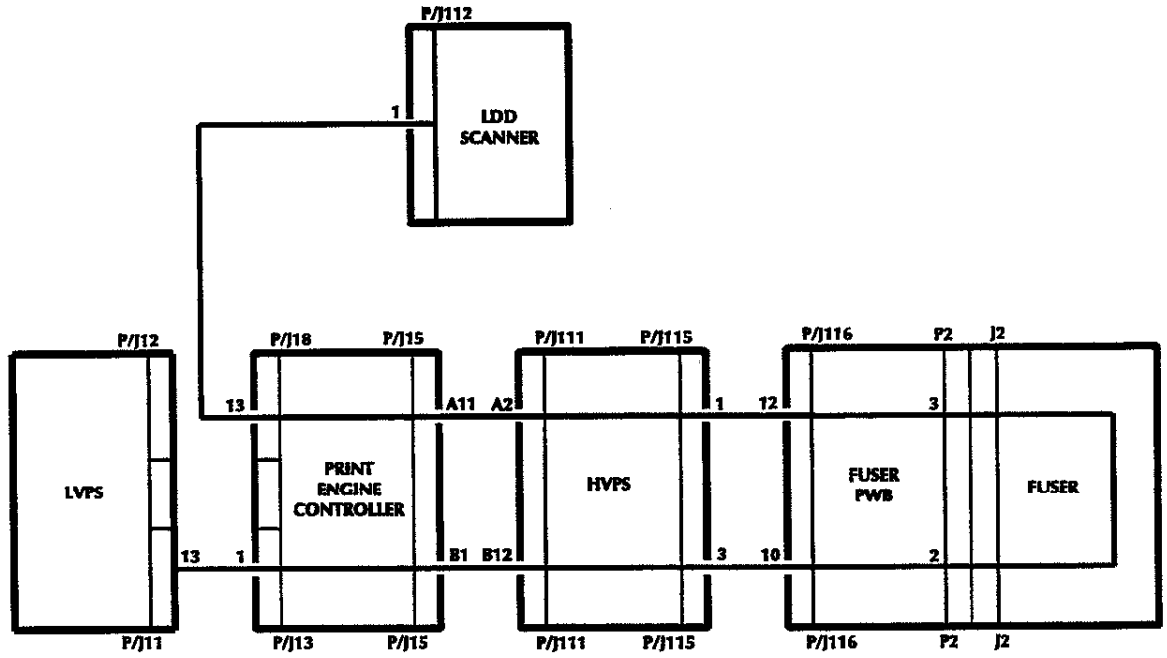
15 Problem is resolved.

Y: Correction is complete.

N: Replace the Laser Assembly.

NOTE: If the U2 problem is not resolved, go to RAP 7.4.25 Electrical Noise.

Figure 7.3.2.1 U2 Message Troubleshooting Schematic



7.3.3 "Fuser Failure" Message (U4)

Initial Analysis

Check the interlock tab on the front and rear covers.

1 Open the rear cover and cheat the rear cover interlock sensor. At power on, the Fuser heater turns on.

Y: Go to step 8.

N: Go to step 2.

CAUTION Before performing the following step, let the Fuser Assembly cool down.

2 Remove the Fuser Assembly. There is continuity between P2-1 and P2-5.

Y: Go to step 3.

N: Replace the Fuser Assembly.

3 At power on, line voltage can be measured between J2-1 and J2-5.

Y: Check condition of P/J2. If the connectors are damaged, replace the Fuser PWB or the Fuser Assembly.

N: Go to step 4.

4 At power on, line voltage can be measured between J3-1 and J3-4.

Y: Replace the LVPS-to-Fuser PWB Harness.

N: Go to step 5.

5 At power on, line voltage can be measured between P/J1-1 and P/J1-2.

Y: Go to step 7.

N: Go to step 6.

6 At power on, line voltage can be measured between T7 and T8 of the main power switch.

Y: Replace the LVPS-to-Main Power Switch Harness.

N: Replace the Main Power Switch.

7 At power on, P/J11-10 is at a low logic level (approximately +5VDC).

Y: Replace the LVPS.

N: *Go to RAP 7.4.9 Temperature Sensor Assembly Failure.*

8 After the power-on sequence, the Fuser heater cycles off and on.

Y: Replace the Print Engine Controller.

N: Go to *RAP 7.4.9 Temperature Sensor Assembly Failure.*

7.3.4 "Motor Failure" Message (U1)

1 The Main Motor Assembly is revolving when power comes on.

Y: Replace the Print Engine Controller.

N: Go to step 2.

2 Switch OFF the printer power and remove the Main Motor Assembly (*REP 4.10.1 Main Motor Assembly*) from the Drive Assembly to check for binding.

3 Grip the bottom mounting bracket of the Main Motor Assembly (*REP 4.10.1 Main Motor Assembly*) firmly. Switch ON the printer power. The Main Motor revolves.

CAUTION **The initial thrust of the Main Motor turning on is quite strong and may surprise you if you are not aware of it. Do not grip the Main Motor itself.**

NOTE: The Main Motor can be made to revolve while producing IOT Test Prints by shorting together the two male pins of P/J35 on the Print Engine Controller. P/J35 is a white plug located directly above P/31, the Print Engine Controller to System Controller plug. The Main Drive Motor also turns when the printer power is turned off and then on.

Y: Go to *RAP 7.4.19 Drive Assembly Failure.*

N: Go to step 4.

4 There is +24VDC between P/J14-1 and P/J14-2 on the Print Engine Controller.

Y: Replace the Main Motor Assembly.

N: Go to step 5.

5 There is +24VDC between P/J25-1 and P/J25-4 on the Print Engine Controller.

Y: Replace the Print Engine Controller.

N: Go to step 6.

6 There is +24VDC between P/J12-1(LVPS) and P/J25-4 (Print Engine Controller).

Y: Replace the Print Engine Controller.

N: Replace the LVPS Assembly.

7.3.5 "Fan Failure" Message (U5)

Initial Analysis

Check for an obstruction blocking fan.

1 Check that the Fan Assembly is spinning when power comes on.
   Y: Go to step 2.
   N: *Go to RAP 7.4.20 Fan Assembly Failure.*

2 There is +5VDC between P/J23-2 and P/J23-4 when the code appears.
   Y: Replace the Fan Assembly.
   N: Replace the Print Engine Controller.

7.3.6 "Close Covers" Message (E5)

1 The Front Cover Assembly actuates the interlock switch when the Cover is closed, and deactuates it when the Cover is open.

NOTE: You can inspect this while performing the Diagnostic Code 02.

Y: Go to step 3.

N: Go to step 2.

2 Ensure voltages between P/J11-13 and P/J12-5 are +5VDC while the Interlock Switch is actuated.

Y: Go to step 4.

N: Go to step 3.

3 Ensure +5VDC between P/J131-1 and P/J12-5.

Y: Check for continuity between P/J131-1 and P/J11-13, and then replace the appropriate harness.

N: Replace the LVPS.

4 The Rear Cover Assembly obstructs the Rear Cover Sensor when the Cover is closed, and does not obstruct it when the Cover is open.

NOTE: You can inspect this while performing the Diagnostic Code 02.

Y: Replace the Print Engine Controller PWB.

N: Go to step 5.

5 There is +5VDC between P/J28-6 and P/J28-4.

Y: Go to step 6.

N: Replace the Print Engine Controller.

6 There is +5VDC between J124-1 and J124-3.

Y: Go to step 7.

N: Check the Rear Cover Interlock Harness for continuity. If good, replace the Print Engine Controller.

7 Voltage at P/J124-2 (Rear Cover Interlock) is +0VDC when the cover is closed and +5VDC when the cover is open.

Y: Replace the Print Engine Controller.

N: Replace the Rear Interlock Sensor.

7.3.7 "Paper Jam Open Rear Cover/Clear Paper Path" Message (E4)

1 The problem appears when power comes on.

Y: Go to step 2.

N: Go to step 3.

2 There is a sheet of paper or foreign object actuating the Exit Actuator.

Y: Remove the paper or object.

N: Go to step 9.

3 The Decurl Roll of the Fuser Assembly is rotating normally.

NOTE: Open the Rear Cover Assembly and insert a piece of paper into the Cover Sensor. Perform a visual inspection by generating a test print.

Y: Go to step 4.

N: Replace the Fuser Assembly.

4 There is nothing wrong with paper being fed into the Decurl Roll.

Y: Go to step 5.

N: Replace the Fuser Assembly.

5 Ensure the Exit Actuator uncovers the Photo Sensor Assembly when it detects the presence of a sheet and covers it when no sheet is present.

NOTE: This can be inspected by performing the Diagnostic Code 02.

Y: Go to step 6.

N: Go to *RAP 7.4.22 Exit Assembly Failure.*

6 The parameter for the Diagnostic Code 00 (Size Sensor Assembly) is compatible with the sheet size present in the paper tray being used.

Y: Go to step 8.

N: Go to step 7.

NOTE: This error message code could appear on the LCD when the length in the paper feed direction of the paper now loaded is longer than that of the sheet size set for the printer.

NOTE: Ensure the paper guide in the back of the paper tray is adjusted properly.

7 Ensure the Size Sensor Assembly shows a correct switch combination for the sheet size present in the Main Tray when the tray presses the Size Spring. See *Table 7.4.15.1 Main Tray.*

Y: Replace the Paper Tray.

N: Go to *RAP 7.4.15 Size Sensor Assembly Failure.*

NOTE: Remove the Main Tray, and perform a visual inspection while inserting the Tray Assembly into the slot.

NOTE: Refer to Sheet Size Selection for switch combinations for various sheet sizes.

8 The Mid Roll Assembly has normal rotation.

NOTE: This can be inspected while performing the Diagnostic Code 93.

Y: Go to step 9.

N: Go to step 10.

9 The Exit Roll Assembly is rotating normally.

Y: Go to step 11.

N: Go to step 12.

10 There is +24VDC between the following pins:

- P/J24-1 and P/J24-3
- P/J24-2 and P/J24-4

Y: Replace the Exit Step Motor Assembly.

N: Replace the Print Engine Controller.

11 Ensure the Stack Full Actuator uncovers the Stack Full Sensor when it detects the presence of a sheet and covers it when no sheet is present.

Y: Go to step 12.

N: Replace the Stack Full Actuator or the Stack Full Sensor.

NOTE: This can be inspected by performing the Diagnostic Code 02.

12 Ensure the Rear Cover Assembly is functioning properly.

Y: Replace the Print Engine Controller.

N: Replace the Rear Cover Assembly.

7.3.8 "Paper Jam Open Front Cover/Remove Print Cartridge Clear Paper Path" Message (E3)

1 Curled sheets of paper are being used in the input paper tray.

Y: Load fresh paper.

N: Go to step 2.

2 The Exit Actuator is covered with a print sheet when the code appears.

Y: Go to step 13.

N: Go to step 3.

3 Ensure the paper size being used conforms to the paper size specification of the printer.

Y: Go to step 4.

N: Load appropriate paper.

NOTE: A paper jam could be caused by an out-of-specification paper whose length is shorter than 139.7 millimeters because it is not suitable for the printers paper transport mechanism.

4 The following transmission gears driving those of the EP Cartridge are functioning properly:

- Main Tray Feed Roll Assembly.
- Registration Roll Assembly.
- Pinch Roll Assembly.
- Front Tray Roll Assembly.

NOTE: Open the Front Cover and remove the EP Cartridge. This can be inspected by pressing the Interlock Switch while performing the Diagnostic Code 90.

Y: Go to step 7.

N: Go to step 5.

WARNING! In the next step, do not touch the HVPS and its associated parts which emit high voltages.

5 There is +24VDC between the following pins:

- P/J27-1 and P/J27-2
- P/J27-3 and P/J27-4
- P/J27-5 and P/J27-6

Y: Go to step 6.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

6 Each of the gears of the Drive Assembly functions normally.

NOTE: This can be inspected while performing the Diagnostic Code 90.

Y: Replace the Paper Handling Solenoid Assembly.

N: Replace the Main Motor Assembly or the Drive Assembly.

7 There seems to be nothing wrong with paper fed into the inlet between the Chute Bottom and the Chute Inlet.

Y: Go to step 8.

N: Replace the Chute Inlet Assembly.

WARNING! Do not touch the HVPS and its associated parts which emit high voltages.

8 Ensure the Registration Sensor Actuator uncovers the sensor when it detects the presence of a sheet and covers it when no sheet is present.

NOTE: This can be inspected by performing the Diagnostic Code 02.

Y: Go to step 9.

N:.Go to *RAP 7.4.11 Registration Sensor Failure.*

9 Ensure the drum shutter opens as the EP Cartridge is installed.

Y: Go to step 10.

N: Replace the EP Cartridge.

NOTE: Insert the EP Cartridge. The Drum Shutter Lever opens the Drum shutter on the EP Cartridge.

10 Bias Transfer Roll (BTR) Assembly is turning properly.

NOTE: Open the Front Cover and remove the EP Cartridge. This can be inspected by pressing the Interlock Switch. Conduct a visual inspection.

Y: Go to step 11.

N: Replace or clean the BTR Assembly.

11 The BTR Chute Assembly is dirty or stained.

Y: Replace or clean the BTR Assembly.

N: Go to step 12.

12 The Heater Roll and the Pressure Roll are functioning properly.

NOTE: Open the Front Cover and cheat the Front Cover interlock. The Heater Roll and Pressure Roll can be inspected while performing the Diagnostic Code 90.

Y: Go to step 13.

N: Replace the Fuser Assembly.

13 There is nothing wrong with paper being fed into the Decurl Roll.

NOTE: Open the Rear Cover Assembly and insert a piece of paper into the Rear Cover Sensor. Perform a visual inspection by generating a test print.

Y: Go to step 14.

N: Replace the Fuser Assembly.

14 Ensure the Exit Actuator uncovers the Exit Photo Sensor when it detects the presence of a sheet, and covers it when no sheet is present.

NOTE: This can be inspected by performing Diagnostic Code 2.

Y: Go to step 15.

N: Go to *RAP 7.4.22 Exit Assembly Failure.*

15 Nothing seems wrong with paper from the Fuser Assembly being fed into the inlet between the Exit Roll Assembly and the Middle Roll Assembly.

NOTE: Remove the Option Cover and perform a visual inspection through the opening.

Y: Replace the Print Engine Controller.

N: Replace the Exit Assembly or the Rear Cover Assembly.

7.3.9 "Main Tray Jam/Open Main Tray Open Front Cover/Remove Jam Sheet" Message (E2) or "Front Tray Jam/Remove All Paper Open Front Cover/Remove Jam Sheet" Message (E2)

Initial Analysis

Inspect the condition of the Main Tray and the Front Tray (MBF) feed rolls. Clear or replace if necessary.

1 Curled sheets of paper are being used in the input paper tray.

Y: Load fresh paper.

N: Go to step 2.

2 The code appears when power comes on.

Y: Go to step 3.

N: Go to step 4.

3 There is a sheet of paper or foreign object which would have actuated the Registration Sensor.

Y: Remove the paper or object.

N: Go to step 6.

4 The Main Motor Assembly is functioning properly.

NOTE: The Main Motor Assembly can be inspected while performing the Diagnostic Code 90. Open the Front Cover Assembly and bypass the Front Cover Interlock.

Y: Go to step 6.

N: Go to *RAP 7.4.19 Drive Assembly Failure.*

5 All the transmission gears of the Drive Assembly are functioning properly.

NOTE: The Drive Assembly gears can be inspected while performing the Diagnostic Code 90.

Y: Go to step 6.

N: Go to *RAP 7.4.19 Drive Assembly Failure.*

6 The Main Tray Feed Roll Assembly and cams are functioning properly.

NOTE: Open the Front Cover and remove the EP Cartridge. The Main Tray Feed Roll Assembly and cams can be inspected by pressing the Interlock Switch while performing the Diagnostic Code 82.

Y: Go to step 8.

N: Go to step 7.

7 Ensure that the Main Tray Feed Roll Assembly drives the paper fully through the Paper Handling Unit Assembly.

NOTE: Remove the EP Cartridge and cheat the Front Cover interlock. Perform a visual inspection by generating a test print.

Y: Go to step 8.

N: Replace the faulty parts of the Main Tray Feed Roll Assembly.

8 Ensure the Retard Assembly is making contact with the pinch roll of the MBF Roll Assembly.

Y: Go to step 9.

N: Replace the Retard Assembly.

NOTE: This can be inspected by producing a test print from the Front Tray (MBF). Stop the printer when the MBF Feed Roll rotates 180°.

9 Ensure the spring exerts adequate pressure to the Retard Assembly and the pinch roll of the MBF Roll Assembly.

Y: Go to step 10.

N: Replace the Retard Assembly.

NOTE: This can be tested by pulling on the paper sheet fed in step 8. Resistance to removing the paper indicates adequate Retard Pad pressure.

10 The parameter for the Diagnostic Code 00 (Size Sensor) is compatible with the size of the print sheets present in the Main Tray.

Y: Go to step 14.

N: Go to step 11.

NOTE: Code E2 could appear on the LCD when the length of the paper now loaded is longer than that of the sheet size set for the printer.

NOTE: Ensure the paper guide in the back of the tray is adjusted properly.

11 Ensure the Size Sensor Assembly shows a correct switch combination for the paper size in the Main Tray when the tray presses the Size Sensor Assembly Spring.

NOTE: Remove the Main Tray, and perform a visual inspection while reinserting the Main Tray.

Y: Go to *RAP 7.4.15 Size Sensor Assembly Failure.*

N: Replace the Main Tray.

12 Remove the Main Tray. Ensure the plate rises up when the latch is released.

NOTE: Without pulling this latch, the plate should lock when pressed down to the bottom of the tray.

Y: Go to step 13.

N: Replace the Main Tray.

13 Install the Main Tray. Ensure the paper stack in the tray is lifted up.

NOTE: Conduct a visual inspection from the rear of the printer.

NOTE: Ensure the paper guide in the back of the tray is adjusted properly.

Y: Go to step 14.

N: Replace the tray.

14 Ensure the No Paper Actuator moves smoothly.

Y: Go to step 15.

N: Replace the No Paper Actuator.

15 Ensure the No Paper Sensor of the Main Tray is functioning properly.

Y: Go to step 17.

N: Go to *RAP 7.4.12 Front Tray/MBF No Paper Sensor Failure.*

NOTE: This can be inspected while performing the Diagnostic Code 02.

16 Ensure that the paper pushes the Registration Sensor Actuator and that the actuator returns when no paper is present.

Y: Go to step 17.

N: Replace the Registration Sensor.

17 Ensure the Registration Sensor is functioning properly.

NOTE: This can be inspected by performing the Diagnostic Code 02.

Y: Replace the Print Engine Controller.

N: Go to *RAP 7.4.11 Registration Sensor Failure.*

7.3.10 "Paper Size Jam/Open Rear Cover" Message

1 Ensure that the correct paper size is designated in the Main Menu.

Y: Go to step 2.

N: Correct the paper size in the Main Menu.

2 The paper size indicated by the Diagnostic Code 00 (Size Sensor) is compatible with the size of the paper present in the paper Tray.

Y: Go to step 4.

N: Go to step 3.

3 Visually check if the Size Sensor Assembly shows the correct switch combination for the size of the paper in the Main Paper Tray when the Tray presses the Size Sensor Assembly Springs.

Y: Go to *RAP 7.4.15 Size Sensor Assembly Failure.*

N: Replace the Main Tray.

4 Check if the Registration Sensor actuates when the sheet is present and deactuates when there is no sheet present.

Y: Go to step 5.

N: Clear the obstruction or replace the Registration Sensor Actuator.

NOTE: This can be inspected by performing Diagnostic Code 02.

5 Check if the Registration Sensor is functioning correctly.

Y: Replace the Print Engine Controller.

N: Go to *RAP 7.4.11 Registration Sensor Failure.*

7.3.11 "Paper Tray Out" Message (C3)

1 Ensure the Size Sensor Assembly shows a correct switch combination for the size of the print sheets present in the Main Tray when the tray presses the Size Sensor Assembly Spring.

NOTE: Ensure the paper guide in the back of the tray is adjusted properly.

NOTE: Remove the Main Tray, and perform a visual inspection while inserting the tray into the slot.

Y: Go to step 2.

N: Replace the Main Tray.

2 The parameter for the Diagnostic Code 00 (Size Sensor) is compatible with the switch combination shown on the Size Sensor Assembly.

NOTE: You can inspect this by changing the position of the Size Spring.

Y: Replace the Print Engine Controller.

N: Go to *RAP 7.4.15 Size Sensor Assembly Failure.*

7.3.12 "Main Tray, Load xx x xx" Message (C5)

Initial Action

In this case, C5 is a Status Code that usually appears when trying to reproduce a paper-out condition while printing from the Main Tray in the Diagnostics Mode. When a C5 "No Paper" condition is displayed, an associated tray is usually displayed with it. Please ensure that the correct size paper is in the tray.

1 The selected tray is out of paper.

   Y: Load the paper tray with the correct size paper.

   N: Go to step 2.

2 Remove the Main Tray and check if the plate in the tray will rise up ***fully into position*** when the plate release is actuated.

   Y: Go to step 3.

   N: Remove any obstructions that might be preventing the tray from rising fully into position. Ensure that the plate release actuator is projecting up high enough to actuate the plate release as the tray is inserted into the printer. Replace the Main Tray.

3 The No Paper Actuator for the Tray Assembly is functioning correctly. Consider that, if the High Voltage Power Supply is not in the correct position, the No Paper Actuator will not be in position to actuate the No Paper Sensor.

   Y: Go to step 4.

   N: Inspect and correct/replace the No Paper Actuator.

4 The No Paper Sensor for the Tray Assembly is functioning correctly. This can be verified by performing Diagnostic Code DG 02.

   Y: Replace the Print Engine Controller.

   N: Go to step 5.

5 Verify the continuity of the harness between P/J15 and P/J111. There is continuity.

   Y: Replace the HVPS.

   N: Replace the harness between P/J15 and p/J111.

7.3.13 "Front Tray, Load xx x xx" Message (C5: MBF)

Initial Actions

In this case, C5 is a Status Code that usually appears when trying to reproduce a paper-out condition while printing from the Front Tray in the Diagnostics Mode. When a C5 "No Paper" condition is displayed, an associated tray is usually displayed with it. Please ensure that the correct size paper is in the tray.

1 The Front Tray is out of paper.

Y: Load the Front Tray with the correct size paper.

N: Go to step 2.

2 The Front Tray No Paper Actuator is functioning correctly.

Y: Go to step 3.

N: Inspect and correct/replace the Front Tray No Paper Actuator.

3 The Front Tray No Paper Sensor is functioning correctly. This can be verified by performing Diagnostic Code DG 02.

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 The voltage between P/J17-1 and P/J17-2 is approximately +1.2VCD.

Y: Go to step 5.

N: Replace the LVPS.

5 The voltage between P/J22-3 and P/J22-2 is approximately +1.2VCD.

Y: Go to step 6.

N: Replace the Front Tray No Paper Sensor Harness between P/J17 and P/J22.

6 The voltage between P/J17-3 and P/J17-2 is at a low logic level (approximately 0VDC) when the sensor detects paper in the Front Tray and at a high logic level (approximately +5VDC) when the Front Tray is empty.

Y: Go to step 7.

N: Replace the Front Tray No Paper Sensor.

7 The voltage between P/J11-3 and P/J12-5 is at a low logic level (approximately 0VDC) when the sensor detects paper in the Front Tray and at a high logic level (approximately +5VDC) when the Front Tray is empty.

Y: Go to step 8.

N: Replace the LVPS.

8 The voltage between P/J13-11 and P/J12-5 is at a low logic level (approximately 0VDC) when the sensor detects paper in the Front Tray and at a high logic level (approximately +5VDC) when the Front Tray is empty.

Y: Replace the Print Engine Controller.

N: Replace the harness between P/J11 and P/J13.

7.3.14 "Remove Output from Standard Tray" Message (C5: Stack Full)

Initial Action

In this case, C5 is a Status Code that usually appears when trying to reproduce a Stacker-Full condition while printing in the Diagnostics Mode. When a C5 "Stacker Full" condition is displayed, please empty the Output Tray.

1 Ensure the Stacker Full Actuator remains actuated when it detects the presence of a full stack of paper and deactuates when it does not detect a full stack.

   Y: Go to step 2.

   N: Remove any obstructions that might be preventing the Stacker Full Actuator from deactuating into the home position before replacing the Stacker Full Actuator.

2 The Stacker Full Sensor is functioning correctly. This can be checked using Diagnostic Code DG 02, Sensor Check.

   Y: Replace the Print Engine Controller.

   N: Go to step 3.

3 The No Paper Sensor for the Tray Assembly is functioning correctly. This can be verified by performing Diagnostic Code DG 02, Sensor Check.

   Y: Replace the Print Engine Controller.

   N: Go to *RAP 7.4.14 Stack Full Sensor Failure.*

7.3.15 "Replace Print Cartridge" Message (J5)

1 Install a new EP Cartridge, and check if Code J5 reappears.

Y: Go to step 2.

N: Correction completed.

2 The Toner Sensor Assembly is functioning properly.

NOTE: Open the Front Cover and actuate the Front Cover interlock switch. Inspect the above by removing and installing the EP Cartridge in the Diagnostic Code 02. To Perform this analysis, disconnect P/J12, P/J15, and P/J18 from the Print Engine Controller.

Y: Replace the Print Engine Controller.

N: *Go to RAP 7.4.21 Toner Sensor Assembly Failure.*

7.3.16 "Install Print Cartridge" Message (J3)

1 Ensure the Print Cartridge interlock is functioning properly by doing the following:

- Open the front cover and remove the print cartridge.
- Ensure the projection on the Print Cartridge that activates the sensor is not damaged.
- Use the Diagnostic Code 02 to manually actuate and deactuate the print cartridge interlock switch. The print cartridge sensor increments the Diagnostic Code 02.

Y: Replace the Print Engine Controller.

N: Go to step 2.

2 Check for +5VDC at P/J111-A4 to A3. (For convenience, you can make this check at the Fuser PWB P/J116-7 to P/J116-11.)

Y: Go to step 6.

N: Go to step 3.

3 Check for +5VDC between P/J15-A9 and P/J15-A10.

Y: Replace the Wire Harness between P/J15 and P/J111.

N: Go to step 4.

4 Check for +5VDC between P/J25-2 and P/J25-5.

Y: Replace the Print Engine Controller.

N: Go to step 5.

5 Check for +5VDC between P/J12-2 and P/J12-5.

Y: Replace the Wire Harness between P/J12 and P/J25.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

6 Check for +5VDC between P/J15 B9 (CRU SNR) and P/J15-A10 when the Print Cartridge is removed and 0VDC when the print cartridge is installed.

Y: Replace Print Engine Controller.

N: Go to step 7.

7 Check for +5VDC between P/J111-B4 and P/J111-A3.

Y: Replace the Wire Harness between P/J111 and P/J15.

N: Replace the High Voltage Power Supply.

NOTE: Disconnect P/J12 and P/J15 from the Print Engine Controller and perform the analysis.

7.3.17 Error Codes

7.3.17.1 Power On Diagnostics (POD) Failure

Insure that the diagnostic LED is functioning properly. The diagnostic LED can be viewed through a small hole located between the two PCMCIA card slots on the System Controller.

- When printer power is applied, the Diagnostic LED will glow for one second (confirming the LED is functional), go off for one second, then glow again to indicate the start of the "Power On Diagnostics" (POD) tests. At the successful completion of the Power On Diagnostics, the LED will go off.
- If a fault condition occurs during one of the "Power On Diagnostic" tests, that test is immediately halted and the LED will flash a sequence that identifies the halted test. (Refer to *Table 7.3.17.1.1 Diagnostic LED Flash Sequence Table.*.)
- If the LED does not glow or glows continuously, perform the following:

1 Switch OFF the printer.

2 Remove the System Controller. Remove all option/peripheral components from the System Controller.

3 Reinstall the System Controller ensuring proper seating, and switch on the printer.

4 The diagnostic LED functions properly.

Y: Reinstall the option/peripheral components one at a time and retest.

NOTE: If the LED still does not function properly, check the +5 VDC to the System Controller PWB before replacing the System Controller PWB

N: Replace the System Controller PWB

Table 7.3.17.1.1 Diagnostic LED Flash Sequence Table.

LED Repeating Flash Sequence	Fault	Corrective Action
1 flash - 1 second - 1 flash...etc.	System Controller CPU	Replace the System Controller.
2 flashes - 1 second - 2 flashes...etc.	Base RAM	Replace the System Controller.

LED Repeating Flash Sequence	Fault	Corrective Action
3 flashes - 1 second - 3 flashes...etc	ROM	Remove the PostScript ROM SIMM and test again. If the problem is resolved replace the PostScript ROM SIMM (if applicable). If the problem is not resolved, replace the System Controller.
4 flashes - 1 second - 4 flashes...etc	System Controller to print engine communication	Ensure that the System Controller is properly seated. Replace and retest in order: System Controller and the Print Engine Controller
5 flashes - 1 second - 5 flashes...etc	Resolution enhancement self-test	Replace System Controller.
6 flashes - 1 second - 6 flashes...etc	Communication port internal loopback test	Replace System Controller.
7 flashes - 1 second - 7 flashes...etc	RAM SIMM location 2	Perform *RAP 7.3.17.5 Error Code "0100".*
8 flashes - 1 second - 8 flashes...etc	RAM SIMM location 3	Perform*RAP 7.3.17.6 Error Code "0101".*

7.3.17.2 Control Panel Displays Black Boxes

You were directed to this RAP because the Control Panel display has a single row of black boxes on the top line during "Power ON Diagnostics."

1 Switch OFF the printer.

2 Remove the System Controller and reseat the ROM SIMMs (if applicable) on the System Controller PWB.

3 Reinstall the System Controller ensuring proper seating, and switch on the printer.

4 The Control Panel displays "ONLINE READY" indicating test completion.

Y: Go to Final Actions.

N: Observe the Diagnostic LED at power on.

NOTE: If the LED flashes, see Table 7.3.17.1.1 Diagnostic LED Flash Sequence Table. If the LED does not glow or glows continuously, perform RAP 7.3.17.1 Power On Diagnostics (POD) Failure.

7.3.17.3 Error Code "0001"

You were directed to this RAP because the Control Panel displayed the error code "0001" during the Power On Diagnostics.

1 Switch OFF the printer power.

2 Reseat the System Controller and then switch on the printer power.

3 The control panel displays "ONLINE READY".

Y: Go to Final Actions.

N: Observe the Diagnostic LED at power on.

NOTE: If the LED flashes, refer to Table 7.3.17.1.1 Diagnostic LED Flash Sequence Table. If the LED does not glow or glows continuously, perform RAP 7.3.17.1 Power On Diagnostics (POD) Failure.

7.3.17.4 Error Code "0040"

You were directed to this RAP because the Control Panel displayed the error code "0040" during the Power On Diagnostics

1 Switch OFF the printer power.
2 Remove the System Controller and reseat the PostScript ROM SIMM
3 Reinstall the System Controller ensuring proper seating and switch on the printer power.
4 The Control Panel displays "ONLINE READY".
    Y: Go to Final Actions.
    N: Go to step 5.
5 Switch OFF the printer power.
6 Remove the System Controller and move the PostScript ROM SIMM to the other ROM SIMM location.
7 Reinstall the System Controller and switch on the printer power.
8 The Control Panel displays "ONLINE READY".
    Y: Go to Final Actions.
    N: Replace the PostScript ROM SIMM.

7.3.17.5 Error Code "0100"

You were directed to this RAP because the Control Panel displayed the error code "0100" during the Power On Diagnostics.

1 Switch OFF the printer power.
2 Remove the System Controller. If there is a RAM SIMM in location 3, remove it.
3 Move the RAM SIMM in location 2 into location 3.
4 Reinstall the System Controller and switch on the printer power.
5 The Control Panel displays code 0101.
    Y: Replace the RAM SIMM.
    N: Go to step 6.
6 Switch OFF the printer power
7 Remove the System Controller and move the RAM SIMM back to location 2.
8 Reinstall the System Controller and switch on the printer power.
9 The Control Panel displays code 0100.
    Y: Replace the System Controller.
    N: Go to Final Actions.

7.3.17.6 Error Code "0101"

You were directed to this RAP because the Control Panel displayed the error code "0101" during the Power On Diagnostics.

1 Switch OFF the printer power.
2 Remove the System Controller. If there is a RAM SIMM in location 2, remove it.
3 Move the RAM SIMM in location 3 into location 2.
4 Reinstall the System Controller and switch on the printer power.
5 The Control Panel displays code 0100.
    Y: Replace the RAM SIMM.
    N: Go to step 6.
6 Switch OFF the printer power.
7 Remove the System Controller and move the RAM SIMM back to location 3.
8 Reinstall the System Controller and switch on the printer power.
9 The Control Panel displays code 0101.
    Y: Replace the System Controller.
    N: Go to Final Actions.

7.4 RAPs without Fault/Status Codes

7.4.1 Inoperative Printer

WARNING! Do not touch the HVPS and its associated parts which emit high voltages.

1 Disconnect the System Controller. Switch ON the Main Power. The Fan Assembly turns.

Y: Go to step 2.

N: Go to step 3.

2 Remove all options on the System Controller. Reinstall the System Controller. Switch ON the main power. The fan assembly starts to spin.

Y: Replace all options one at a time and retest.

N: Replace the System Controller PWB.

3 Check for the voltages between the following pins:

- +24VDC between J11-11 and J12-5
- +24VDC between J12-1 and J12-5
- +5VDC between J11-13 and J12-5
- +5VDC between J12-2 and J12-5

NOTE: Check +5VDC circuits for short circuit.

NOTE: Check +24VDC circuits for short circuit.

NOTE: To start the above, disconnect P/J11 from the Print Engine Controller and wait five minutes to switch on the printer power. Conduct this analysis before the LVPS Assembly stops voltage output due to the absence of sufficient load (within 30 seconds after switching on the printer power).

Y: Go to step 4.

N: Replace the LVPS Assembly.

4 Disconnect P/J111 on the HVPS and switch on the printer power. The Fan Assembly starts to spin.

Y: Replace the HVPS Assembly.

N: Go to step 5.

5 Disconnect P/J21 of the Fan Assembly and switch on the printer power. Ensure the LCD is functioning when power comes on.

Y: Replace the Fan Assembly.

N: Go to step 6.

6 Reconnect P/J21, disconnect P/J27, and switch on the printer power. Ensure the Fan Assembly is functioning properly when power comes on.

Y: Replace the Paper Handling Solenoid Assembly.

N: Go to step 7.

7 Disconnect P/J14 on the Print Engine Controller and switch on the printer power. Ensure the Fan Assembly is functioning properly when power comes on.

Y: Replace the Drive Assembly.

N: Go to step 8.

8 Disconnect P/J128, which is connected to the Toner Sensor Assembly, and switch on the printer power. Ensure the Fan Assembly is functioning properly when power comes on.

Y: Replace the Toner Sensor.

N: Go to step 9.

9 Disconnect P/J18 on the Print Engine Controller and switch on the printer power. Ensure the Fan Assembly is functioning properly when power comes on.

Y: Replace the Laser Assembly.

N: Go to step 10.

10 Disconnect P/J19 on the Print Engine Controller. Wait for a few minutes, and switch on Main Power. The Fan Assembly starts to spin.

Y: Replace the Laser Assembly.

N: Replace the Print Engine Controller.

7.4.2 Malfunctioning LCD/Malfunctioning LED

1 Switch OFF the printer power and ensure that the Cable Harness is properly connected between P/J32 and P/J33. Check for continuity between P/J32 and P/J33.

NOTE: The System Controller Chassis will have to be removed and the Top Cover Chassis may have to be loosened/removed to perform this check.

Y: Go to step 2.

N: Replace the Cable Harness between P/J32 and P/J33.

2 Switch the printer power ON. Check for +5VDC between P/J33-9 and P/J33-10.

Y: Replace the following parts in order:

- Control Panel Assembly
- System Controller

N: Go to step 3.

3 Check for +5VDC between P/J32-9 and P/J32-10.

Y: Replace the cable between P/J32 and P/J33.

N: Go to step 4.

4 Check for +5VDC between P/J25-2 and P/J25-5.

Y: Replace the Print Engine Controller.

N: Go to step 5.

5 Check for +5VDC between P/J12-2 and P/J12-5.

Y: Replace the harness between P/J25 and P/J12.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

7.4.3 Inoperative Keypad

You were directed to this RAP because the Keypad failed to indicate a key press.

1 Switch the printer OFF and then ON while pressing the **Down** arrow key. The Control Panel displays **PRINTER COUNTER / SELECTING DG 30.**

Y: Go to step 2.

N: Go to step 4.

2 Press the **Up** arrow key or **Down** arrow key to display **SENSOR CHECK / SELECTING DG 02.** Then press the **Enter** key to select **SENSOR CHECK / SELECTING DG 02.** The Control Panel displays **SENSOR CHECK / SELECTING DG 02.**

Y: Go to step 3.

N: Go to step 4.

3 Press the **Down** arrow key. Press all keys, except the **Enter** key, and observe that the display indicates the actuation of each key press. The display visually indicates when each key is pressed.

Y: Go to Final Actions.

N: Go to step 4.

4 Switch the printer OFF. Remove the System Controller Chassis and loosen/remove the top cover. Verify P/J32 is properly connected to the Print Engine Controller and that P/J33 is properly connected to the Control Panel Assembly and free of damage. Check for continuity between P/J32 and P/J33. There is continuity.

Y: Go to step 5.

N: Replace the cable.

5 Switch the printer power ON. Check for +5VDC between P/J33-9 and P/J33-10.

Y: Replace the following parts in order:

- Control Panel Assembly
- System Controller

N: Go to step 6.

6 Check for +5VDC between P/J32-9 and P/J32-10.

Y: Replace the cable.

N: Go to step 7.

7 Check for +5VDC between P/J25-2 and P/J25-5.

Y: Replace the Print Engine Controller.

N: Go to step 8.

8 Check for +5VDC between P/J12-2 and P/J12-5.

Y: Replace the harness between P/J25 and P/J12.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

7.4.4 Erratic Operation

1 The printer enters the printing cycle.

Y: Go to step 2.

N: Go to step 3.

2 Enter the Test Print Mode and perform the Test Print operation. The printer outputs the prints as usual.

Y: Go to step 4.

N: Replace the Print Engine Controller.

3 A reset occurs while the printer is printing an output.

Y: *Go to RAP 7.4.25 Electrical Noise.*

N: Go to step 4.

4 Install a new Print Engine Controller. The code still appears.

Y: Replace the System Controller.

N: Correction completed.

7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC)

NOTE: Ensure the Front Interlock and the Laser Diode Interlock are actuated.

1 Check for +5VDC between P/J11-13 (5V INTLK) and P/J12-5.
   Y: Go to step 6.
   N: Go to step 2.

2 Check for +5VDC between P/J131-3 and P/J12-5.
   Y: Perform a continuity check between P/J131-3 and P/J11-13 before replacing the Print Engine Controller.
   N: Go to step 3.

3 Check for +5VDC between P/J136-4 and P/J131-3.
   Y: Replace the harness between P/J136-4 and P/J12-5.
   N: Go to step 4.

4 Check for +5VDC between P/J 136-2 and P/J12-5.
   Y: Replace the jumper/harness between P/J136-2 and P/J136-4.
   N: Go to step 5.

5 Check for +5VDC between P/J131-1 and P/J12-5
   Y: Replace the wire harness between P/J131 and P/J136.
   N: Replace the LVPS Assembly.

6 Check for +5VDC between P/J25-2 and P/J25-5 (disconnect P/J25)
   Y: Replace the Print Engine Controller.
   N: Go to step 7.

NOTE: Conduct this analysis before the LVPS Assembly would stop voltage output due to the absence of sufficient load (within 30 seconds after switching on the printer power).

7 Check for +5VDC between P/J12-2 and P/J12-5 (disconnect P/J25 for this check).
   Y: Replace the LVPS.
   N: Replace the LVPS.

NOTE: If the +5VDC was present with P/J13 or P/J25 disconnected and disappears when the P/J is connected, check for a possible short to earth ground on that particular +5VDC output of the Print Engine Controller. Otherwise, replace the LVPS.

7.4.6 Low Voltage Power Supply (LVPS) Assembly Failure (+12VDC)

1 Check for +12VDC between P/J12-3 (+12VDC) and P/J12-6 with P/J25 disconnected.

NOTE: Conduct this analysis before the LVPS Assembly stops voltage output due to the absence of sufficient load (within 30 seconds after switching on the printer power).

Y: Ensure the voltage can be read at P/J25 (disconnected) before going to step 2.

N: Replace the LVPS.

2 Check for +12VDC between P/J25-3 and P/J25-6 with P/J25 connected to the Print Engine Controller.

Y: Go to step 3.

N: Replace the Print Engine Controller.

3 Check for +12VDC between P/J25-3 and P/J25-6 with P/J25 connected and the System Controller installed.

Y: Allow the system to warm up for 10 minutes before going to Final Actions.

N: Remove all of the options and retest prior to replacing the System Controller.

7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC)

1 Check for +24VDC between P/J11-11 (24V FAN) and P/J12-4 with P/J13 disconnected.

NOTE: Conduct this analysis before the LVPS Assembly stops voltage output due to the absence of sufficient load (within 30 seconds after switching on the printer power).

Y: Go to step 2.

N: Replace the LVPS.

2 Check for the voltages between P/J12-1 (+24VDC) and P/J12-4 with P/J25 disconnected.

NOTE: Conduct this analysis before the LVPS Assembly stops voltage output due to the absence of sufficient load (within 30 seconds after switching on the printer power).

Y: If the +24VDC disappears after connecting P/J13 and P/J25, replace the Print Engine Controller.

N: Replace the LVPS Assembly.

7.4.8 Quartz Heater Failure

1 There is resistive continuity between J3-1 and J3-4 on the LVPS.

Y: Go to step 2.

N: Go to step 6.

2 Check if the voltage between P/J13-4 (/HEAT ON) and P/J25-5 (S6) is 0VDC when the printer power is on and all cover interlocks are actuated and goes to +5VDC when the interlocks are deactuated.

NOTE: Disconnect P/J115 from the HVPS before checking the voltage.

NOTE: This can be checked by opening and closing the Front Cover when the Fuser Assembly has cooled to room temperature.

Y: Go to step 3.

N: Go to step 4.

3 Check for 0VDC between P/J11-10 (/HEAT ON) and P/J12-5 (SG) when the printer power is on and all cover interlocks are actuated and check for +5VDC when the interlocks are deactuated.

NOTE: Disconnect P/J115 from the HVPS before checking the voltage.

NOTE: This can be checked by opening and closing the Front Cover when the Fuser Assembly has cooled to room temperature.

Y: Replace the LVPS Assembly.

N: Replace the Wire Harness between P/J11 and P/J13.

4 There is +5VDC between P/J25-2 and P/J25-5 on the Print Engine Controller.

Y: Go to *RAP 7.4.9 Temperature Sensor Assembly Failure.*

N: Go to step 5.

NOTE: The LD power source of the Laser Assembly, "+5VDC-LD", also supplies power for generating the Quartz Heater actuating signal.

5 Disconnect P/J18 from the Print Engine Controller and switch on the printer power. Ensure the Quartz Heater is functioning properly when power comes on.

Y: Replace the Laser Assembly.

N: Replace the Print Engine Controller.

6 Remove the Fuser Assembly. There is continuity between J2-1 and J2-5.

Y: Go to step 7.

N: Replace the Fuser Assembly.

7 There is continuity between the following pins:

- P/J3-1 on the LVPS and P/J2-1 on the Fuser PWB
- P/J3-4 on the LVPS and P/J2-5 on the Fuser PWB

Y: Go to step 2.

N: Replace the Fuser Harness Assembly.

NOTE: If the cause cannot be determined by the RAP 7.3.3 "Fuser Failure" Message (U4), replace Fuser-associated components, such as the LVPS Assembly or the Print Engine Controller. It is rare, but possible, for the Thermostat or the Fuser Assembly to malfunction one time.

7.4.9 Temperature Sensor Assembly Failure

1 Check the Temperature Sensor Assembly for contamination. There is a problem in the Assembly.

Y: Clean the Temperature Sensor Assembly or replace the Fuser Assembly.

N: Go to step 2.

2 Check if the resistance between P/J115-8 (STS) and P/J115-2 on the HVPS is in a range of 200 to 350K ohms.

NOTE: Perform this when the Fuser Assembly has cooled to room temperature (18~22°C).

Y: Go to step 3.

N: Replace the Fuser Assembly.

3 Ensure the resistance between P/J15-A7 and P/J15-A10 on the Print Engine Controller is in a range of 200 to 350K ohms.

NOTE: Perform this when the Fuser Assembly has cooled to room temperature (18~22°C).

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 There is continuity between P/J15 and P/J111.

Y: Replace the HVPS.

N: Replace the Harness.

7.4.10 Exit Sensor Assembly Failure

1 There is +5VDC between P2-7 and P2-4.

Y: Go to step 6.

N: Go to step 2.

2 There is +5VDC between P/J116-7 and P/J116-11.

Y: Replace the Fuser PWB.

N: Go to step 3.

3 There is +5VDC between P/J115-6 and P/J115-2.

Y: Replace the Fuser Harness.

N: Go to step 4.

4 There is +5VDC between P/J111-A4 and P/J111-A3.

Y: Replace the HVPS.

N: Go to step 5.

5 There is +5VDC between P/J15-A9 and P/J15-A10.

Y: Replace the HVPS Harness.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

6 The voltage between P/J2-6 and P/J2-4 is at a low logic level (0VDC) when the sensor detects a piece of paper and at a high logic level (+5VDC) when not.

Y: Go to step 7.

N: Replace the Fuser Assembly.

7 The voltage between P/J116-6 and P/J116-11 is at 0VDC.

Y: Go to step 8.

N: Replace the Fuser PWB.

8 The voltage between P/J115-7 and P/J115-2 is 0VDC.

Y: Go to step 9.

N: Replace the Fuser Harness.

9 The voltage between P/J111-B5 and P/J111-A3 is 0VDC.

Y: Go to step 10.

N: Replace the HVPS.

10 The voltage between P/J15-B8 and P/J15-A10 is 0VDC.

Y: Replace the Print Engine Controller.

N: Replace the HVPS Harness.

7.4.11 Registration Sensor Failure

1 There is +5VDC between P/J123-3 and P/J123-2.

Y: Go to step 3.

N: Go to step 2.

2 There is +5VDC between P/J17-4 and P/J17-5.

Y: Go to step 3.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

3 The voltage measured between P/J123-1 and P/J123-2 is at a low logic level (0VDC) when paper is at the sensor and at a high logic level (+5VDC) when no paper is at the sensor.

Y: Go to step 4.

N: Replace the Registration Sensor.

4 The voltage measured between P/J17-6 and P/J17-5 is at a low logic level (0VDC) when paper is at the sensor and at a high logic level (+5VDC) when no paper is at the sensor.

Y: Go to step 5.

N: Replace the Sensor Harness.

5 The voltage measured between P/J11-2 and P/J17-5 is 0VDC when there is paper at the sensor.

Y: Go to step 6.

N: Replace the LVPS.

6 The voltage measured between P/J13-12 and P/J17-5 is 0VDC when there is paper at the sensor.

Y: Replace the Print Engine Controller.

N: Replace the Wire Harness between P/J11 and P/J13.

7.4.12 Front Tray/MBF No Paper Sensor Failure

1 There is +5VDC between P/J122-3 and P/J122-2.

Y: Go to step 3.

N: Go to step 2.

2 There is +5VDC between P/J17-1 and P/J17-2.

Y: Replace the MBF No Paper Sensor.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

3 The voltage measured between P/J17-3 and P/J17-2 is at a low logic level (0VDC) when the MBF No Paper Sensor detects paper and at a high logic level (+5VDC) when the MBF No Paper Sensor detects no paper.

Y: Go to step 5.

N: Replace the MBF No Paper Sensor.

4 The voltage measured between P/J11-3 and P/J17-2 is 0VDC when there is paper at the sensor.

Y: Go to step 5.

N: Replace the LVPS.

5 The voltage measured between P/J13-11 and P/J17-2 is 0VDC.

Y: Replace the Print Engine Controller.

N: Replace the Wire Harness between P/J11 and P/J13.

7.4.13 Main Tray No Paper Actuator, No Paper Sensor Failure

1 The No Paper Actuator is closed when paper is in the Main Tray and open when there is no paper in the Main Tray.

Y: Go to step 2.

N: Replace the HVPS.

2 There is +5VDC between P/J111-A4 and P/J111-A3.

Y: Go to step 4.

N: Go to step 3.

3 There is +5VDC between P/J15-A9 and P/J15-A10.

Y: Replace the HVPS Harness.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

4 The voltage between P/J15-A4 and P/J15-A10 is at a low logic level (0VDC) when the No Paper Sensor detects paper in the tray and at a high logic level (+5VDC) when there is no paper.

Y: Replace the Print Engine Controller.

N: Go to step 5.

5 The voltage between P/J111-A9 and P/J111-A3 is 0VDC.

Y: Replace the HVPS Harness.

N: Replace the HVPS.

7.4.14 Stack Full Sensor Failure

1 There is +5VDC between P/J28-1 and P/J28-3.

Y: Go to step 2.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

2 There is +5VDC between P/J125-1 and P/J125-3.

Y: Go to step 3.

N: Replace the Stack Full Sensor Harness.

3 The voltage between P/J28-2 and P/J28-1 is at a low logic level (0VDC) when the sensor detects that the tray is not full and at a high logic level (+5VDC) when it detects a full tray.

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 Verify continuity of the Stack Full Sensor Harness. The harness is good.

Y: Replace the Stack Full Sensor.

N: Replace the Stack Full Sensor Harness.

7.4.15 Size Sensor Assembly Failure

1 Press the Size Sensor Assembly. Ensure the spring actuates the corresponding Paper Size Switch.

NOTE: Conduct a visual inspection after removing the paper tray.

Y: Go to step 2.

N: Replace the relevant Size Sensor Assembly.

2 There is +4.77 to +5.44 VDC between P/J22-6 and P/J22-7 on the Print Engine Controller.

Y: Go to step 3.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

3 Check for the voltage between P/J22-3 (Main), P/J22-4 (Deck 2), P/J22-5 (Deck 3), and P/J22-7 (SG) on the Print Engine Controller. The result is compatible with the value for the switch combination shown in *Table 7.4.15.1 Main Tray* and *Table 7.4.15.2 Second and Third Trays.*

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 There is continuity between J22 on the Print Engine Controller and J118 on the Paper Size Sensor Assembly.

Y: Replace the Size Sensor Assembly.

N: Replace the Feed Harness Assembly.

Table 7.4.15.1 Main Tray

Size	Size SNR Voltage (V) Vsnr			S2 (*)	S1 (*)	S0 (*)
	+5VDC Measured at P/J22-6					
	4.77V Min.	5.10V Typ.	5.44 Max.			
No Cassette	0.00	0.00	0.00	0	0	0
B5	1.01	1.10	1.19	1	0	0
Statement	1.67	1.81	1.95	0	1	0
Legal 13"	2.13	2.30	2.48	1	1	0
Letter	2.47	2.67	2.88	0	0	1
Executive	2.74	2.95	3.18	1	0	1
A4	2.95	3.18	3.41	0	1	1
Legal 14"	3.12	3.36	3.60	1	1	1

Table 7.4.15.2 Second and Third Trays

Size	Size SNR Voltage (V) Vsnr			S2 (*)	S1 (*)	S0 (*)
	+5VDC Measured at P/J22-6					
	4.77V Min.	5.10V Typ.	5.44 Max.			
No Deck	0.00	0.00	0.00	0	0	0
No Tray	0.55	0.60	0.65	0	0	0
Legal 13"	2.31	2.49	2.69	1	1	0
Letter	3.19	3.43	3.68	0	0	1
A4	1.91	2.07	2.23	0	1	1
Legal 14"	3.03	3.27	3.51	1	1	1

The following legend applies to *Table 7.4.15.1 Main Tray* and *Table 7.4.15.2 Second and Third Trays.*

- (*): Contact Actuation of Paper Size Sensor
- 1: Closed
- 0: Open
- Position of contacts: S2: Top; S1: Middle; S0: Bottom

7.4.16 Front Tray Paper Handling Solenoid Failure

1 There is +24VDC between P/J27-5 and P/J17-2 on the LVPS.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

2 In standby, there is +24VDC between P/J134-2 and P/J17-2.

Y: Go to step 3.

N: Replace the Feed Harness (P/J27 to P/J134).

3 In standby, there is +24VDC between P/J134-1 and P/J17-2.

Y: Go to step 4.

N: Replace the Front Tray Feed Solenoid.

4 In standby, there is +24VDC between P/J27-6 and P/J17-2.

Y: Go to step 5.

N: Replace the Feeder Harness (P/J27 to P/J134).

5 In standby, there is +24VDC between P/J11-4 and P/J17-2.

Y: Go to step 6.

N: Replace the LVPS.

6 In standby, there is +24VDC between P/J13-10 and P/J17-2.

Y: Go to step 7.

N: Replace the LVPS Harness.

7 The voltage between P/J27-6 and P/J17-2 is 0VDC when the Front Tray Solenoid is actuated, and the voltage is 0VDC when deactuated.

Y: Replace the Paper Handling Solenoid Assembly.

N: Replace the Print Engine Controller.

NOTE: You can inspect this while performing Diagnostic Code DG81.

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

7.4.17 Paper Handling (Feed) Solenoid Assembly Failure (Tray 1)

1 There is +24VDC between P/J27-1 on the Print Engine Controller and P/J17-2 on the LVPS.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

2 In standby, there is +24VDC between P/J132-2 and P/J17-2.

Y: Go to step 3.

N: Replace the Feed Harness (P/J27 to P/J132).

3 In standby, there is +24VDC between P/J132-1 and P/J17-2.

Y: Go to step 4.

N: Replace the Feed Solenoid.

4 In standby, there is +24VDC between P/J27-2 and P/J17-2.

Y: Go to step 5.

N: Replace the Feed Harness (P/J27 to P/J32).

5 In standby, there is +24VDC between P/J11-6 and P/J17-2.

Y: Go to step 6.

N: Replace the LVPS.

6 In standby, there is +24VDC between P/J13-4 and P/J17-2.

Y: Go to step 7.

N: Replace the LVPS Harness.

7 The voltage between P/J27-2 and P/J17-2 on the LVPS is 0VDC when the Feed Solenoid is actuated, and the voltage is +24VDC when deactuated.

NOTE: This can be inspected while performing the Diagnostic Code 82. Read the meter quickly because the Feed Solenoid is ON for just half a second in the Diagnostic Code 82.

Y: Replace the Paper Handling Solenoid Assembly.

N: Replace the Print Engine Controller.

7.4.18 Paper Handling Solenoid Assembly (Turn Clutch) Failure

1 There is +24VDC between J27-3 and J17-2 on the LVPS.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

2 In standby, there is +24VDC between P/J133-2 and P/J17-2.

Y: Go to step 3.

N: Replace the Feed Harness (P/J133-1 and P/J27-4).

3 In standby, there is +24VDC between P/J133-1 and P/J17-2.

Y: Go to step 4.

N: Replace the Turn Clutch Solenoid.

4 In standby, there is +24VDC between P/J27-4 and P/J17-2.

Y: Go to step 5.

N: Replace the Turn Clutch Harness (P/J27 to P/J133).

5 In standby, there is +24VDC between P/J11-5 and P/J17-2.

Y: Go to step 6.

N: Replace the LVPS.

6 In standby, there is +24VDC between P/J13-9 and P/J17-2.

Y: Go to step 7.

N: Replace the LVPS Harness.

7 The voltage between P/J27-4 and P/J17-2 on the LVPS is 0VDC when the Turn Clutch is actuated, and +24VDC when deactuated.

NOTE: You can inspect this while performing the Diagnostic Code 80.

NOTE: The Turn Clutch will continue to be active until you terminate DG 80. Make sure you terminate it immediately after your inspection.

Y: Replace the Paper Handling Solenoid Assembly.

N: Replace the Print Engine Controller.

7.4.19 Drive Assembly Failure

CAUTION **This gear should always rotate counterclockwise (viewed from the right side of the printer). Note: Do not turn this gear in the reverse direction.**

1 Ensure there is normal movement in the Drive Assembly by cranking it manually.

NOTE: The Gear secured on the Main Motor Assembly shaft rotates counterclockwise (viewed from the right side of the printer).

Y: Go to step 2.
N: Replace the Drive Assembly.

2 Ensure there is normal movement in the Registration Roll Assembly by cranking it manually.

NOTE: Open the Front Cover and ensure the Registration Roll rotates smoothly.

Y: Go to step 3.
N: Replace the Registration Roll Assembly.

3 Ensure there is normal movement in the Pinch Roll Assembly by cranking it manually.

NOTE: Open the Front Cover and ensure the Registration Roll rotates smoothly.

Y: Go to step 4.
N: Replace the Pinch Roll Assembly.

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

4 Ensure there is normal movement in the Pinch Turn Roll Assembly by cranking it manually.

NOTE: Open the Front Cover and ensure the Registration Roll rotates smoothly.

Y: Go to step 5.
N: Replace the Pinch Turn Roll Assembly.

5 Ensure there is normal movement in the Pinch Turn Roll Assembly by cranking it manually.

NOTE: Open the Front Cover and ensure the Registration Roll rotates smoothly.

Y: Go to step 6.
N: Replace the Front Tray Roll Assembly.

6 Ensure there is normal movement in the Main Tray Feed Roll Assembly by cranking it manually.

Y: Go to step 7.
N: Replace the Main Tray Feed Roll Assembly.

CAUTION **This gear should always rotate counterclockwise (viewed from the right side of the printer). Note: Do not turn this gear otherwise in the reverse rotating direction.**

7 Remove the EP Cartridge. Manually crank the transmission gears of the Drive Assembly.

NOTE: Ensure the gear secured on the Main Motor shaft rotates smoothly counterclockwise (viewed from the right side of the printer).

Y: Replace the EP Cartridge.

N: Go to step 8.

8 Remove the Fuser Assembly. Manually crank the transmission gears of the Drive Assembly.

NOTE: Ensure the gear secured on the Main Motor shaft rotates smoothly counterclockwise (viewed from the right side of the printer).

Y: Replace the Fuser Assembly.

N: Go to step 9.

9 There is +24VDC between P/J14-1 and P/J14-2 on the Print Engine Controller.

Y: Go to step 10.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

10 There is +5VDC between P/J14-3 and P/J14-4 on the Print Engine Controller

Y: Go to step 11.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

11 There is continuity between J14-1 and J14-2 on the Print Engine Controller.

Y: Go to step 12.

N: Replace the Main Motor Assembly.

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

12 Install a new Print Engine Controller. The problem still exists.

Y: Replace the Drive Assembly.

N: Correction Completed.

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

7.4.20 Fan Assembly Failure

1 There is +24VDC between P/J23-3 and P/J23-4 on the Print Engine Controller.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

2 The fan does not revolve at all.

Y: Replace the Fan Assembly.

N: Go to step 3.

3 Ensure between P/J23-1 and P/J25-5 on the Print Engine Controller there is +5VDC with the fan ON.

Y: Replace the Fan Assembly.

N: Replace the Print Engine Controller.

7.4.21 Toner Sensor Assembly Failure

1 There is +24VDC between P17-7 and P17-9 on the LVPS.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

2 There is +5VDC between P17-8 and P17-9 on the LVPS.

Y: Go to step 4.

N: Go to step 3.

3 There is continuity between P/J13 on the Print Engine Controller and P/J11 on the LVPS; P/J25 on the Print Engine Controller and P/J12 on the LVPS.

Y: Replace the Print Engine Controller.

N: Replace the LVPS Harness Assembly.

4 The voltage between P/J17-8 and P/J25-5 is 0VDC with the EP Cartridge installed (or sufficient toner present), and the voltage is +5VDC with the EP Cartridge removed (or no toner present).

NOTE: Keep the Front Cover Assembly closed while performing this.

Y: Replace the Print Engine Controller.

N: Go to step 5.

5 There is continuity between J17 and J128.

Y: Replace the Toner Sensor Assembly.

N: Replace the Registration Harness Assembly.

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

7.4.22 Exit Assembly Failure

1 There is +24VDC between P/J12-1 and P/J12-4 on the LVPS.

Y: Go to step 2.

N: Replace the LVPS Assembly.

2 There is continuity between J12 on the LVPS and J25 on the Print Engine Controller.

Y: Go to step 3.

N: Replace the LVPS Harness Assembly.

3 There is +24VDC between the following points.

- P/J24-1 and P/J25-4 on the Print Engine Controller
- P/J24-2 and P/J25-4 on the Print Engine Controller

Y: Go to step 4.

N: Replace the Print Engine Controller.

4 There is continuity between the following points (approximately 2.3 ohms) on the Print Engine Controller.

- P/J24-1 and P/J24-3
- P/J24-1 and P/J24-5
- P/J24-2 and P/J24-4
- P/J24-2 and P/J24-6

Y: Go to step 5.

N: Replace the Exit Step Motor Assembly.

5 Manually crank the following transmission gears of the Exit Assembly.

- Exit Roll Assembly
- Mid Roll Assembly

Y: Go to step 6.

N: Replace the Exit Assembly.

6 Manually crank the Exit Step Motor Assembly.

Y: Go to step 7

N: Replace the Exit Step Motor Assembly.

7 Install a new Print Engine Controller. The problem is still present.

Y: Replace the Exit Assembly.

N: The correction is completed.

7.4.23 Fuser PWB Failure

1 Ensure the voltage between P/J11-13 and P/J12-5 on the LVPS is +5VDC while the Interlock Switch is actuated.

Y: Go to step 2.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

2 There is continuity between J11 on the LVPS and J13 on the Print Engine Controller.

Y: Go to step 3.

N: Replace the LVPS Harness Assembly.

3 Ensure the voltage between P/J15-B1 and P/J15-A10 on the Print Engine Controller is +5VDC while the Interlock Switch is actuated.

Y: Go to step 4.

N: Replace the Print Engine Controller.

4 There is continuity between J15 on the Print Engine Controller and J111 on the HVPS.

Y: Go to step 5.

N: Replace the HVPS Harness Assembly.

5 Ensure the voltage between P/J115-3 and P/J115-2 on the HVPS is +5VDC while the Interlock Switch is actuated.

Y: Go to step 6.

N: Replace the HVPS Assembly.

6 There is continuity between J115 on the HVPS and J116 on the Fuser PWB.

Y: Go to step 7.

N: Replace the Fuser PWB Harness Assembly.

7 Ensure the voltage between P2-2 and P2-4 on the Fuser PWB is +5VDC while the Interlock Switch is actuated.

Y: Go to Final Actions.

N: Replace the Fuser PWB.

7.4.24 HVPS Failure

1 There is +24VDC between P15-A8 and P15-B2 on the Print Engine Controller.

Y: Go to step 2.

N: *Go to RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

2 There is +5VDC between P15-A9 and P15-A10 on the Print Engine Controller.

Y: Go to step 3.

N: *Go to RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

NOTE: Disconnect P/J15 from the Print Engine Controller and perform the analysis.

3 There is +24VDC between P15-A3 and P15-A10 on the Print Engine Controller.

Y: Go to step 4.

N: Replace the HVPS Assembly.

4 There is +24VDC between P15-B12 and P15-A10 on the Print Engine Controller.

Y: Go to step 5.

N: Replace the HVPS Assembly.

5 There is +24VDC between P15-B11 and P15-A10 on the Print Engine Controller.

Y: Go to step 6

N: Replace the HVPS Assembly

6 There is +24VDC between P15-B10 and P15-A10 on the Print Engine Controller.

Y: Go to step 7.

N: Replace the HVPS Assembly.

7 There is continuity between J15 on the Print Engine Controller and J111 on the HVPS.

Y: Go to step 8.

N: Replace the HVPS Harness Assembly.

8 Install a new Print Engine Controller. The problem is still present.

Y: Replace the HVPS Assembly.

N: The correction is completed.

7.4.25 Electrical Noise

You were directed to this RAP because electrical noise emissions are interfering with the operation of the printer. Use this RAP to diagnose and eliminate the electrical noise. Sometimes an arcing electrical voltage can be the source of the problem. In light of this, particular attention should be directed to the areas of the HVPS and line voltage.

Initial Actions

- Remove all of the installed options in order to isolate this noise problem. Test the base printer with no options installed. If the noise problem is eliminated, reinstall all of the optional components, one at a time, and retest.

  Determine which optional component is the source of the noise and replace that component.
- When a cover or printer component is removed and replaced/reinstalled for testing purposes, ensure that the cover or component is positioned securely into place with all of the proper hardware (screws) before retesting. Some components, such as the HVPS and the Transport Chute Assembly, are dependent on ground connections when properly positioned and secured.

1 Ensure that the printer is properly grounded; that is, ensure that the line voltage is correctly polarized and the proper ground connection is established between the printer and the wall outlet.

   Y: Go to step 2.

   N: Inform the customer that the wall outlet must be properly polarized and that the proper ground connection must be established.

2 There is an electrical device that might be generating noise around the printer.

   Y: Move either the device or the printer to a different location.

   N: Go to step 3.

3 There is resistive continuity measured across the Ground Diode Assembly (Fuser area) in one direction and infinite resistance in the opposite direction.

   Y: Go to step 4.

   N: Replace the Fuser Assembly.

4 Visually check that the anode side of the Ground Diode Assembly is connected to a tab that is brushing against the metal part of the Heat Roll.

   Y: Go to step 5.

   N: Replace the Fuser Assembly if the tab cannot be made to contact the metal tube of the Heat Roll.

5 The Transport Chute Assembly is grounded to the printer chassis through a Transport Chute rear mounting screw.

   Y: Go to step 6.

   N: Make sure that the screw securing the rear of the Transport Chute Assembly to the printer chassis is secured tightly.

6 Ensure there is a ground contact from the EP Cartridge to the Chassis Ground (through the drum shaft). Measure continuity from the printer chassis to the drum shaft contact on the EP Cartridge when installed.

Y: Go to step 7.

N: Clean the drum shaft ground contact or replace the EP Cartridge.

7 There is ground contact to the Exit Motor when the Top Cover is mounted through the spring contact attached to the printer chassis.

Y: Go to step 8.

N: Remove the obstruction or reform the spring contact.

8 Check to make sure there is a spring ground contact from the Eliminator Assembly to chassis ground when the Top Cover is mounted.

Y: Go to step 9.

N: Remove the obstruction or reform the spring contact.

9 Check for high voltage arcing at the Detack Saw. Visually inspect the Detack Saw and listen for a buzzing or arcing sound while performing DG 74. There is arcing present.

Y: Check for foreign material or toner contamination of the Detack Saw. Clean or replace the Transport Chute Assembly.

N: Go to step 10.

10 Replace the following components in the following order and retest after installation of each new component:

a. Exit Drive Motor
b. Main Drive Motor
c. High Voltage Power Supply (HVPS)
d. Low Voltage Power Supply (LVPS)
e. Print Engine Controller
f. System Controller
g. Laser Assembly

The electrical noise is eliminated.

Y: Go to Final Actions.

N: Call for assistance.

11 There is continuity between the Heat Roll and the Nip Lever L.

NOTE: Remove the Fuser Top Cover Assembly and the Left Fuser Cover to perform this.

Y: Go to step 12.

N: Secure continuity.

12 There is continuity between the Earth Plate and the Wire Assembly.

Y: Go to step 13.

N: Secure continuity.

13 Install a new EP Cartridge, and perform the Diagnostic Code 90. The noise is still present.

NOTE: Ensure all the covers and the EP Cartridge are put on the printer.

Y: Secure firm contact between the Earth Plate and the EP Cartridge; then go to step 14.

N: Correction completed.

14 Ensure that the printer is grounded properly.

Y: Go to step 15.

N: Ground the printer properly.

15 Inspect the grounding path and try to repeat the initial analysis. The noise is still present.

Y: Replace the relevant components.

N: Correction completed.

NOTE: Some kind of noise external to the printer may have caused this problem. Check the exterior of the printer.

7.4.26 Mechanical Noise

You were directed to this RAP to diagnose and repair an audible mechanical noise coming from within the printer. Please be aware that electrical arcing may also generate an audible noise, especially in the areas of the High Voltage Power Supply and the line voltage.

1 The noise is present in the standby mode.

Y: Power OFF the printer and perform the following checks. Repair/replace any faulty component:

- Inspect the Fan Assembly and any associated wire harness.
- Inspect the Laser Assembly.
- Inspect/remove the Hard Drive Assembly mounted on the System Controller. After removal, test again in the standby mode to determine if the Hard Drive is the source of the noise.

N: Go to step 2.

2 Power ON the printer and perform Diagnostic Mode 1 (Component Test Mode). Select and execute DG90, Main Motor. The noise is present.

Y: Go to step 3.

N: Go to step 5.

3 Open the Front Cover Assembly and remove the EP Cartridge. Remember to bypass the interlocks for the Front Cover Assembly and the EP Cartridge. Perform DG90 and inspect the drive train gears for broken or missing teeth. The noise is present.

Y: Go to step 4.

N: Inspect the Front Cover Assembly for loose, broken, or misaligned parts. Replace the EP Cartridge if necessary.

4 Open the Rear Cover, remove the Fuser Assembly, and bypass the Rear Cover interlock. While performing DG90, inspect the drive train gears from the rear of the printer for broken or missing teeth. The noise is present.

Y: Carefully inspect/repair the Paper Handling Unit for the source of the noise before replacing the Main Motor Assembly.

N: Replace the Fuser Assembly.

5 Perform DG93 and DG94 (Exit Motor CW and CCW respectively). The noise is present.

Y: Determine the exit component causing the noise and replace.

N: Go to step 6.

6 Power OFF the printer. Remove all the interlock bypasses in steps 3 and 4, and install the EP Cartridge. Remove all input and output options, and the Hard Disk from the System Controller. Close the Front and Rear Cover Assemblies. Power ON the printer, and from Diagnostic Mode 2 (Test Print Mode), run a Print Engine Controller Test Print. The noise is present.

Y: Inspect the Main Tray Feed Roll drive components and replace as necessary.

N: Go to step 7.

7 Power OFF the printer, empty the Main Tray and load paper in the Front Tray (MBF). Power ON the printer and run a Print Engine Controller Test Print in Diagnostic Mode 2 (Test Print Mode). The noise is present.

Y: Inspect the Front Tray Feed Roll drive and associated gears. Replace as necessary.

N: Go to step 8.

8 Reinstall all the optional components one at a time, testing each time for the noise.

Y: When the source of the noise is discovered, isolate the defective component(s) and replace.

N: Go to Final Actions.

WARNING! When Test DG 90 is enabled, the Main Drive Motor will run. Be extremely careful around moving parts.

7.5 Image Quality RAPs

This section contains image quality repair procedures to assist in correcting image quality defects. These procedures provide defect samples, definitions and specifications to help identify the type of defect that exists, the test pattern to use, and actions required to correct the defects.

Throughout these procedures, the term "vertical" refers to the process direction (the direction paper travels through the printer); the term "horizontal" refers to the scanning direction (the direction the laser beam scans across the page).

Be sure to check the paper tray to determine whether paper is being fed long edge or short edge first. This determines "vertical" and "horizontal" for paper fed from that particular tray.

Cleaning procedures should always be performed before beginning any Print Quality Repair procedure.

Be sure that the paper meets printer specifications. Changing the paper, or using paper from a previously unopened ream, will resolve many print quality issues.

After resolving an image quality problem, return to *RAP 7.5.3 Image Quality Checkout* to verify that no other image quality defects exist.

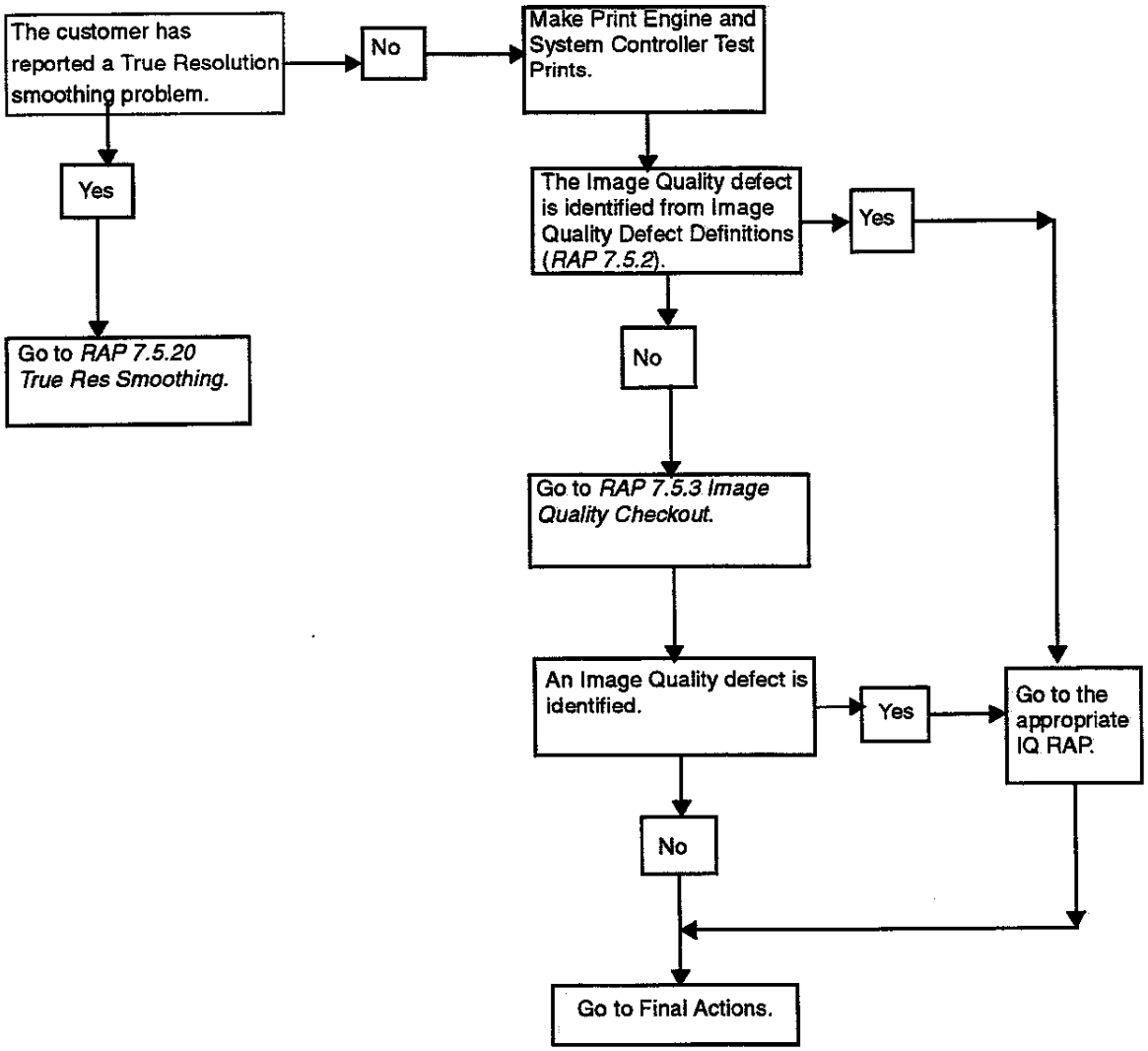
7.5.1 Image Quality Entry Flowchart

Initial Actions

Replace paper in all trays from a previously unopened ream.

Procedure

Use the following Flow Chart to assist in identifying an Image Quality Defect.



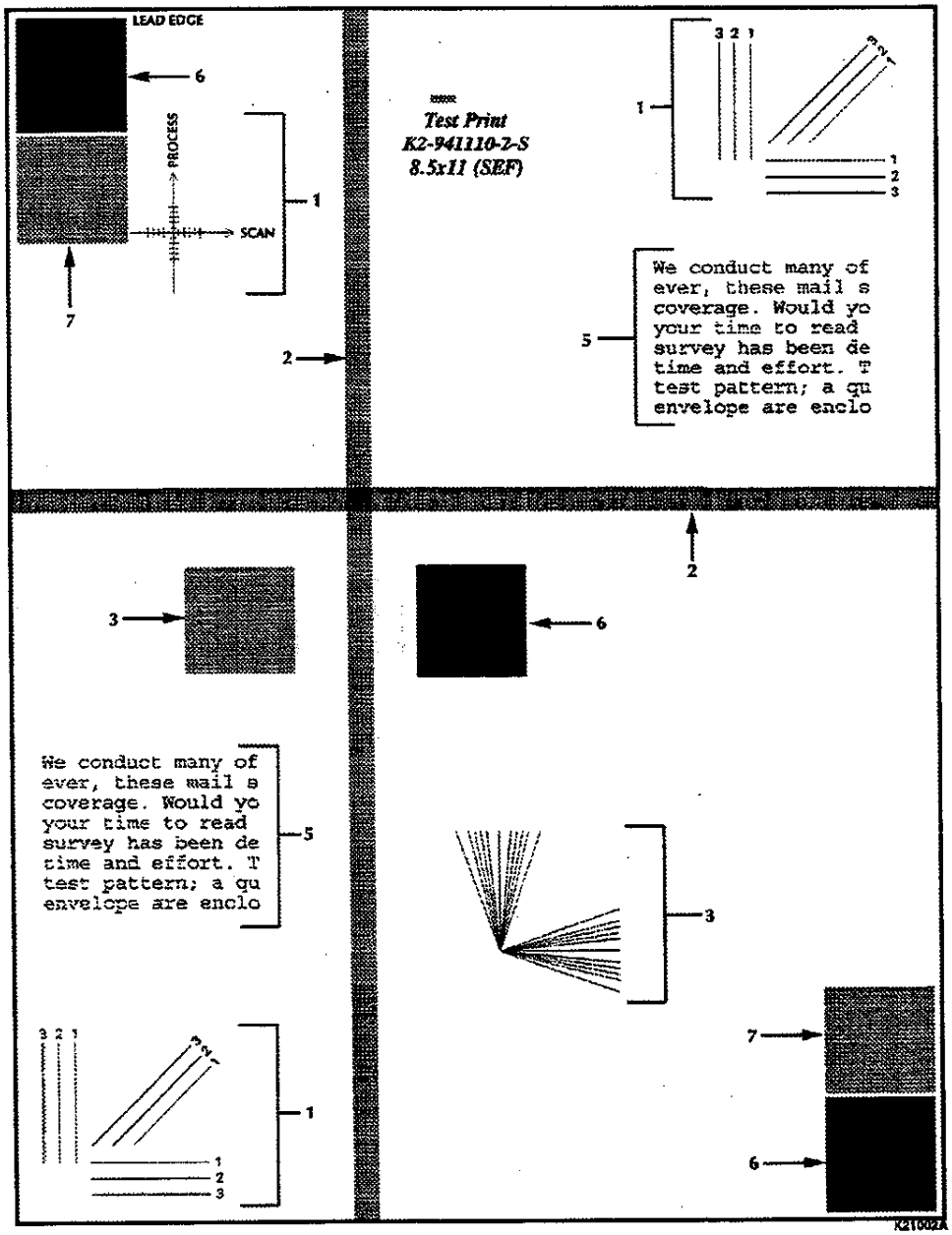
7.5.2 Image Quality Defect Definitions

Table 7.5.2.1 Image Quality Defect Definitions

Defect Definitions	Go to
NON-UNIFORM IMAGE QUALITY: The line darkness and solid area density image varies across the print.	*RAP 7.5.4*
BLACK PRINTS: The print is completely covered with toner and has no visible image.	*RAP 7.5.5*
HORIZONTAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run horizontally across the page in the direction of scanning.	*RAP 7.5.6*
VERTICAL DELETIONS: There are areas of the image that are extremely light or missing entirely. These missing areas form wide bands that run vertically along the page in the direction of paper movement.	*RAP 7.5.7*
SPOT DELETIONS: Solid areas are marked with irregular white areas.	*RAP 7.5.8*
LIGHT PRINTS: Refer to the Solid Area Density specification.	*RAP 7.5.9*
BLANK PRINTS: Prints with no visible image.	*RAP 7.5.10*
EXTRANEOUS MARKS: Horizontal or vertical bands, or other marks that are print defects caused by bad or incorrect font data, print drivers, electrical noise or other causes not directly related to the electrophotographic process.	*RAP 7.5.11*
CHARACTER DEFECTS: Garbled print, missing, repeating, or scrambled characters are problems relating to font data or character generation. These are print defects not related to the electrophotographic process.	*RAP 7.5.12*
SPOTS: There are spots of toner on the page.	*RAP 7.5.13*
UNFUSED IMAGE: Part of or all of the image is unfused. Refer to the specification.	*RAP 7.5.14*
MISREGISTERED IMAGE (lead edge to trail edge): Displacement of the image, in the process direction, from its intended position on the print. **(inboard to outboard):** Displacement of the image, across the process direction, from its intended position on the print.	*RAP 7.5.15*
STREAKS: Extraneous dark lines/bands in or across the process direction. These are Print Engine defects not related to the System Controller or Host Data.	*RAP 7.5.16*
RESIDUAL IMAGES: The image from a previous print, which was not removed during the cleaning process, has been developed on the current print.	*RAP 7.5.17*
BACKGROUND: Uniform toner contamination in non image areas. Refer to the Background specification.	*RAP 7.5.18*
DAMAGED PRINTS: Creases, wrinkles, excessive curl, cuts, folds or embossed marks.	*RAP 7.5.19*
TRUERES SMOOTHING: Near-vertical and near-horizontal lines are jaggy.	*RAP 7.5.20*
RESOLUTION: At 300 DPI two pixel lines and halftone patches cannot be reproduced clearly on the print.	*RAP 7.5.21*
SKEWED IMAGE: Angular displacement of the image from its intended position on the print. Refer to the specification.	*RAP 7.5.22*
SKIPS / SMEARS: Skip-Loss or stretching of the image in bands across the process direction. Smear-The distortion of the image in bands across the process direction that cause it to appear to be blurred or compressed.	*RAP 7.5.23*

Each area of the test pattern is used for a print quality parameter. The areas and the print quality parameters are listed in Figure 7.5.2.2.

Figure 7.5.2.2 System Controller Test Print Pattern



1	Resolution (2 places)	5	Resolution and Uniformity (2 places)
2	Skips and Smears (2 places.	6	Solid Area Density (3 places)
3	True Res Smoothing (2 places)	7	Half Tone Resolution (2 places)
4	Registration		

7.5.3 Image Quality Checkout

This procedure is used to check that the quality of the printed image meets the specifications. Refer to Figure 7.5.2.2.

The Image Quality Checkout includes the following:

1) Solid Area Density
2) Background
3) Deletions
4) Fusing
5) Resolution
6) Registration (Lead Edge to Trail Edge)
7) Registration (Side to Side)
8) Skew
9) Skips/Smears
10) Spots
11) Other Defects

Procedure

Use new paper, whenever possible, to check the image quality of prints. Make 5 prints of the Print Engine Controller Test Pattern, Procedure 5.2.4, and 5 prints of the System Controller Test Pattern, Procedure 5.2.5. Discard the first two prints and retain the remaining prints for image quality analysis. Go to the Solid Area Density checkout.

Solid Area Density

1 Compare the solid areas on the System Controller Test Patterns with the Output Reference document (82P520) (refer to Figure 7.5.3.1). There are no solid areas on any print lighter than the 1.20 density square on the scale, and there are no two solid areas on any print that differ in density of more than one density square.

Y: The Solid Area Density is within specifications. Go to the **Background** checkout.

N: Go to step 2.

2 The solid area density is uniform.

Y: Go to step 3.

N: Go to *RAP 7.5.4 Non-Uniform Image Quality.*

3 The prints are too faint.

Y: Go to *RAP 7.5.9 Light Prints.*

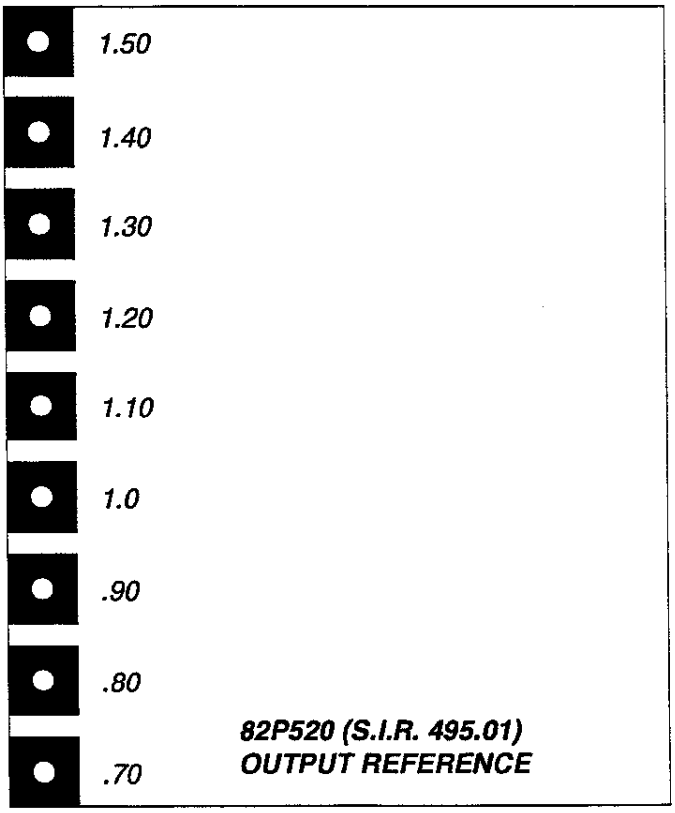
N: Go to step 4.

4 The prints are black.

Y: Go to *RAP 7.5.5 Black Prints.*

N: Go to *RAP 7.5.18 Background.*

Figure 7.5.3.1 Output Reference



Background

Compare the Test Prints with the Visual Scale (82P284). The worse background area on any print should be at, or below, area 3 on the rating guide (see Figure 7.5.3.2).

1 The pattern is free from background.

Y: The printed test patterns meet the Background specification. Go to the **Deletions** checkout.

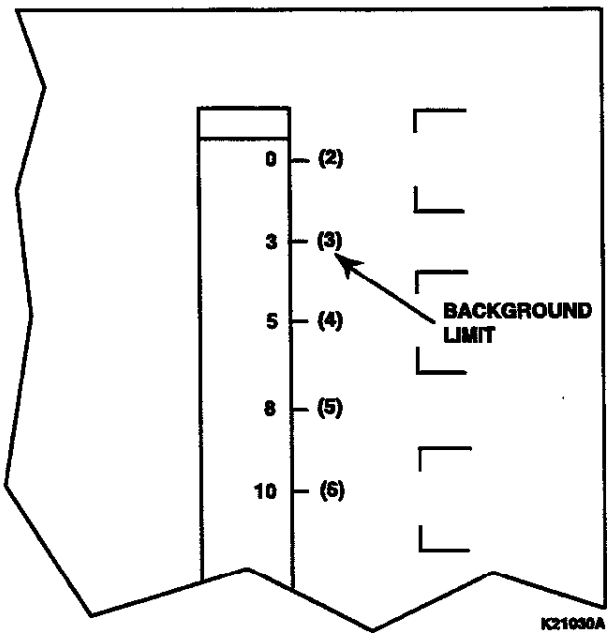
N: Go to step 2.

2 The background is uniform.

Y: Go to *RAP 7.5.18 Background.*

N: Go to *RAP 7.5.4 Non-Uniform Image Quality.*

Figure 7.5.3.2 Rating Guide.



Deletions (Line, Band, Spot)

Inspect Test Prints for the presence of deletions (missing image). There should be no deletions with a diameter larger than 0.5 mm visible on test prints (Figure 7.5.3.3).

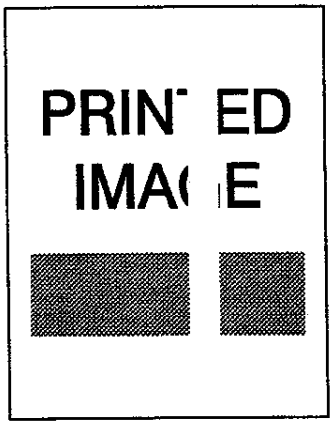
1 There are deletions on the test prints.
   Y: Go to step 2.
   N: Go to **Fusing** checkout on the next page.

2 There are vertical (in direction of paper movement) Line/Band deletions present.
   Y: Go to *RAP 7.5.7 Vertical Band Deletions.*
   N: Go to step 3.

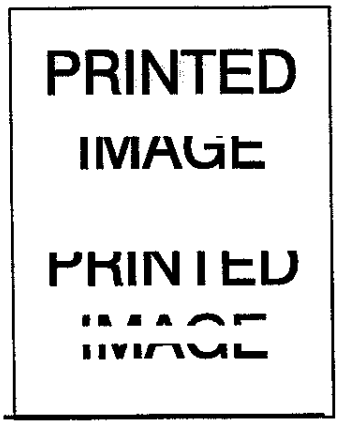
3 There are Horizontal (in direction of scanning) Line/Band Deletions present.
   Y: Go to *RAP 7.5.6 Horizontal Band Deletionss.*
   N: Go to step 4.

4 There are Spot Deletions present.
   Y: Go to *RAP 7.5.8 Spot Deletions.*
   N: The defect apparently is not manifesting as a deletion. Continue to the **Fusing** checkout. See "Fusing" on page 7-80.

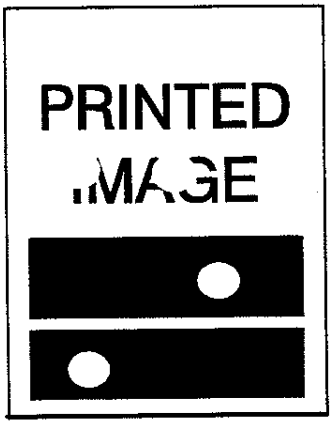
Figure 7.5.3.3 Line, Band, or Spot Deletions



asm7-14



asm7-12



asm7-18

Fusing

NOTE: The operating environment of the paper is from 5 Celsius at 15% relative humidity to 35 Celsius at 85% relative humidity. The fusing performance of the printer will vary according to the environment.

- A cold environment will affect the warm-up time.
- The weight (lb. / gsm) of the paper or transparency will affect the fusing of prints.
- High humidity will have an adverse affect on the fusing of prints.

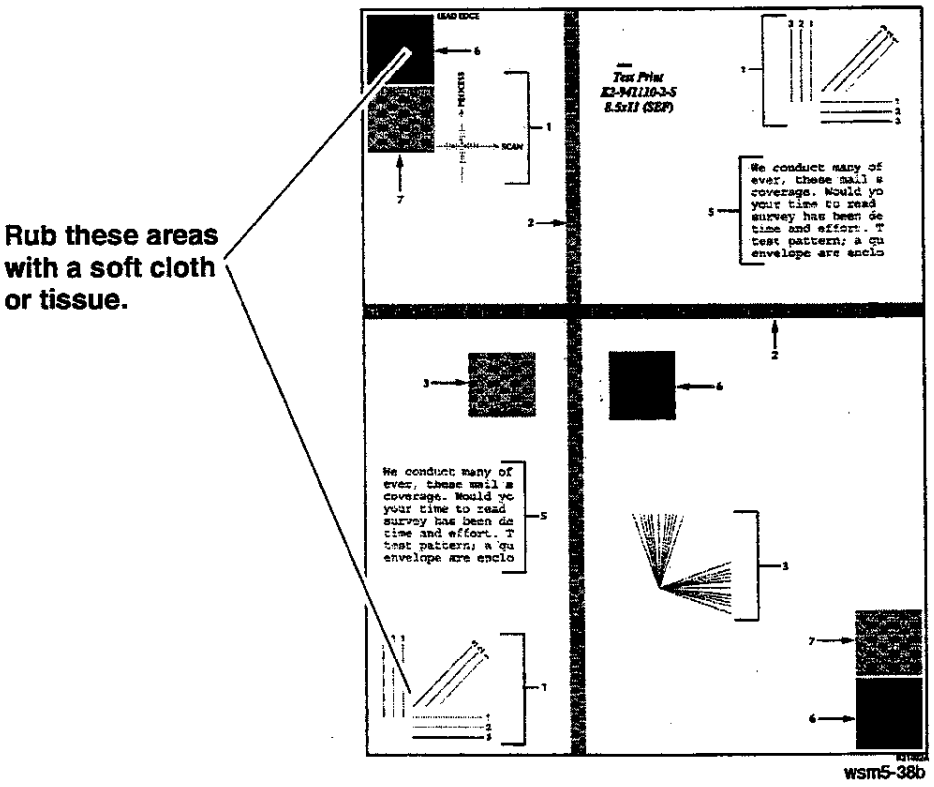
Check the fusing quality of the image of a System Controller Test Pattern (Figure 7.5.3.4). Rub the image three times with a soft cloth or tissue. The image should not lift off of the surface of the print.

The fusing quality of the image meets the specification.

Y: The printed test patterns meet the Fusing specification. Go to the **Resolution** checkout. See "Resolution" on page 7-81.

N: Go to *RAP 7.5.14 Unfused Image Procedure.*

Figure 7.5.3.4 Fusing Quality



Resolution

Refer to Figure 7.5.3.5. Observe the three image areas on several System Controller Test Patterns. Check the resolution of the images in each of the areas:

Area 1:

When set at 600 DPI, the two pixel vertical, horizontal and diagonal lines should be clear and continuous. The diagonal lines might appear to be narrower than the others.

Area 2:

The text paragraphs should be roughly equal in density.

Area 3:

The half-tone patches adjacent to the solid blocks in the corners should be uniform in appearance.

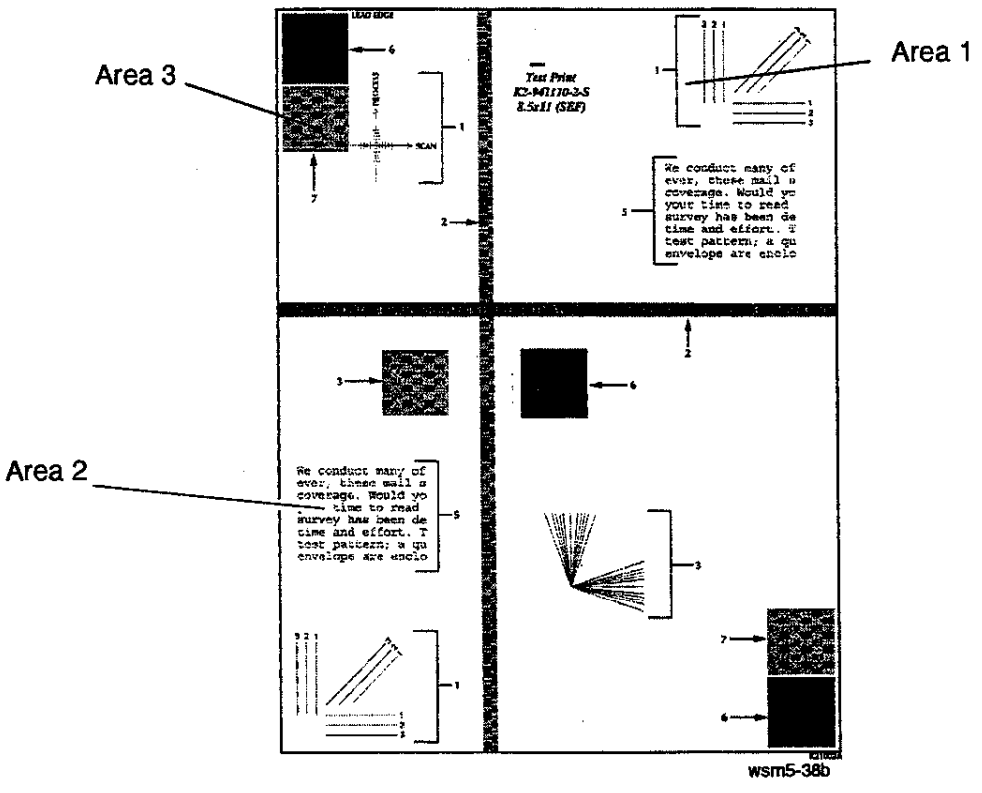
1 The resolution of the image meets the specification.

Y: Go to step 2.

N: Go to *RAP 7.5.21 Resolution.*

2 The printed test patterns meet the Resolution specification. Go to the **Registration** checkout. See "Registration (Lead Edge to Trail Edge)" on page 7-82.

Figure 7.5.3.5 Resolution



Registration (Lead Edge to Trail Edge)

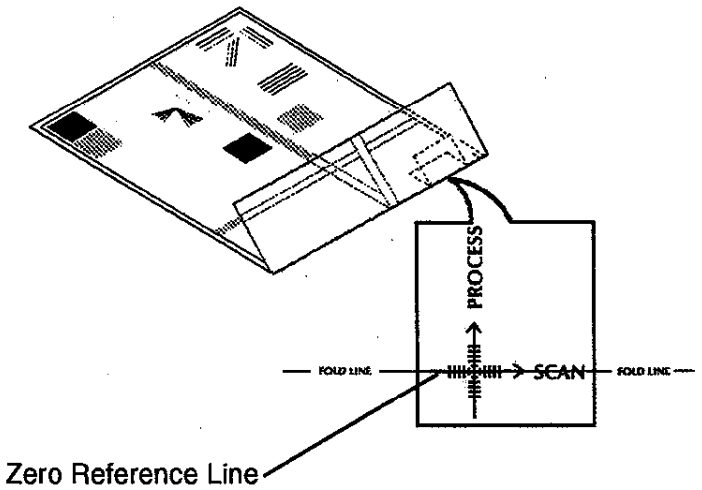
Measure the registration on two consecutive System Controller Test Patterns. Fold the lead edge to the top line of the ladder chart. Observe the fold at the zero reference line, Figure 7.5.3.6.

The fold is within +/- 2.0 mm from the zero reference line.

Y: The test prints meet the Lead Edge to Trail Edge registration specification. Go to the **Registration (Side to Side)** checkout.

N: Go to *RAP 7.5.15 Misregistered Image.*

Figure 7.5.3.6 Registration (Lead Edge to Trail Edge)



wsm5-38b

Registration (Side to Side)

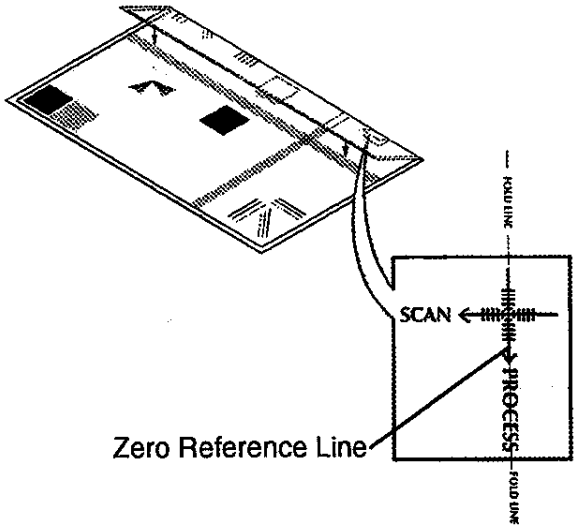
Measure the registration on two consecutive System Controller Test Patterns. Fold the left edge of the test print to the left edge of the ladder chart and crease the paper. Observe the fold at the zero reference line.

The fold is within +/- 2.5 mm from the zero reference line (Figure 7.5.3.7).

Y: The printed test patterns meet the Inboard to Outboard registration specification. Go to the **Skew** checkout on the next page.

N: Go to *RAP 7.5.15 Misregistered Image.*

Figure 7.5.3.7 Registration (Side to Side)



wsm5-38b

Skew

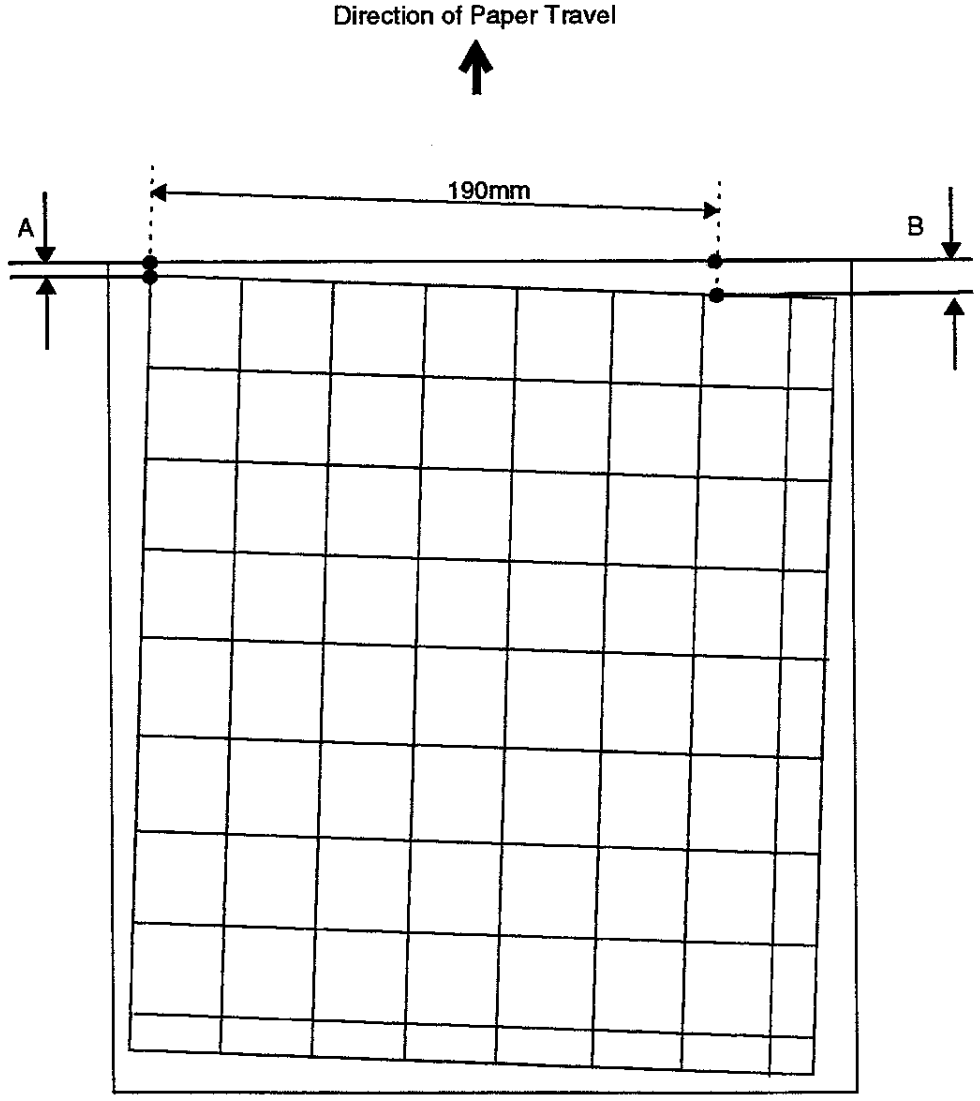
Observe the Printer Engine Controller test pattern. Measure the dimensions 'A' and 'B' on two consecutive test patterns and check the following, Figure 7.5.3.8. The difference between 'A' and 'B' should be no more than 1.5 mm from any source.

The skew on the test patterns meets the specification.

Y: The printed test patterns meet the Skew specification. Go to the **Skips and Smears** checkout. See "Skips/Smears" on page 7-85.

N: Go to *RAP 7.5.22 Skewed Image.*

Figure 7.5.3.8 Print Engine Controller Test Pattern



Skips/Smears

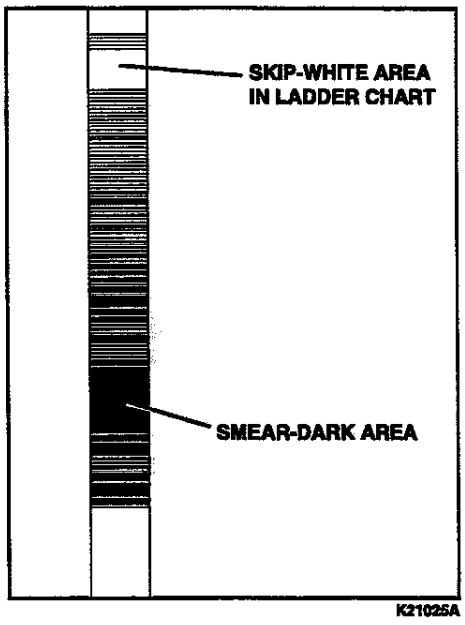
Print a System Controller Test Pattern with the print resolution set to 600 dpi. Inspect the process direction ladder chart test pattern. The pattern should be free from skips and smears and lines should exist in the side to side scan direction, Figure 7.5.3.9.

The test prints are free from skips and smears.

Y: Go to the **Spots** checkout. See "Spots" on page 7-86.

N: Go to *RAP 7.5.23 Skips/Smears.*

Figure 7.5.3.9 Skips/Smears



Spots

Inspect the test prints for spots (Figure 7.5.2.13). Within a 208 x 95 mm square:

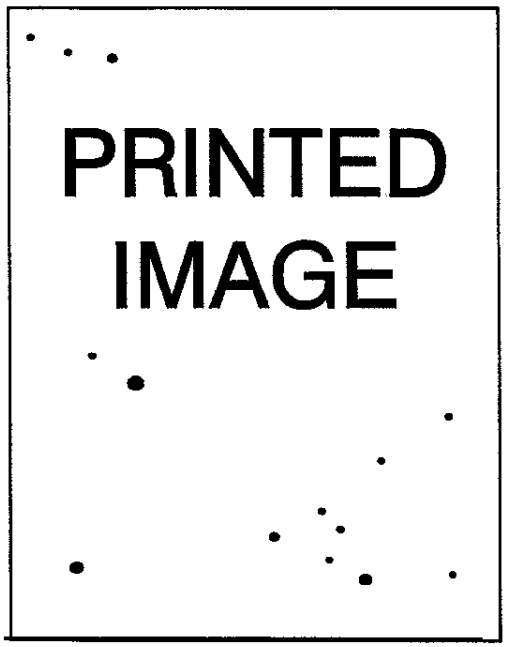
- There should be no spots larger than or equal to 0.5 mm visible on the prints.
- There should be no more than 1 spot measuring between 0.4 mm and 0.5 mm visible on the print.
- There should be no more than 16 spots measuring between 0.25 mm and 0.4 mm visible on the print.
- Any spot measuring less than 0.25 mm is acceptable.

The prints are free of spots or the spots that are visible fall within the acceptable range.

Y: Go to **Other Print Defects** checkout. See "Other Print Defects" on page 7-87.

N: Go to *RAP 7.5.13 Spots.*

Figure 7.5.3.10 Spots



asm7-18

Other Print Defects

Inspect the Test Patterns for other Print Defects. There should be no other Print Defects.

1 Test Prints are free of defects.

Y: Go to Final Actions.

N: Go to step 2.

2 There are dark streaks present on the Test Prints.

Y: Go to *RAP 7.5.16 Streaks.*

N: Go to step 3.

3 There is a residual image (ghosts) on the Test Prints.

Y: Go to *RAP 7.5.17 Residual Image.*

N: Go to step 4.

4 There is print damage: wrinkles, creases, tears, etc.

Y: Go to *RAP 7.5.19 Damaged Prints.*

N: Go to step 5.

5 There are character defects on the print sample.

Y: Go to *RAP 7.5.12 Character Defects.*

N: There are no print defects. Return to *RAP 7.2.1 Entry Level RAP*, step 12.

7.5.4 Non-Uniform Image Quality

Definition

The line darkness and solid area density image varies across the print.

NOTE: If the problem has not been resolved after completing this RAP, go to RAP 7.5.7 Vertical Band Deletions.

Initial Actions

- Remove the EP Cartridge and gently rock it back and forth to distribute toner evenly in cartridge. Reinstall the cartridge.
- Ensure the grounding pin on the EP Cartridge is in proper contact with the Earth Plate Assembly.

Procedure

1 Generate five prints of the System Controller Test Pattern from the Main Tray. Image Quality varies from inboard to outboard.

Y: Go to step 3.

N: Go to step 2.

2 Image quality varies from lead edge to trail edge.

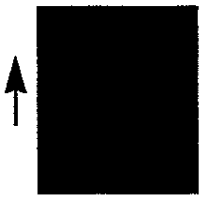
Y: Replace the HVPS.

N: Return to *RAP 7.5.1 Image Quality Entry Flowchart.*

3 Do the following:

- Inspect the Bias Transfer Roll for contamination. Clean or replace the EP Cartridge.
- Inspect the Photoreceptor for deterioration and/or contamination. Replace the EP Cartridge.
- Check for laser beam obstructions such as dust, or lint fibers between the Laser Assembly and the EP Cartridge.
- Perform the procedure for Light Prints, *RAP 7.5.9 Light Prints.*

7.5.5 Black Prints

Sample Image	Definition
	The entire print is black.

Initial Actions

- Ensure that print density (see *Section 5.1.4.7 System Menu* for more information) is set to default (3).
- Generate the System Controller Test Print, *Section 5.1.4.8 Test Menu*, and Print Engine Controller Test Print, *5.2.2 Diagnostic Mode 2*.
- If both prints are completely black, replace the EP Cartridge.
- If any image is visible on the prints, go to *RAP 7.5.18 Background.*

Procedure

1 Only the System Controller Test Print is black.

Y: Check the seating of the System Controller. If OK replace the System Controller.

N: Go to step 2.

2 Cover the Laser Assembly window (laser beam outlet) using a piece of paper, and generate a test print. The entire print is still black.

Y: *Go to RAP 7.4.24 HVPS Failure.*

N: Go to step 3.

3 Cover half of the Laser Assembly window (laser beam outlet) using a piece of paper, and generate a test print. The print is black only in the area not covered with the paper.

Y: *Go to RAP 7.3.2 "Laser Failure" Message (U2).*

N: Go to step 4.

4 The HVPS has faulty output. Refer to *REP 5.2.1.22 DG 71 HVPS (Charge Roll DC)* and perform DG 71.

Y: Go to *RAP 7.4.24 HVPS Failure.*

N: Install a new EP Cartridge.

7.5.6 Horizontal Band Deletions

Sample Image

Definition

Deletion is an area of the print where the image is missing or extremely light. Horizontal band deletions are missing bands which extend across the short dimension of the page (at the right angle to the direction of paper travel).

Procedure

1 Replace paper in paper tray. Problem solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 The HVPS has faulty output voltage. Refer to *REP 5.2.1.23 DG 72 HVPS (Developer Bias DC)* and perform DG 72.

Y: Go to *RAP 7.4.24 HVPS Failure.*

N: Go to step 3.

3 Use DG 90 to check the Drive Assembly. The transmission gears turn the EP Cartridge gear.

Y: Go to step 4.

N: Go to *7.3.4 "Motor Failure" Message (U1).*

4 The Bias Transfer Roll (BTR) Assembly is contaminated.

Y: Replace the BTR Assembly.

N: Go to step 5

5 Generate a test print and switch OFF the printer in the middle of the print cycle. Inspect the toner image on the Drum surface. There is a complete toner image on the Drum surface.

Y: Go to *RAP 7.4.24 HVPS Failure,* and ensure the BTR output is normal.

N: Go to step 6.

6 Install a new EP Cartridge.The problem is solved.

Y: Go to Final Actions.

N: Go to step 7.

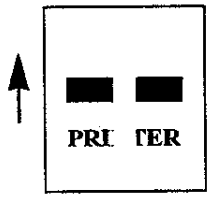
7 The band deletions occur at approximately 62.0mm intervals. There are scratches or contamination on the Heat Roll or Pressure Roll surface.

Y: Clean the Heat Roll/Pressure Roll or replace the Fuser Assembly.

N: Replace the Fuser Assembly.

7.5.7 Vertical Band Deletions

Sample Image



Definition

Deletion is an area of the print where the image is missing or extremely light. Vertical band deletions are missing bands of lines which extend across the long dimension of the page (in the direction of paper travel).

Initial Actions

Remove the EP Cartridge and rock it gently back and forth to distribute the toner evenly in the cartridge.

Procedure

1 Replace paper in the Paper Tray. Problem is solved.

Y: Use new paper and ask the customer to keep paper stock in a dry place.

N: Go to step 2.

2 Check the laser beam path from the Drum to the Laser Assembly for contamination or obstacles. The laser beam path is contaminated or hindered with obstacles.

Y: Remove the contamination or obstacles.

N: Go to step 3.

3 Install a new EP Cartridge. The problem is solved

Y: Go to Final Actions.

N: Go to step 4.

4 The Bias Transfer Roll (BTR) is contaminated.

Y: Clean or replace the BTR.

N: Go to step 5.

5 Generate a test print and switch OFF the printer in the middle of the print cycle. Inspect the toner image on the Drum surface. There is a complete toner image on the Drum surface.

Y: Go to step 6.

N: Go to *7.4.24 HVPS Failure.*

6 There are burrs, obstacles, or contamination areas in the paper path.

Y: Clean, repair, or replace the faulty component.

N: Go step 7.

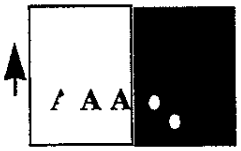
7 There are scratches or contamination on the Heat Roll/Pressure Roll surface.

Y: Clean the Heat Roll/Pressure Roll or replace the Fuser Assembly.

N: If the problem is not resolved, Go to *RAP 7.5.4 Non-Uniform Image Quality.*

7.5.8 Spot Deletions

Sample Image



Definition

Deletion is an area of the print where the image is missing or extremely light. Spot deletions are missing spots localized to small areas of the page.

Procedure

1 Replace the paper in the paper tray. Problem is solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 The Bias Transfer Roll (BTR) Assembly is contaminated.

Y: Replace the BTR Assembly.

N: Go to step 3.

3 If the spot deletions occur at approximately 94.0mm intervals, the Drum has possibly caused the deletions. Replace the EP Cartridge with a new one. The problem is solved.

Y: Go to Final Actions.

N: Go to step 4.

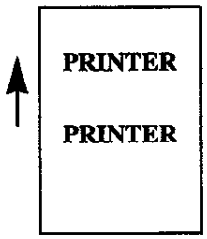
4 The spot deletions occur at approximately 62.0mm intervals, there are scratches or contamination on the Heat Roll/Pressure Roll surface.

Y: Clean /repair the Heat Roll/Pressure Roll or replace the Fuser Assembly.

N: Replace the Fuser Assembly

7.5.9 Light Prints

Sample Image



Definition

The overall image density is lighter than normal, or extremely light.

Initial Action

Ensure that the print density setting (*Section 5.1.4.7 System Menu*) is set to the default value (3).

Procedure

1 Replace the paper in the paper tray. Problem solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 Inspect the Drum ground path shown below. The printer is grounded all through the ground path.

- Drum > Drum shaft pin > Plate Earth > HVPS > LVPS.

Y: Go to step 3.

N: Complete the Drum ground path.

3 Check the laser beam path from the Drum to the Laser Assembly for contamination or obstacle. The laser beam path is contaminated or obstructed.

Y: Remove the contamination or obstacles.

N: Go to step 4.

4 The HVPS DB (DC) has faulty output voltage. Refer to *REP 5.2.1.23 DG 72 HVPS (Developer Bias DC)* and perform DG 72.

Y: Go to *RAP 7.4.24 HVPS Failure.*

N: Go to step 5.

5 The Bias Transfer Roll (BTR) Assembly is contaminated.

Y: Replace the BTR Assembly.

N: Go to step 6.

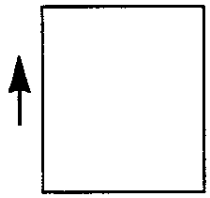
6 Generate a test print and switch OFF the printer in the middle of the print cycle. Inspect the toner image on the Drum surface. A complete toner image shows on the drum surface.

Y: Go to *RAP 7.4.24 HVPS Failure,* and check if the BTR output is normal.

N: Install a new EP Cartridge.

7.5.10 Blank Prints

Sample Image



Definition

The entire print is blank.

Initial Action

Generate the System Controller Test Print (*5.2.5 System Controller Test Print*) and Print Engine Controller Test Print (*5.2.4 Print Engine Controller Test Print*).

Procedure

1 Only the System Controller Test Print is blank.

Y: Reseat the System Controller and retest before replacing the System Controller.

N: Go to step 2.

2 Inspect the Drum grounding path shown below. The printer is grounded all through the ground path.

- Drum > Drum Shaft Pin > Plate Earth > HVPS > LVPS.

Y: Complete the Drum ground path.

N: Go to step 3.

3 Check the laser beam path from the Drum to the Laser Assembly for contamination or obstacles. The laser beam path is contaminated or hindered with obstacles.

Y: Remove the contamination or obstacles.

N: Go to step 4.

4 Generate a test print and switch OFF the printer in the middle of the print cycle. Inspect the toner image on the Drum surface. A complete toner image is present on the Drum surface.

Y: Go to step 5.

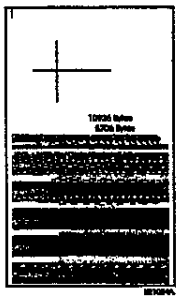
N: Replace the EP Cartridge. Go to *7.4.24 HVPS Failure*, if the problem is not resolved.

5 The Bias Transfer Roll (BTR) Assembly is contaminated.

Y: Clean or replace the BTR Assembly.

N: Go to *RAP 7.4.24 HVPS Failure.*

7.5.11 Extraneous Marks



Definition

Horizontal or vertical bands, or other marks that are print defects caused by bad or incorrect font data, print drivers, electrical noise or other causes not directly related to the electrophotographic process.

Procedure

1 The customer has changed the host software or configurations.

Y: The customer will have to reconfigure the system.

N: Go to step 2.

2 Extraneous marks can be caused by bad font data from the host. Ask the customer to download different fonts from the host. The problem is solved.

Y: Go to Final Actions.

N: Go to step 3.

3 Generate several System Controller Test Prints. The print job exhibits the extraneous markings.

Y: Check the Laser Assembly and EP Cartridge grounds for damage or contamination.

N: Go to step 4.

4 Open the Front Cover and visually inspect the left drum grounding plate on the EP Cartridge and the left drum support. They are free of damage and contamination.

Y: Go to step 5.

N: Repair or replace the grounding spring or the EP Cartridge if necessary.

5 Disconnect the host interface cable. Attempt to generate a test print. The test print is free from defects.

Y: Go to step 6.

N: Replace the System Controller, then replace the Printer Engine Controller.

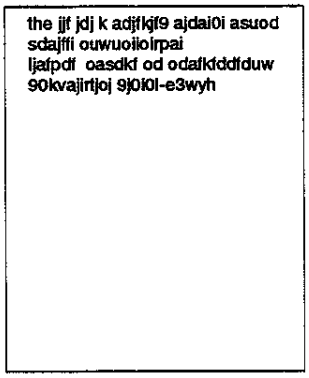
6 Check for a problem with the host interface cable. Ensure that the host interface cable meets specifications. The cable is within the maximum length.

- Parallel: 10 ft. (3.0 meters)

Y: If the problem persists, go to *RAP 7.4.4 Erratic Operation.*

N: Ask the customer to provide a cable of proper length.

7.5.12 Character Defects



Definition

Garbled print, missing, repeating, or scrambled characters are problems relating to font data or character generation. These are print defects not related to the xerographic process.

Initial Actions

- Generate a printer Configuration Sheet. Ask the customer to verify that the printer and host settings match.
- Ensure that the host interface cable meets specification. The maximum parallel cable length is: 10 ft. (3.0 meters).
- Optional Interface: Refer to the network specifications for the environment where the printer is installed.

Procedure

1 Disconnect the host interface cable. Generate System Controller Test Prints (see *5.2.5 System Controller Test Print*). The test prints are acceptable.

Y: Go to step 2.

N: Replace the System Controller.

2 Inform the customer that they may have bad font data. Ask the customer to reload the font.

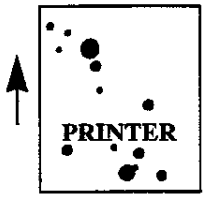
3 The job prints correctly.

Y: Problem resolved.

N: Go to *RAP 7.6 Communications Entry RAP.*

7.5.13 Spots

Sample Image



Definition

There are toner deposits in non-image areas of the print.

Initial Action

- Check the paper supply for spot contamination prior to printing and replace with clean paper.
- Inspect the paper path for toner contamination. Clean as necessary.

Procedure

1 The Bias Transfer Roll (BTR) Assembly is contaminated.

Y: Replace the BTR Assembly.

N: Go to step 2.

2 If the spots occur at approximately 94.0mm intervals, the Drum has possibly caused the deletions. Replace the EP Cartridge with a new one. The problem is solved.

Y: Go to Final Actions.

N: Go to step 3.

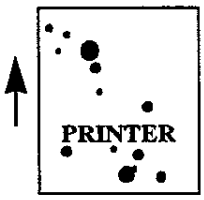
3 The spot deletions occur at approximately 62.0mm intervals. There are scratches or contamination on the Heat Roll/Pressure Roll surface.

Y: Clean the Heat Roll/Pressure Roll or replace the Fuser Assembly.

N: Replace the Fuser Assembly.

7.5.14 Unfused Image Procedure

Sample Image **Definition**



There are toner deposits in non-image areas of the print.

1 Replace the paper in the paper tray. Problem is solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 Enter Diagnostic Mode 3 (5.2.3 Diagnostic Mode 3). Fuser Temp NV (70) parameter is set to default (5).

Y: Go to step 3.

N: Correct the parameter setting.

3 Image quality is light.

Y: *Go to RAP 7.5.9 Light Prints.*

N: Go to step 4.

4 Generate a Print Engine Test Print. The Heat Lamp lights while the printer is operating.

Y: Go to step 5.

N: Go to *RAP 7.4.8 Quartz Heater Failure.*

5 There is damage or contamination on the Heat Roll or Pressure Roll Assembly surface.

Y: Clean the Heat Roll/Pressure Roll or replace the Fuser Assembly.

N: Go to step 6.

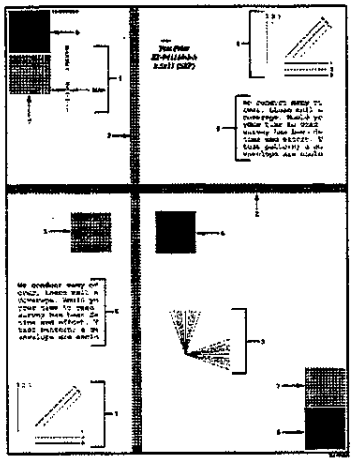
6 The Heat Roll and Pressure Roll Assemblies have the appropriate pressure between them.

Y: Replace the Fuser Assembly.

N: In the following order, replace:

- Fuser Assembly
- Print Engine Controller
- System Controller

7.5.15 Misregistered Image



Definition

Displaced position of the image from its intended position on the print. See *Figure 7.5.2.2 System Controller Test Print Pattern.*

Procedure:

1 Make sure the paper trays are installed properly and the pressure plates and snubbers (metal tabs located on the front of the paper trays) are not damaged.

Y: Go to step 2.

N: Repair or replace the Paper Tray.

2 The paper path, between the paper trays and the Registration Roll, is free of obstructions.

Y: Go to step 3.

N: Clean or repair the paper path components.

3 The vertical registration varies between prints.

Y: Replace the Registration Rolls.

N: Go to step 4.

4 Perform the Vertical Registration and Horizontal Registration adjustments (see *5.2.3.1 Setting and Verification of Registration*).

Does the registered image meet specification?

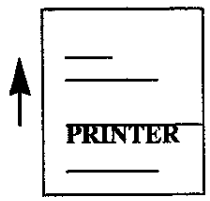
Y: Problem resolved

N: Replace the Paper Tray. If the problem persists, replace the following components:

- Paper Handling Unit Assembly
- Drive Motor Assembly
- Printer Engine Controller.

7.5.16 Streaks

Sample Image



Definition

Unnecessary streaks run across the entire or partial page in a horizontal or vertical direction. The width of these streaks should be less than 1.0mm.

Procedure

1 Remove the EP Cartridge and inspect the surface of the Photoreceptor for scratches and bands of toner. The Photoreceptor is free from defects.

Y: Go to step 2.

N: Replace the EP Cartridge, if necessary.

2 Inspect the Fuser Heat and Pressure Rolls for contamination or damage. The Fuser Heat Roll/ Pressure Rolls are free from damage or contamination.

Y: Go to step 3.

N: Clean or replace the Fuser Assembly.

3 Inspect the Bias Transfer Roll (BTR) for cleanliness/damage. The Bias Transfer Roll is free from contamination or defects.

Y: Go to step 4.

N: Clean or replace the BTR, as necessary.

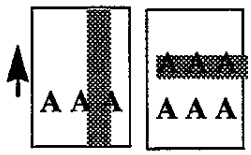
4 Inspect the paper path for contamination/obstruction. The paper path is free from contamination or debris.

Y: If the problem persists, go to *RAP 7.4.25 Electrical Noise.*

N: Clean/repair the paper path.

7.5.17 Residual Image

Sample Image



Definition

A ghost image, either from a previously printed page or the page in progress, is transferring onto the print due to incomplete cleaning at the end of printing cycle.

Procedure

1 Replace the paper in the paper tray with new paper. The problem is solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 The Bias Transfer Roll (BTR) is contaminated.

Y: Replace the BTR Assembly.

N: Go to step 3.

3 If the ghost images occur at approximately 94.0mm intervals, the Drum has possibly caused this problem. (If the ghost images occur at approximately 53.0mm intervals, the Magnet Roll has possibly caused this problem.) Replace the EP Cartridge with a new one. The problem is solved.

Y: Go to Final Actions.

N: Go to step 4.

4 The ghost images occur at approximately 61 or 62 mm intervals, and there are scratches or contamination on the Heat Roll or Pressure Roll surfaces.

Y: Clean or replace the Fuser Assembly.

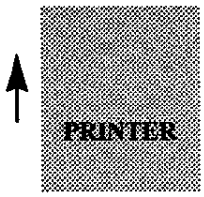
N: Go to step 5.

5 Enter Diagnostic Mode 3 (5.2.3). The Fuser Temperature NV (70) parameter is set to the default (5).

Y: Go to Final Actions.

N: Correct the parameter setting.

7.5.18 Background

Sample Image	Definition
	There is contamination in the entire or partial non-image areas of the print.

Procedure

1 Ensure that the print density setting (*5.1.4.7 System Menu*) is set to the default value (3).

Y: Go to step 2.

N: Reset the print density setting to the default (3).

2 Cover the Laser Assembly window (laser beam outlet) using a piece of paper, and generate a test print. Background is still present.

Y: *Go to RAP 7.4.24 HVPS Failure.*

N: Go to step 3.

3 Inspect the HVPS BCR/Developer Bias contacts and also the Earth Ground contacts to the EP Cartridge for damage or contamination. The contacts are free from contamination and/or damage.

Y: Go to step 4.

N: Clean/repair the contacts or replace the following components, as required:

- BTR Chute Assembly
- HVPS
- Cartridge

4 The HVPS DB (DC) has faulty output voltage. Refer to *REP 5.2.1.23 DG 72 HVPS (Developer Bias DC)* and perform DG 72.

Y: Go to *RAP 7.4.24 HVPS Failure.*

N: Go to step 5.

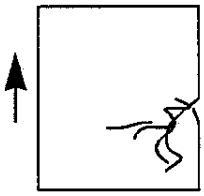
5 Replace the EP Cartridge with a new one. The problem is solved.

Y: Go to Final Actions.

N: Replace the HVPS.

7.5.19 Damaged Prints

Sample Image



Definition

There are wrinkles, creases, or tears on the prints.

Procedure

1 Replace the paper in the paper tray with new paper. Problem is solved.

Y: Use new paper (and ask the customer to keep paper stock in a dry place).

N: Go to step 2.

2 The image is skewed.

Y: *Go to RAP 7.5.22 Skewed Image.*

N: Go to step 3.

3 Observe where the damage is occurring, before or after the Fuser. Damage occurs before the Fuser.

Y: Inspect for burrs, obstacles, or contaminated spots/rolls along the paper path, before the Fuser, and repair/replace the faulty component, including the EP Cartridge.

N: Go to step 4.

4 The damage occurs during or after fusing.

Y: Inspect for burrs, obstacles, damage, or contaminated spots/rolls along the paper path, including or after the Fuser, and repair/replace the faulty component, including the Fuser Assembly.

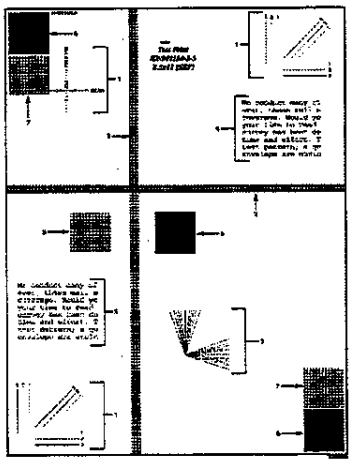
N: Go to step 5.

5 The damage occurs during the exit phase of paper transportation.

Y: Clean/align/replace the exit components, including any options.

N: The problem is resolved. Go to Final Actions.

7.5.20 True Res Smoothing



Definition

TrueRes Smoothing is a technology that smooths the jagged lines-most noticeably on curved, near-vertical, and near-horizontal lines. The incidence of jagged lines should be noticeably less on prints with TrueRes enhancement switched on. See *Figure 7.5.2.2 System Controller Test Print Pattern* for a full-size illustration.

Initial Action:

Ensure that TrueRes Smoothing is switched on, in the PCL or PS Menus (5.1.4 Menu Mode).

Procedure:

1 Run five System Controller test prints, (see *5.1.4.8 Test Menu*). Save the last two for analysis and mark them TrueRes.

2 Switch OFF TrueRes and run five prints. Again, save the last two for analysis and mark them TrueRes off.

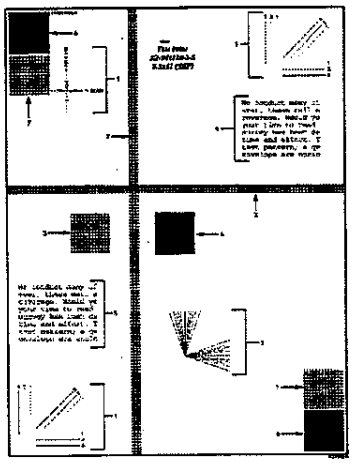
3 Use a loupe or other magnifier to compare the prints in step 1 with the prints in step 2 for differences in jaggy lines on curved, near-vertical, and near-horizontal lines. There is a visual difference.

Y: Problem resolved, see *NOTE*.

N: Replace the System Controller PWB.

NOTE: When the problem has been resolved, return to RAP 7.5.3 Image Quality Checkout to verify that no other image quality defects exist.

7.5.21 Resolution



Definition

At 600 DPI, two pixel lines and halftone patches cannot be reproduced clearly on the print. See *Figure 7.5.2.2 System Controller Test Print Pattern Legend.*

Initial Action:

- Ensure the resolution is set to 600 DPI, 5.1.4 Menu Mode.
- Ensure that the print density (*5.1.4.7 System Menu*) is set to the default value (3).

Procedure:

1 Replace the EP Cartridge. The problem is resolved.

Y: Return to Final Actions.

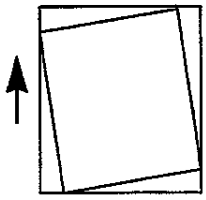
N: Replace the following in sequence to resolve the problem:

- Laser Assembly
- High Voltage Power Supply (HVPS)

NOTE: After problem is resolved, reinstall the old EP Cartridge.

7.5.22 Skewed Image

Sample Image



Definition

The image is not parallel to the edges of the print sheet.

Procedure

1 The paper trays are installed incorrectly, or the paper is loaded incorrectly into the tray.

Y: Reinstall the paper tray and/or reload the paper (and instruct the customer in correct paper tray installation and paper loading).

N: Go to step 2.

2 Install a new EP Cartridge. The problem is solved.

Y: Go to Final Actions.

N: Go to step 3.

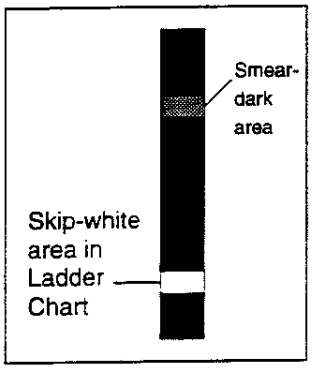
3 There are burrs, obstacles, or contaminated spots in the paper path.

Y: Clean or replace the faulty component.

N: Go to step 4

4 Inspect paper Transportation Rolls, Fuser Assembly and Feedout Rolls for proper operation and wear. If no wear or faulty operation is discovered replace the Laser Assembly.

7.5.23 Skips/Smears



Definition

Skip: Loss or stretching of the image in bands across the process direction.

Smear: The distortion of the image in bands across the process direction that cause it to appear to be blurred or compressed.

Initial Action

Run 5 System Controller Test Patterns.

Procedure

1 There are skips and/or smears on the test prints.

Y: Perform the following in sequence to resolve a Skips or Smears problem:

- Paper stock meets specifications.
- Inspect the Drive Assembly for damaged and worn gears. Replace, if necessary.
- Inspect the Main Drive Motor for smooth operation and wear of drive gear. Replace, if necessary.
- Inspect the BTR Chute Assembly for damage/wear.
- Inspect the Fuser Assembly and Feedout Rolls for smooth operation and wear. Replace worn part(s) if necessary.
- Replace the EP Cartridge if the problem still exists.

N: Go to step 2.

2 There are skips/smears on the customer documents.

Y: Ask the customer to ensure their application is operating properly.

N: Problem resolved. Go to Final Actions.

7.6 Communications Entry RAP

You were directed to this RAP because a problem exists where the customer is unable to communicate to the printer via a Host computer.

Procedure

1 Print a Configuration Sheet. The Configuration Sheet printed successfully.

Y: Go to step 2.

N: Go to *RAP 7.2.1 Entry Level RAP* and troubleshoot the printer.

2 The printer has Connectivity Option PWB(s) installed.

Y: Go to step 3.

N: Go to *RAP 7.6.1 Serial / Parallel RAP.*

3 The Configuration Sheet shows the parameters for each Connectivity Option PWB installed.

Y: Go to step 4.

N: Go to step 7.

4 The Configuration Sheet indicates that Parallel Port Enable is On.

Y: Go to step 5.

N: Configure the Parallel Port Enable to On and go to step 5.

5 Connect an Anacom G80 or equivalent test box to the printer parallel port and send a job to the printer. The job prints successfully.

Y: Go to step 6.

N: Replace the System Controller PWB.

6 The job prints free of data corruption.

Y: Go to step 7.

N: Replace the System Controller PWB.

7 The LocalTalk Option PWB is installed in the printer.

Y: Go to *RAP 7.6.2 LocalTalk.*

N: Go to step 8.

8 The Token Ring Option PWB is installed in the printer.

Y: Go to *RAP 7.6.4 Token Ring.*

N: Go to *RAP 7.6.3 Ethernet.*

7.6.1 Serial / Parallel RAP

You were directed to this RAP because the printer does not respond to commands or the printer responds incorrectly to commands sent from the Host; however, a configuration sheet can be printed.

Initial Actions

- Switch the printer power OFF.
- Disconnect and reconnect the host interface cable from the serial and/or parallel interface port(s). Notify the customer if any visual signs of damage to the cable(s) are noticed.
- Switch the printer power ON.
- Generate a Configuration Sheet and go to step 1.

Procedure

1 The interface being used is serial.

Y: Go to step 2.

N: Go to step 3.

2 Review the configuration Sheet and verify that the customer's HOST Serial Configuration is the same as the Configuration Sheet. The Configuration matches the HOST computer the customer is using.

Y: Go to step 3.

N: Configure the printer to match customer's computer, then go to step 3.

3 Review the Configuration Sheet. The Serial and/or Parallel Interfaces is(are) indicated as "Port Enabled-ON"

Y: Go to step 4.

N: Configure "Enable Port-ON" for interface(s) being used by customer. Once properly enabled, go to step 4.

4 Generate a Configuration Sheet and verify "Enable Port-ON" for interface(s) being used. The Configuration Report indicates "Enable Port-ON" for interface(s) being used.

Y: Go to step 5.

N: Replace the System Controller PWB, PL 12.

5 Connect the Anacom G80 or similar test box to the printer port(s) and send a test job(s). The job prints correctly.

Y: Go to step 6.

N: Replace the System Controller PWB, PL 12.

6 The problem is either in the Host Interface Cable(s) or the Host System(s). The problem is found and resolved.

Y: Go to Final Actions.

N: Call for technical assistance.

7.6.2 LocalTalk

You were directed to this RAP because the printer does not respond to commands or the printer responds incorrectly to commands sent from the Host; however, a configuration sheet can be printed.

Initial Actions

Perform all succeeding steps in the following order:

- Power OFF the printer.
- Disconnect the Host Interface Cable from the LocalTalk PWB.
- Reseat the LocalTalk PWB into its connector on the System Controller.
- Reconnect the host interface cable. Notify the customer of any signs of cable damage.
- Power ON printer.
- Generate a Configuration Sheet and go to step 1.

Procedure

1 Review the Configuration Sheet. The LocalTalk PWB is listed on the Configuration Sheet.

Y: Go to step 2.

N: Go to step 5.

2 Ask the customer's System Administrator to select the CHOOSER utility on the Apple Host System. AppleTalk is reported as being ACTIVE.

Y: Go to step 3.

N: Ask your System Administrator to activate LocalTalk; then go to step 3.

3 While in the CHOOSER utility, ask the System Administrator to select one of the LaserWriter compatible printer icons. The name of the printer being serviced is listed as being active on the network.

Y: Go to step 4.

N: Replace the LocalTalk PWB. If the problem still exists, the problem is in either the Network Cable, the Cable Terminators or the Apple Host. Inform the System Administrator.

4 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y: Go to Final Actions.

N: Go to step 6.

5 Power OFF the printer. Move LocalTalk PWB to another option port on the System Controller PWB. Power ON the printer. Generate a Configuration Sheet. The LocalTalk PWB is listed on the Configuration Sheet.

Y: Leave the LocalTalk PWB in the option port unless both ports are required, in which case, replace the System Controller.

N: Replace LocalTalk PWB.

6 Enable printer Hex Dump on the System Menu and ask the System Administrator to resend the job. Review results with the System Administrator. The System Administrator corrects problem in job and problem is solved.

Y: Go to Final Actions.

N: Call for technical assistance.

7.6.3 Ethernet

You were directed to this RAP because the printer does not respond, or responds incorrectly, to commands sent from the Host; however, a configuration sheet can be printed.

Initial Actions

Perform all succeeding steps in the following order:

- Power OFF the printer.
- Disconnect the host interface cable from the Ethernet PWB.
- Reseat the Ethernet PWB into its connector on the System Controller PWB.
- Reconnect the host interface cable. Notify customer of any signs of cable damage.
- Power ON the printer.
- Generate a Configuration Sheet and go to step 1.

Procedure

1 Review the Configuration Sheet. The Ethernet Menu is listed on the Configuration Sheet.

Y: Go to step 2.

N: Go to step 5.

2 The printer is being used in the NOVELL environment.

Y: Go to step 3.

N: Go to step 6.

3 Ask the System Administrator to select the KERMIT utility on the Host System. KERMIT reports that the printer is being serviced.

Y: Go to step 4.

N: Replace the Ethernet PWB. If the problem still exists, Inform the System Administrator that the problem is either in the host interface cable, the Twisted Pair Concentrator, the Coaxial "T" Connectors, or the host system.

4 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y: Go to Final Actions.

N: Go to step 8.

5 Power OFF the printer. Reseat the Ethernet PWB or move it to an other open option port on the System Controller PWB. Power ON the printer. Generate a Configuration Sheet. The Ethernet Menu is listed on the Configuration Sheet.

Y: Leave the Ethernet in the option port unless both ports are required, in which case, replace the System Controller PWB.

N: Replace the Ethernet PWB.

6 Ask the System Administrator to enter the routing table NETSTAT on the Sun System and PING the printer. The printer responds back to the PING.

Y: Go to step 7.

N: Replace the Ethernet PWB. If the problem still exists, inform the System Administrator that the problem is either in the Host Interface Cable, the Routing Table, or the Host System. Also, the IP Address might be incorrect.

7 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y: Go to Final Actions.

N: Go to step 8.

8 Enable printer Hex Dump on the System Menu and ask the System Administrator to resend the job. Review results with the System Administrator. The System Administrator corrects problem in job and problem is solved.

Y: Go to Final Actions.

N: Call for technical assistance.

7.6.4 Token Ring

You were directed to this RAP because the printer does not respond, or responds incorrectly, to commands from the Host; however, a configuration sheet can be printed.

Initial Actions

Perform all succeeding steps in the following order:

- Power OFF the printer.
- Disconnect the host interface cable from the Token Ring PWB.
- Reseat the Token Ring PWB into its connector on the System Controller PWB.
- Reconnect the host interface cable. Notify customer of any signs of cable damage.
- Power ON the printer.
- Generate a Configuration Sheet and go to step 1.

1 Review the Configuration Sheet. The Token Ring Menu is listed on the Configuration Sheet.

Y: Go to step 2.

N: Go to step 5.

2 Ask the System Administrator to select the NICPRINT utility on the Host system. NICPRINT reports that the printer that is being serviced is "RUNNING".

Y: Go to step 3.

N: Inform the System Administrator that the problem is either in the Host, the MAU, or the host interface cable.

3 Ask the System Administrator to send a print job to the printer. The job prints correctly.

Y: Go to Final Actions.

N: Go to step 4.

4 Enable printer Hex Dump on the System Menu and ask the System Administrator to resend the job. Review results with the System Administrator. The System Administrator corrects problem in job and problem is solved.

Y: Go to Final Actions.

N: Call for technical assistance.

5 Power OFF the printer. Move Token Ring PWB to another option port on the System Controller PWB. Power ON the printer. Generate a Configuration Sheet. The Token Ring PWB is listed on the Configuration Sheet.

Y: Leave the Token/Ring PWB in the option port unless both ports are required, in which case, replace the System Controller PWB.

N: Replace the Token Ring PWB.

Section 8

500-Sheet Paper Feeder Option

Specifications **8-3**
Configuration 8-3
Basic Configuration 8-3
Installation on to the Base Engine 8-5
Electric Specifications 8-6
Power Supply 8-6
Mechanical Specifications 8-6
Dimensions and Weight 8-6

500 Sheet Paper Feeder and Tray Parts List **8-8**
PL 13 500 Sheet Paper Feeder and Tray 8-8

500 Sheet Paper Feeder and Trays REPS **8-10**
Feeder 2 and 3 (Optional) 8-10
500 Chute Assembly 8-11
500 Left Cover 8-12
500 Right Cover 8-13
500 Feed Roll Assembly 8-14
Clutch Lever 8-15
500 Feed Spring 8-16
500 Turn Roll Assembly 8-17
500 Pinch Roll 8-18

No Paper Actuator 8-19
500 Paper Size PWB Assembly 8-20
500 Size Spring 8-21
Tray Latch Spring 8-22
500 Solenoid Assembly 8-23

Paper Transportation 8-24
Paper Transportation Mechanism 8-24
Paper Path 8-25

Drive Power Transmission 8-26

Function of Major Components 8-26
500-Sheet Paper Feeder 8-26
Function 8-26
Locations of Major Components 8-28

500 Sheet Paper Feeder and Trays Wiring Diagrams 8-29
Connector Locators 8-29
Wiring Schematic 8-30
P/J Table 8-31
P216 Pin Layout 8-32

How to Perform Troubleshooting 8-33

RAPs 8-33
Lower Tray Fail (E11) 8-33
Lower 1 Out, Lower 2 Out (C3) 8-35
Lower Tray 1 or Lower Tray 2, Load XX X XX Message (C5) 8-35
Abnormal Operation 8-36
Sensor Assembly Size Failure 8-37

Installation, Removal, and Call Information 8-38

8.1 Specifications

8.1.1 Configuration

8.1.1.1 Basic Configuration

The 500-Sheet Paper Feeder consists of a paper tray (500-Sheet Tray) which can accommodate 500 sheets of paper and a deck (500-Sheet Deck) with a paper feeding mechanism in which the 500-Sheet Tray is loaded.

The 500-Sheet Paper Feeder can be used for both the second and third feeder; the 500-Sheet Paper Deck attached to the bottom of the base engine is referred to as the second feeder (Feeder 2) and that attached to the bottom of the second feeder as the third feeder (Feeder 3). Therefore, the printer can have one or two 500-Sheet Paper Feeders installed.

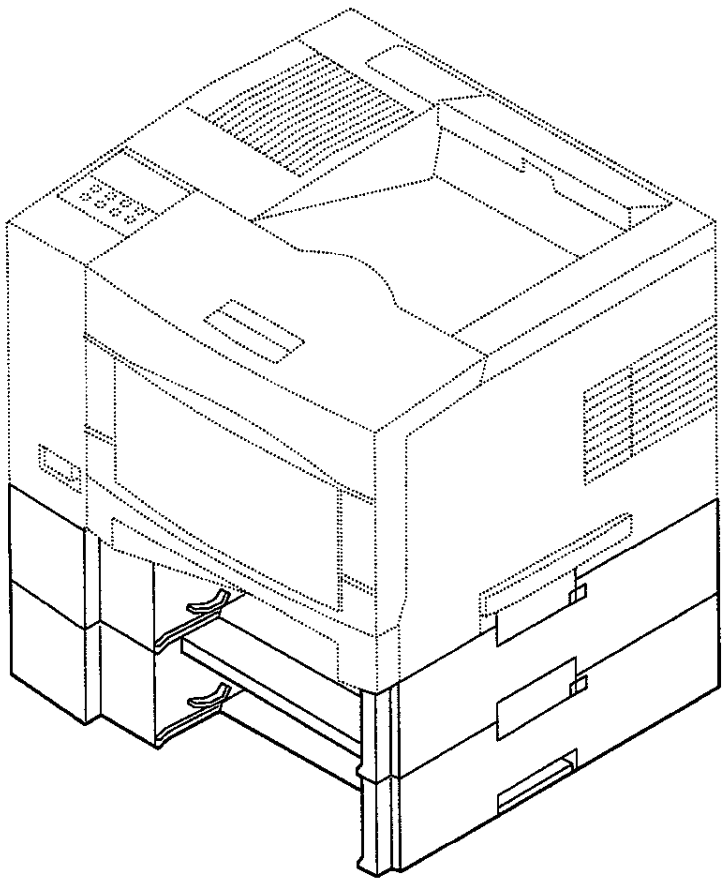


Figure 8.1.1.1.1 Deck without Tray

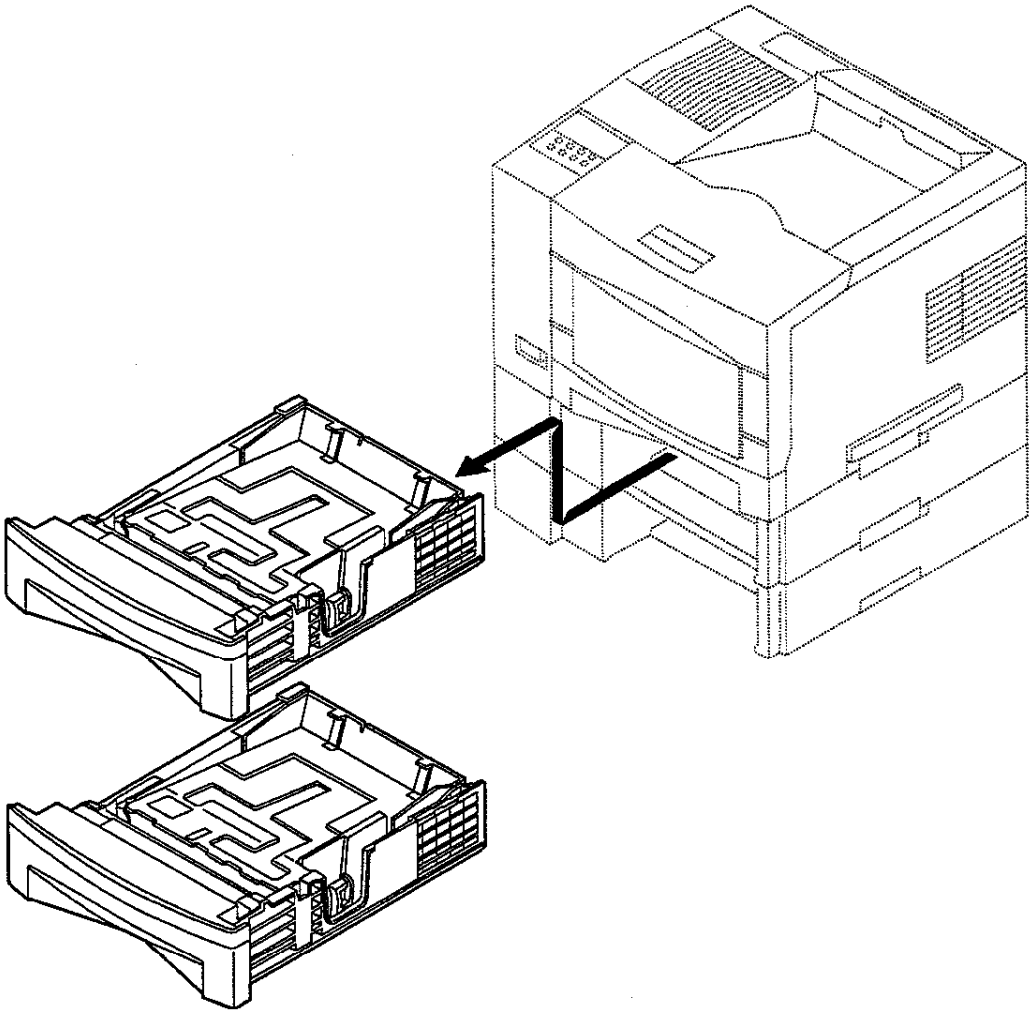


Figure 8.1.1.1.2 Paper Tray

8.1.1.2 Installation on to the Base Engine

See the 4517/4517mp User Guide for the detailed installation procedure.

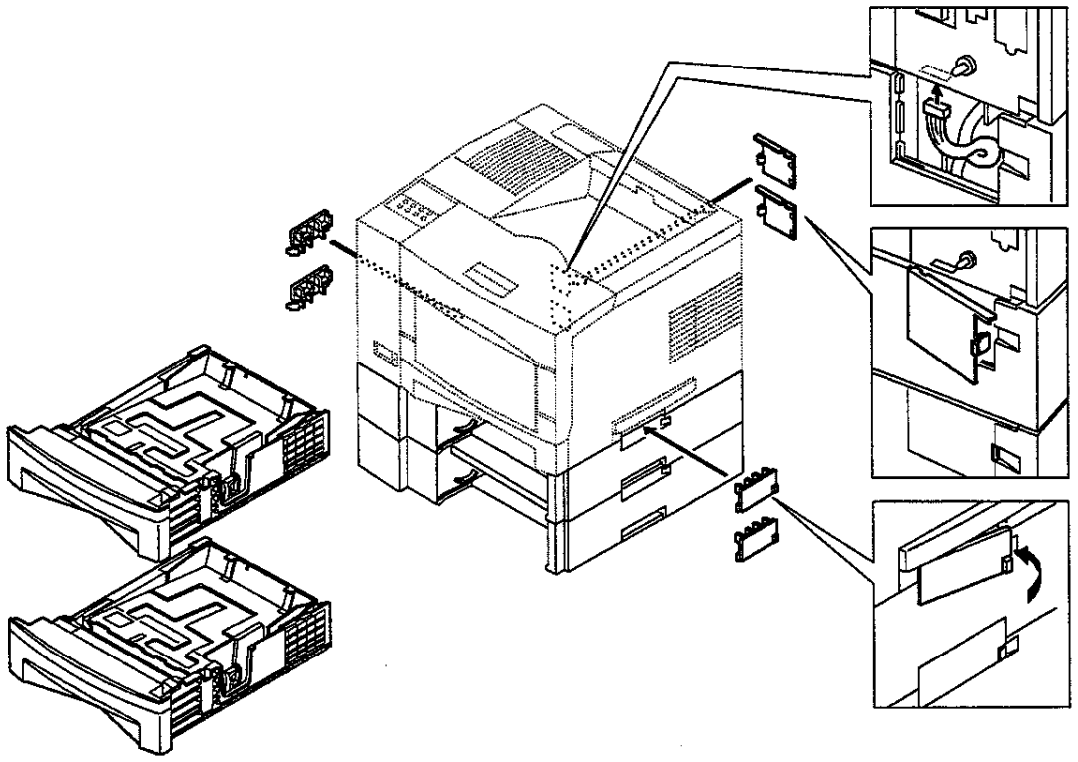


Figure 8.1.1.2.1 Installation on to the Base Engine

8.1.2 Electric Specifications

8.1.2.1 Power Supply

+24V DC and +5V DC are supplied from the base engine.

8.1.3 Mechanical Specifications

8.1.3.1 Dimensions and Weight

	Width	Depth	Height	Weight
Tray + Deck	426 mm	410 mm	120 mm (*1)	4.7kg

(*1) except the pins on the deck for the connection to the base engine.

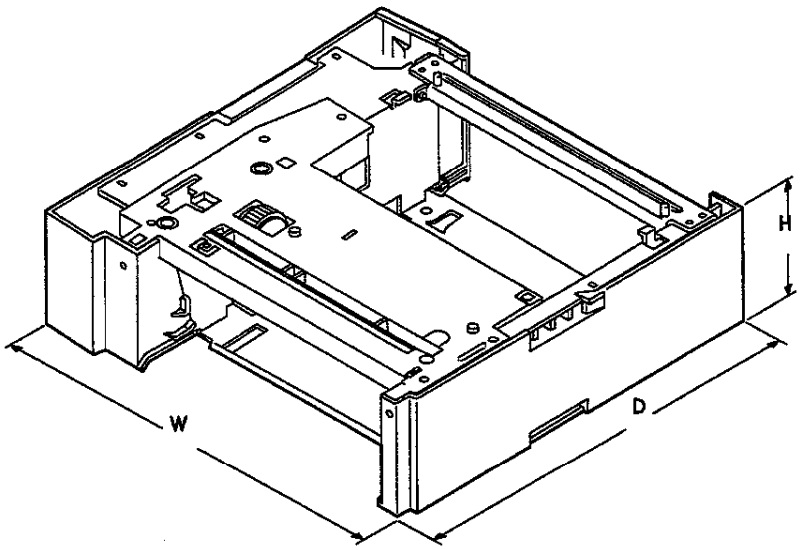


Figure 8.1.3.1.1 Deck

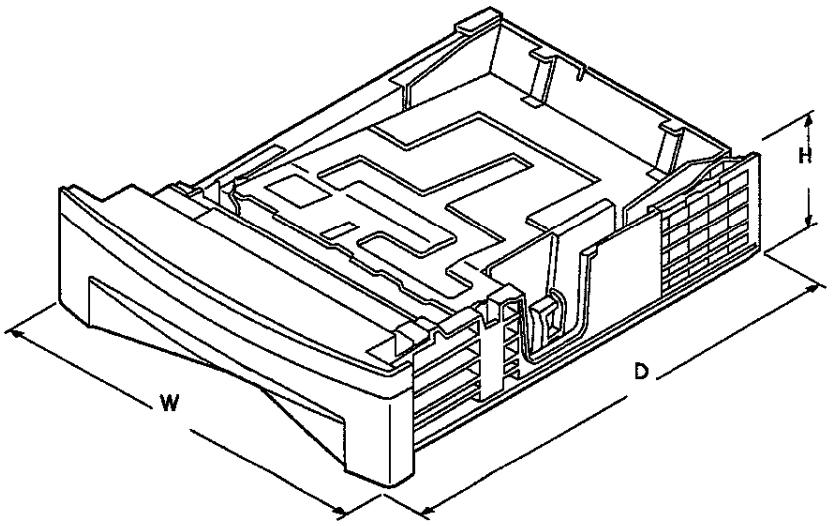
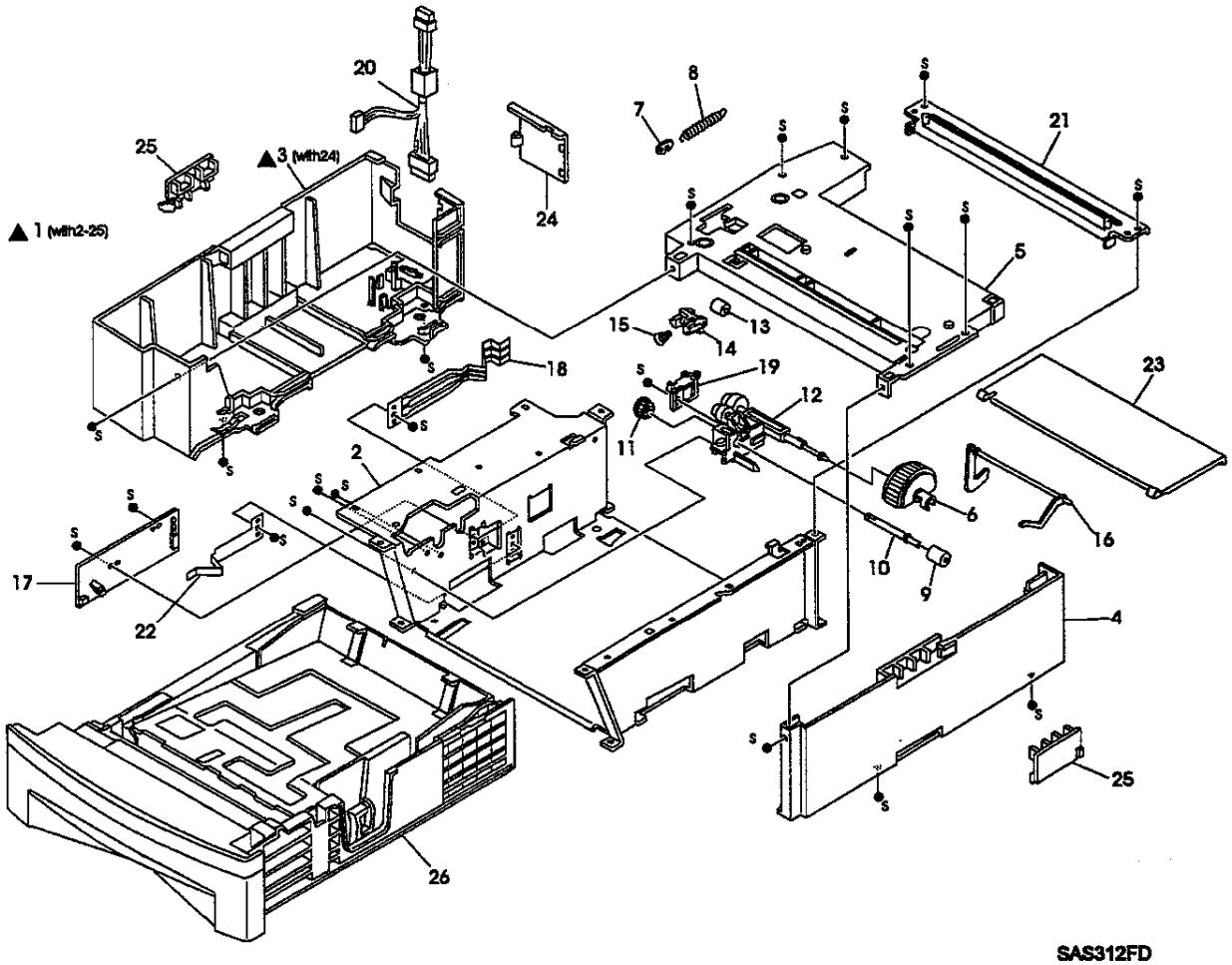


Figure 8.1.3.1.2 Tray

8.2 500 Sheet Paper Feeder and Tray Parts List

8.2.1 PL 13 500 Sheet Paper Feeder and Tray



8.2.2 PL 13 500 Sheet Paper Feeder and Tray

Item	Part	Description
1.	22K42556	500 Feeder Assembly (with item 2-26)
2.	--	500 Frame
3.	--	500 Left Cover (with item 24)
4.	--	500 Right Cover
5.	--	500 Chute
6.	22K34510	500 Feed Roll
7.	--	Clutch Lever
8.	--	500 Feed Spring
9.	22K42751	500 Turn Roll
10.	--	500 Turn Shaft
11.	--	500 Turn Gear
12.	--	Roll Sub-Assembly
13.	--	500 Pinch Roll
14.	--	500 Pinch Holder
15.	--	500 Pinch Spring
16.	120E98362	500 No Paper Actuator
17.	140K64950	500 Paper Size PWB
18.	9E60680	Tray Actuator Spring
19.	121K82950	500 Solenoid
20.	152K68251	500 Harness
21.	--	500 Tie Plate
22.	--	Tray Latch Spring
23.	--	500 Rear Cover
24.	--	Connector Cover
25.	3E29190	Stopper Handle
26.	109R307	500-Sheet Tray

8.3 500 Sheet Paper Feeder and Trays REPS

8.3.1 Feeder 2 and 3 (Optional)

NOTE: The removal procedure for Feeders 2 and 3 are different. Skip the steps for Feeder 3 in the procedure below when Feeder 3 is not installed.

Removal

1 Pull out the Tray of Feeder 2.

2 Pull out the Tray of Feeder 3.

3 Remove the Feeder 2 Connector Cover (1, 2 in the illustration below). Disconnect the connector of the harness of Feeder 2 by pulling downward (3 in the illustration below).

4 Remove the Feeder 3 Connector Cover (1, 2 in the illustration below). Disconnect the connector of the Feeder 3 Connector Harness by pulling downward (3 in the illustration below).

5 Remove the Stopper Handles which secure the printer and Feeder 2 to each other (4, 5 in the illustration below).

6 Remove the Stopper Handles which secure Feeder 2 and Feeder 3 to each other (4, 5 in the illustration below).

7 Lift the printer off Feeder 2.

8 Lift Feeder 2 off Feeder 3.

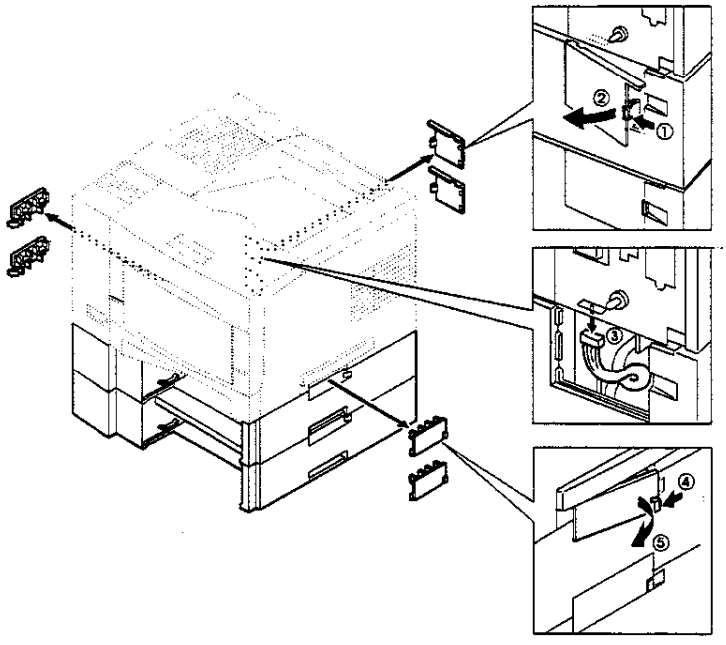


Figure 8.3.1.1 Removing Feeder 2 and 3

Replacement

Perform the removal steps in reverse order.

8.3.2 500 Chute Assembly

NOTE: The removal procedure for the 500 Chute Assembly is the same for Feeders 2 and 3.

Removal

1 Remove Feeder 2 (3) (*REP 8.3.1 Feeder 2 and 3 (Optional)*).

2 Remove the Left Cover (*REP 8.3.3 500 Left Cover*).

3 Remove the Right Cover (*REP 8.3.4 500 Right Cover*).

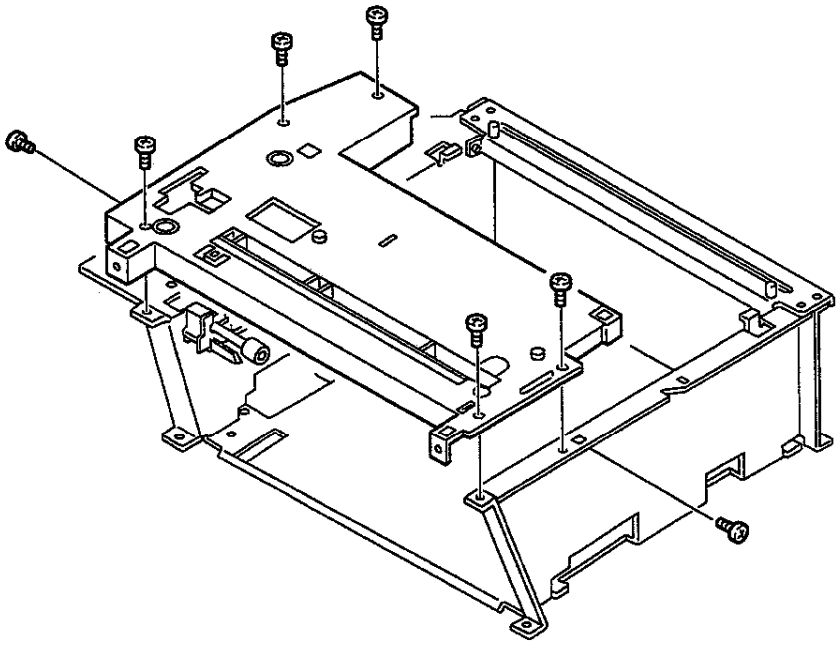
4 Remove the two screws on both sides of the 500 Frame Assembly.

5 Remove the five screws which secure the 500 Chute Assembly to the 500 Frame Assembly from the top.

6 Position the No Paper Actuator to clear the No Paper Sensor mounted to the 500 Paper Size PWB.

7 Lift off the 500 Chute Assembly.

NOTE: When removing the 500 Chute Assembly, turn and raise the No Paper Actuator in order to clear the No Paper Sensor mounted on the 500 Paper Size PWB.



SAS485FA

Figure 8.3.2.1 Removing the 500 Chute Assembly

Replacement

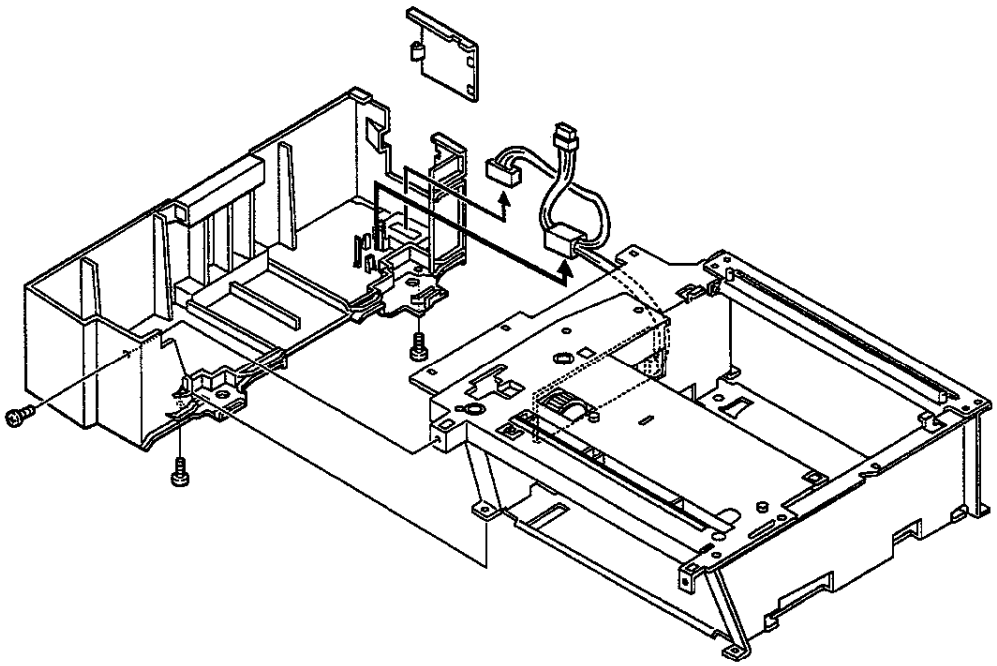
Perform the removal steps in reverse order.

8.3.3 500 Left Cover

NOTE: The removal procedure for the 500 Left Cover is the same for Feeders 2 and 3.

Removal

1 Remove Feeder 2 (3) (*REP 8.3.1 Feeder 2 and 3 (Optional)*).
2 Remove the two screws on the bottom side.
3 Remove the one screw on the front side.
4 Disconnect P/J216 from the 500 Paper Size PWB Assembly.
5 Remove the 500 Left Cover.



SAS472FC

Figure 8.3.3.1 Removing the 500 Left Cover

Replacement

Perform the removal steps in reverse order.

8.3.4 500 Right Cover

NOTE: The removal procedure for the 500 Right Cover is the same for Feeders 2 and 3.

Removal

1 Remove Feeder 2 (3) (*REP 8.3.1 Feeder 2 and 3 (Optional)*).
2 Remove the two screws on the bottom side.
3 Remove the one screw on the front side.
4 Remove the 500 Right Cover.

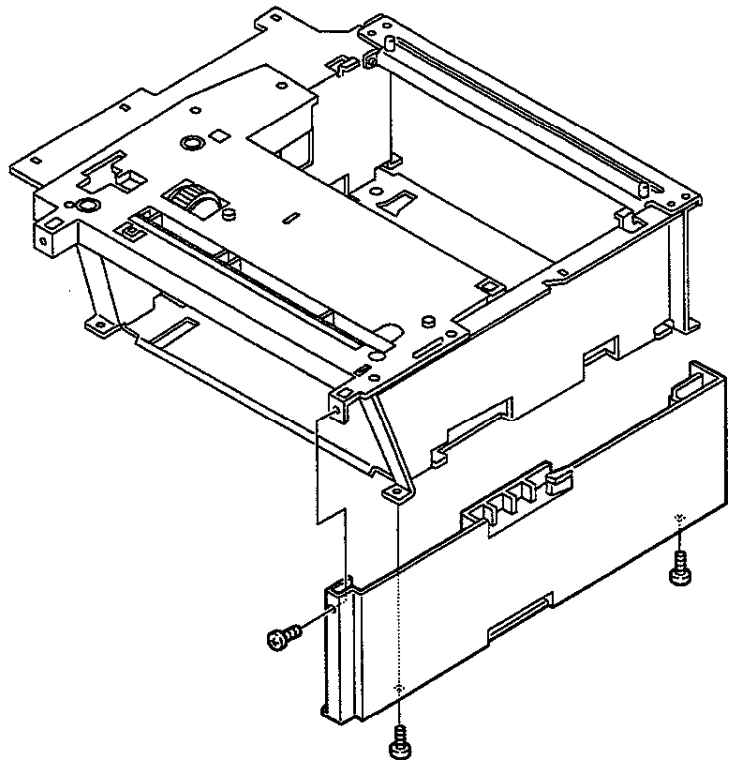


Figure 8.3.4.1 Removing the 500 Right Cover

Replacement

Perform the removal steps in reverse order.

8.3.5 500 Feed Roll Assembly

NOTE: The removal procedure for the 500 Feed Roll Assembly is the same for Feeders 2 and 3.

Removal

1 Remove Feeder 2 (3) (*REP 8.3.1 Feeder 2 and 3 (Optional)*).

2 Place the Feeder Unit with the Left Cover downward.

3 Reach into the 500 Feed Roll Solenoid and manually disengage the 500 Feed Roll latch.

4 Rotate the 500 Feed Roll Assembly by 180 degrees and take the 500 Feed Roll Assembly off of the shaft by opening its latches.

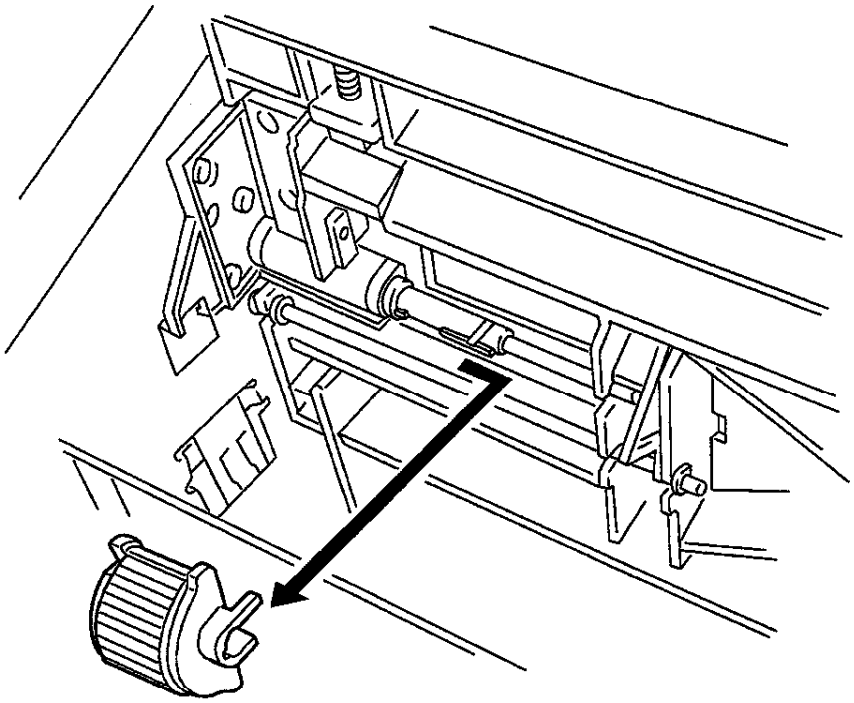


Figure 8.3.5.1 Removing the 500 Feed Roll Assembly

Replacement

Perform the removal steps in reverse order.

8.3.6 Clutch Lever

NOTE: The removal procedure for the Clutch Lever is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Left Cover (*REP 8.3.3 500 Left Cover*).
2 Remove the spring attached to the Clutch Lever (*REP 8.3.7 500 Feed Spring*).
3 Squeeze the top of the shaft holding the Clutch Lever.
4 Remove the Clutch Lever by hand.

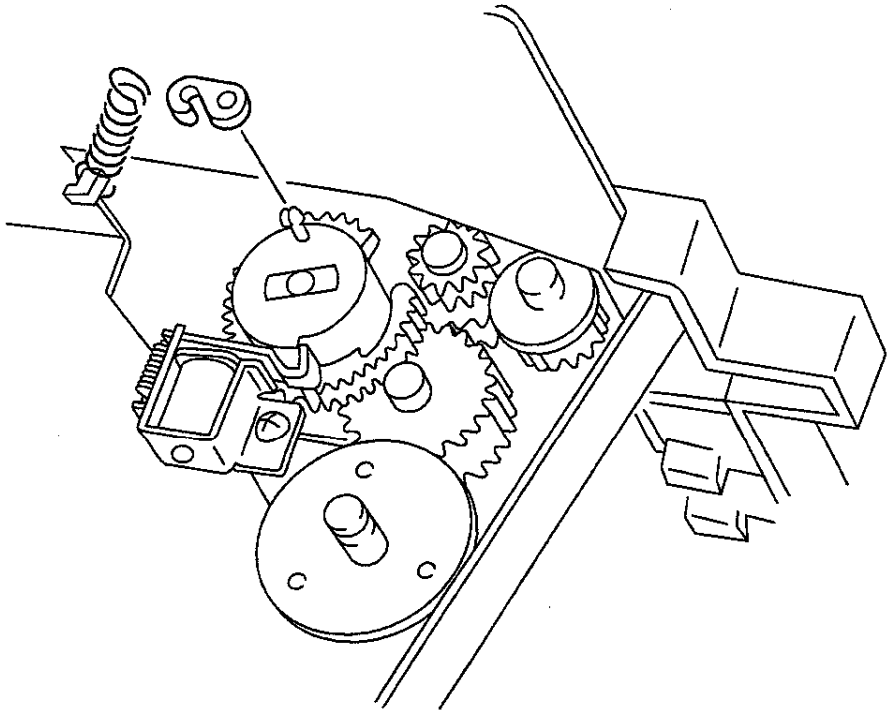


Figure 8.3.6.1 Removing the Clutch Lever

Replacement

Perform the removal steps in reverse order.

8.3.7 500 Feed Spring

NOTE: The removal procedure for the 500 Feed Spring is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Left Cover (*REP 8.3.3 500 Left Cover*).

2 Remove the 500 Feed Spring by hand.

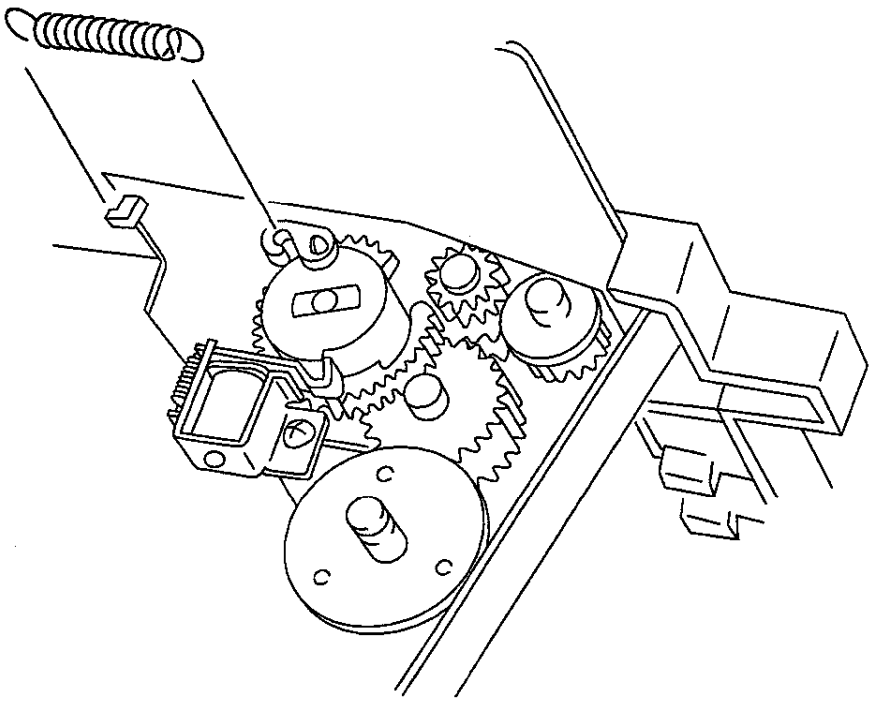


Figure 8.3.7.1 Removing the 500 Feed Spring

Replacement

Perform the removal steps in reverse order.

8.3.8 500 Turn Roll Assembly

NOTE: The removal procedure for the 500 Turn Roll Assembly is the same for Feeders 2 and 3.

Removal

1. Remove the 500 Chute Assembly (*REP 8.3.2 500 Chute Assembly*).
2. Disengage the latch of the gear of the 500 Turn Roll Assembly and pull the Roll Assembly inward together with the shaft.
3. Release the latch and slide the Roll Assembly off of the shaft.

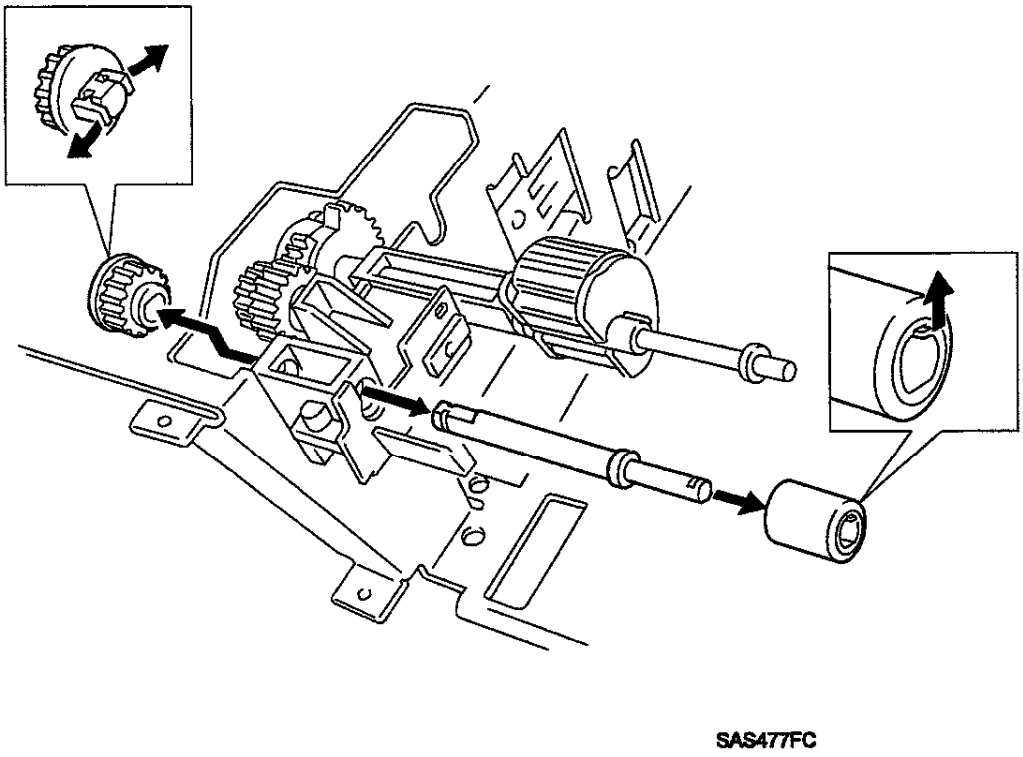


Figure 8.3.8.1 Removing the 500 Turn Roll Assembly

Replacement

Perform the removal steps in reverse order.

8.3.9 500 Pinch Roll

NOTE: The removal procedure for the 500 Pinch Roll is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Chute Assembly (*REP 8.3.2 500 Chute Assembly*).

2 Push the Latch with a screwdriver to free the Pinch Roll holder from the 500 Chute Assembly.

3 Pull the 500 Pinch Roll along with the holder and the spring downward off of the 500 Chute Assembly.

4 Pry the 500 Pinch Roll off of the holder.

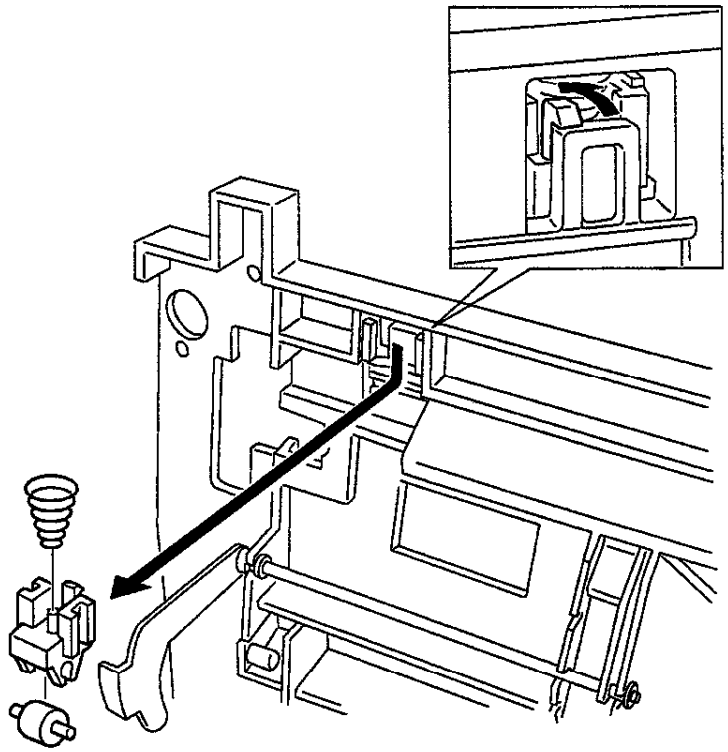


Figure 8.3.9.1 Removing the 500 Pinch Roll

Replacement

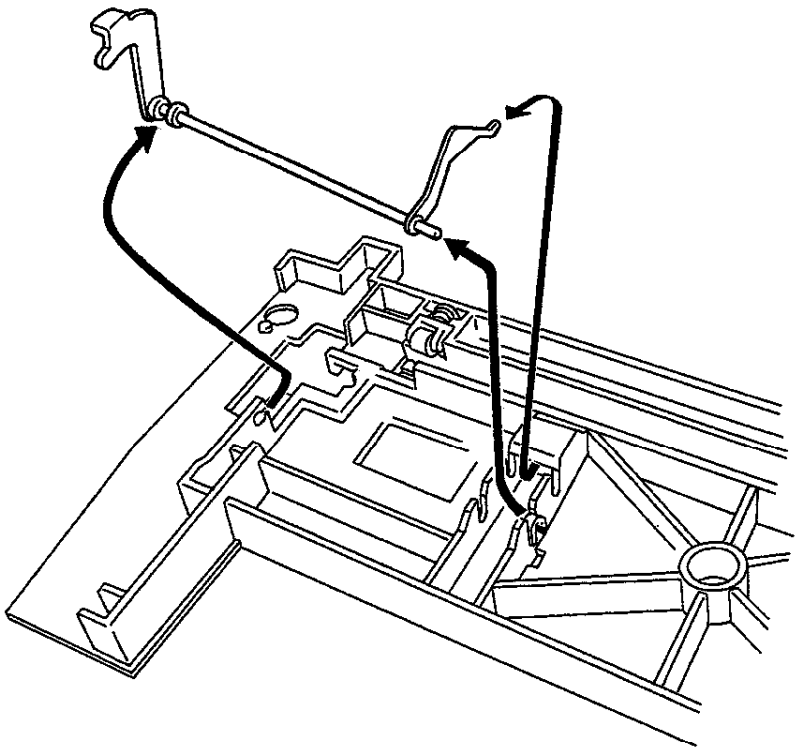
Perform the removal steps in reverse order.

8.3.10 No Paper Actuator

NOTE: The removal procedure for the No Paper Actuator is the same for Feeders 2 and 3.

Removal

1. Remove the 500 Chute Assembly (*REP 8.3.2 500 Chute Assembly*).
2. Put the 500 Chute Assembly upside down.
3. Push/pry the left end of the Actuator off of the Chute and then shift the right end portion off along the shaft to remove it.



SAS479FC

Figure 8.3.10.1 Removing the No Paper Actuator

Replacement

Perform the removal steps in reverse order.

8.3.11 500 Paper Size PWB Assembly

NOTE: The removal procedure for the 500 Paper Size PWB Assembly is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Left Cover (*REP 8.3.3 500 Left Cover*).
2 Remove the two screws which secure the 500 Paper Size PWB Assembly.
3 Lift the PWB Assembly and disconnect the one connector on the parts-mounted side of the PWB.
4 Remove the PWB Assembly.

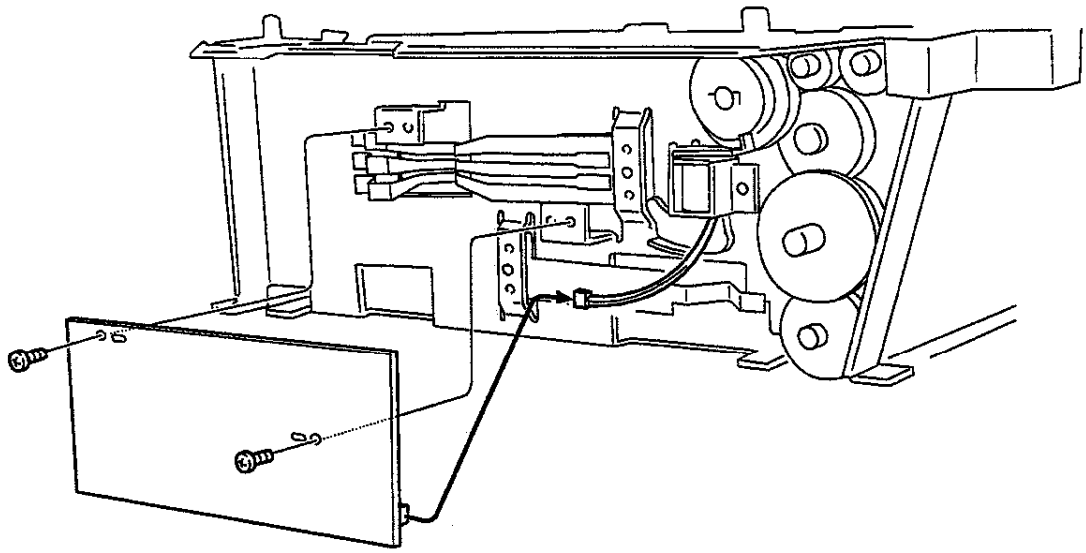


Figure 8.3.11.1 Removing the 500 Paper Size PWB Assembly

Replacement

Perform the removal steps in reverse order.

8.3.12 500 Size Spring

NOTE: The removal procedure for the 500 Paper Size PWB Assembly is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Paper Size PWB Assembly (*REP 8.3.11 500 Paper Size PWB Assembly*).
2 Remove the one screw which secures the 500 Size Spring, from the inside of the Feeder.
3 Take the 500 Size Spring rearward off the Feeder.

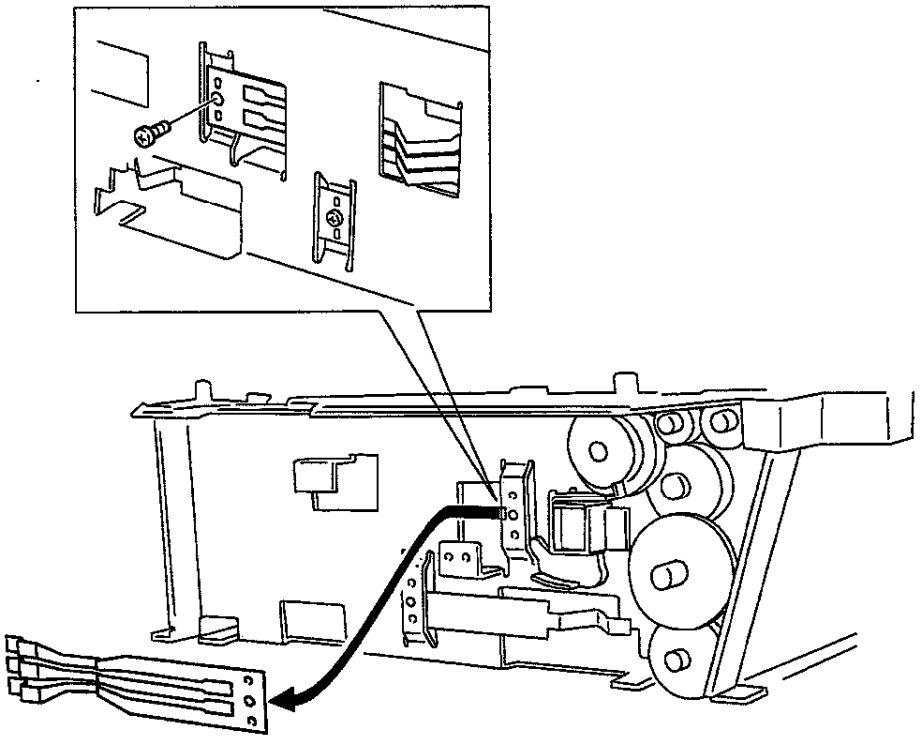


Figure 8.3.12.1 Removing the 500 Size Spring

Replacement

Perform the removal steps in reverse order.

8.3.13 Tray Latch Spring

NOTE: The removal procedure for the Tray Latch Spring is the same for Feeders 2 and 3.

Removal

1 Remove the 500 Paper Size PWB Assembly (*REP 8.3.11 500 Paper Size PWB Assembly*).
2 Remove the one screw which secures the Tray Latch Spring from the inside of the Feeder.
3 Move the Tray Latch Spring towards the front to remove it from the Feeder.

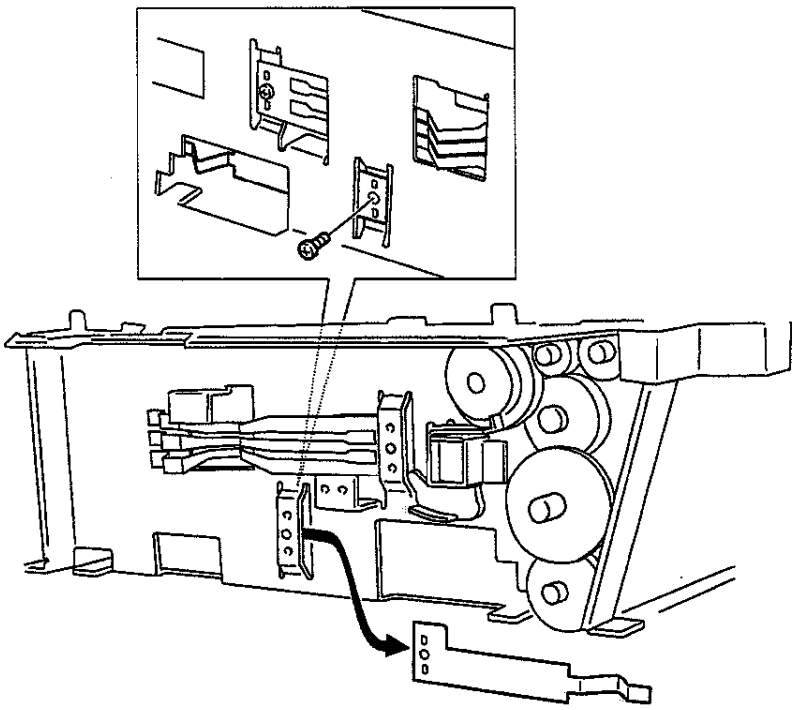


Figure 8.3.13.1 Removing the Tray Latch Spring

Replacement

Perform the removal steps in reverse order.

8.3.14 500 Solenoid Assembly

NOTE: The removal procedure for the 500 Solenoid Assembly is the same for Feeders 2 and 3.

Removal

1. Remove the 500 Left Cover (*REP 8.3.3 500 Left Cover*).
2. Remove the one screw which secures the 500 Solenoid Assembly.
3. Disconnect the connector on the 500 Paper Size PWB Assembly, and take off the 500 Solenoid Assembly.

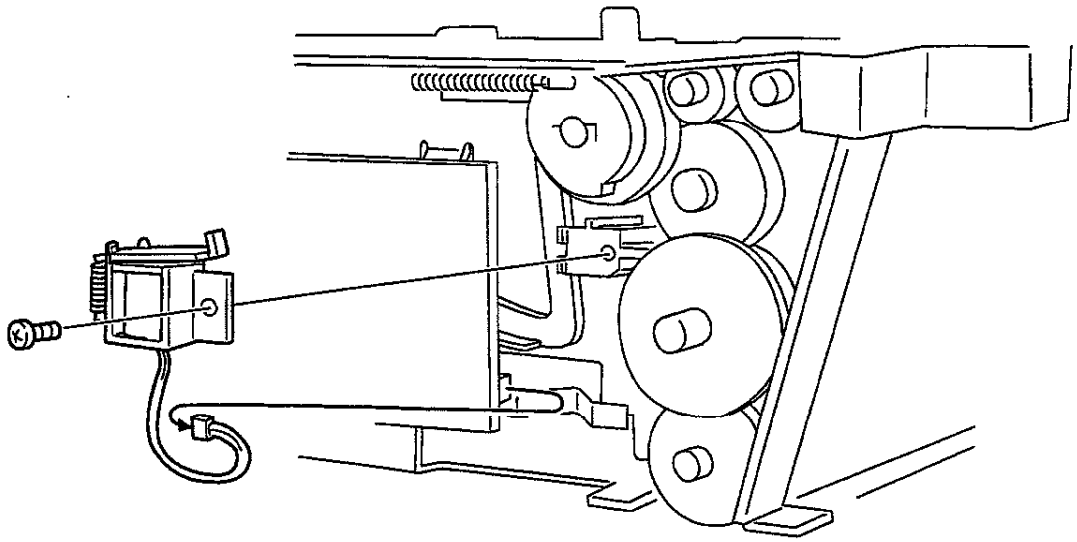


Figure 8.3.14.1 Removing the 500 Solenoid Assembly

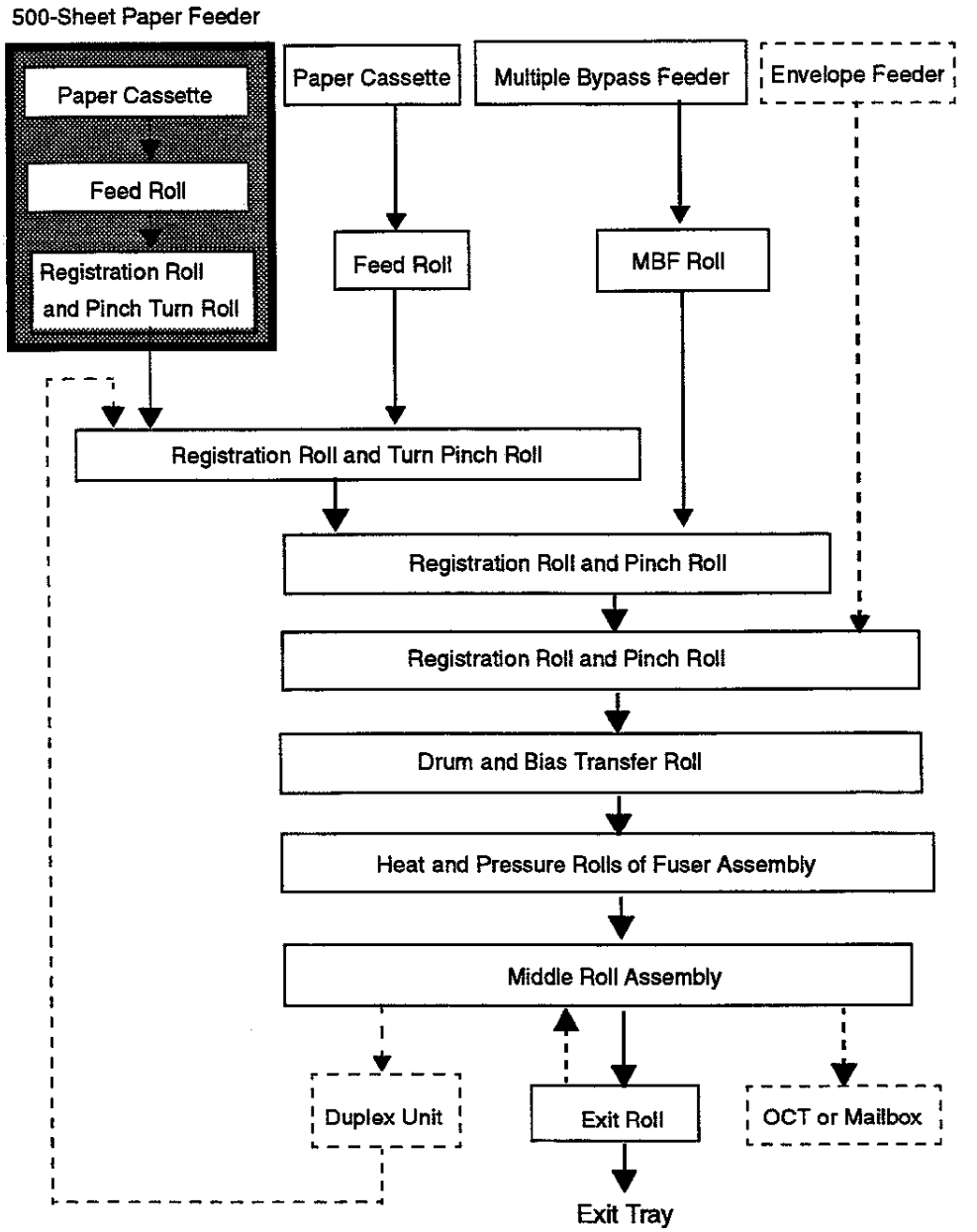
Replacement

Perform the removal steps in reverse order.

8.4 Paper Transportation

8.4.1 Paper Transportation Mechanism

The paper transport mechanism is shown below along the path of paper travel. (For the paper transportation in other devices, refer to their respective service manuals.)



(The boxes in dashed lines indicate other optional devices.)

8.4.2 Paper Path

Figure 8.4.3 shows the path of paper travel through the printer with a 500-Sheet Paper Feeder installed.

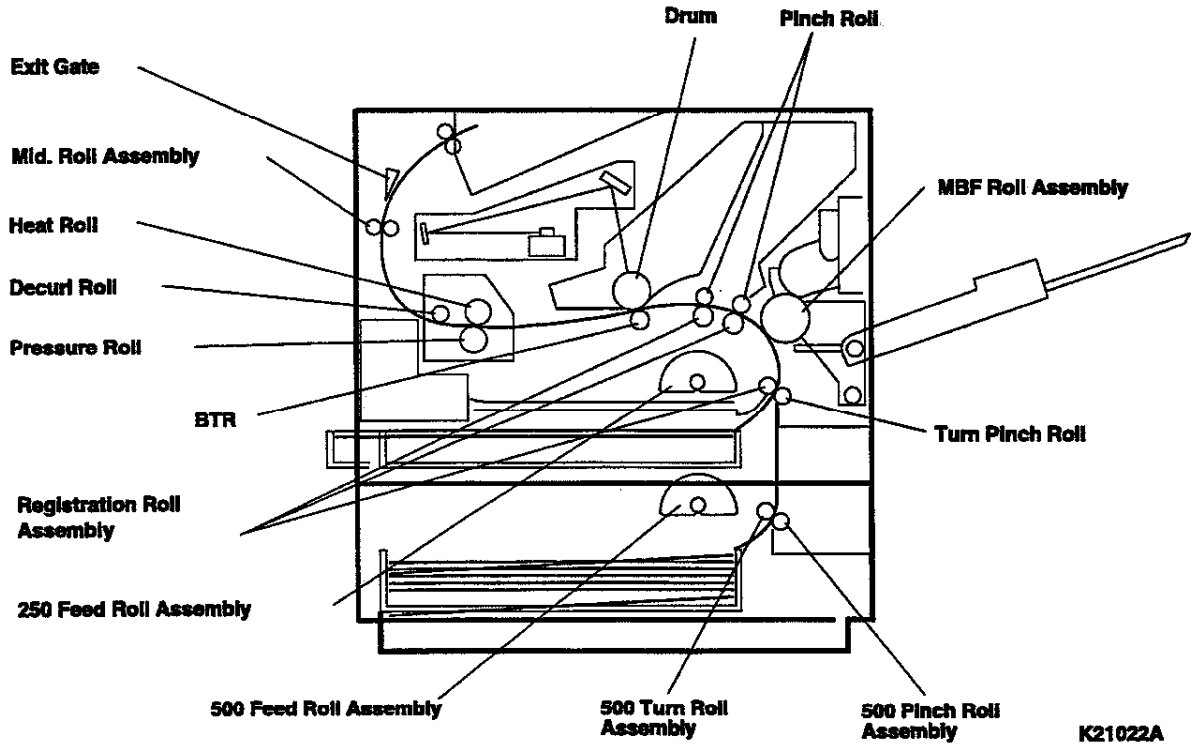


Figure 8.4.3 Paper Path

8.5 Drive Power Transmission

The drive power is generated by the Drive Assembly of the base engine and transmitted to the 500-Sheet Paper Feeder.

8.6 Function of Major Components

The function of the major components is described below with reference to the drawings.

8.6.1 500-Sheet Paper Feeder

8.6.1.1 Function

- 500-Sheet Paper Tray:

  This Tray can accommodate up to 500 cut sheets of plain paper.

  The Tray is provided with a Paper Guide at the rear part on its right side. When the Paper Guide is set to a desired paper size, the straps of the Actuator on the left side of the Tray are expanded or compressed. The middle part of each strap thereby projects or retracts, forming the pattern of projections (number and position) which corresponds to the paper size. The projections press the Size Spring on the Feeder PWB against the Paper Size Switches.

  The Tray is provided with a slot for allowing paper from the lower (bottom) Feeder to pass through into the printer between the handle portion at the front and the body portion which accommodates paper.

- 500 Paper Size PWB Assembly:

  Three Paper Size Switches, Tray Latch Spring and Tray Actuator Spring are mounted on this printed wiring board.

- Paper Size Switches:

  These switches are directly mounted on the PWB. They are On when being pressed by the Size Spring. The Tray (loaded or unloaded) and the size of paper are detected by the combination of On and Off switches.

- Tray Actuator Spring:

  The Tray Actuator Spring presses the Size Spring against the Paper Size Switches with the pattern of projections corresponding to the paper size.

- Tray Latch Spring:

  This Latch is a spring which secures the 500-Sheet Tray in place.

- 500 Solenoid Assembly:

  This solenoid controls the rotation (On and Off) of the Registration Roll Assembly and the 500 Feed Roll Assembly.

- Registration Roll Assembly:

  This roll drives paper between the Turn Pinch Roll and the Registration Roll Assembly.

- 500 Feed Roll Assembly:

  This roll rotates once each time the 500 Solenoid Assembly is actuated and pushes a sheet of paper out of the Tray.

8.6.1.2 Locations of Major Components

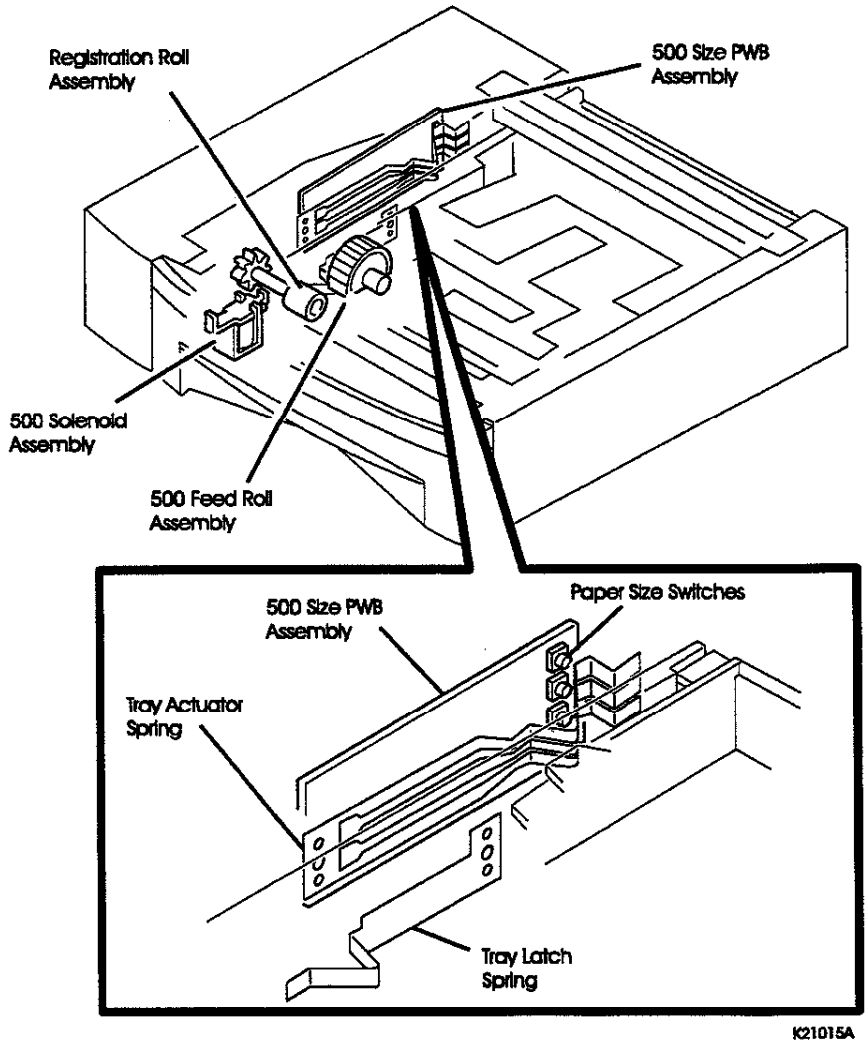
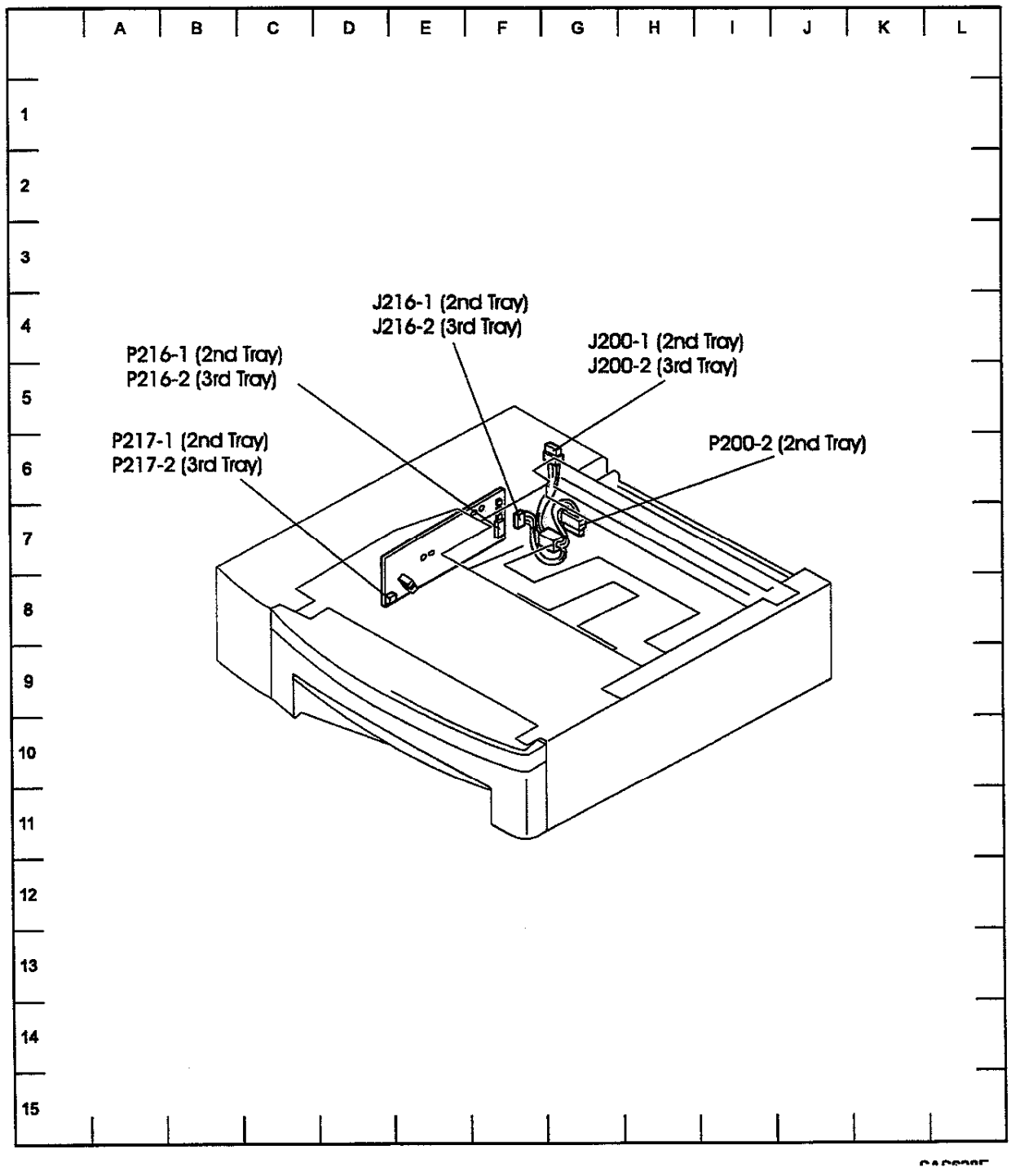


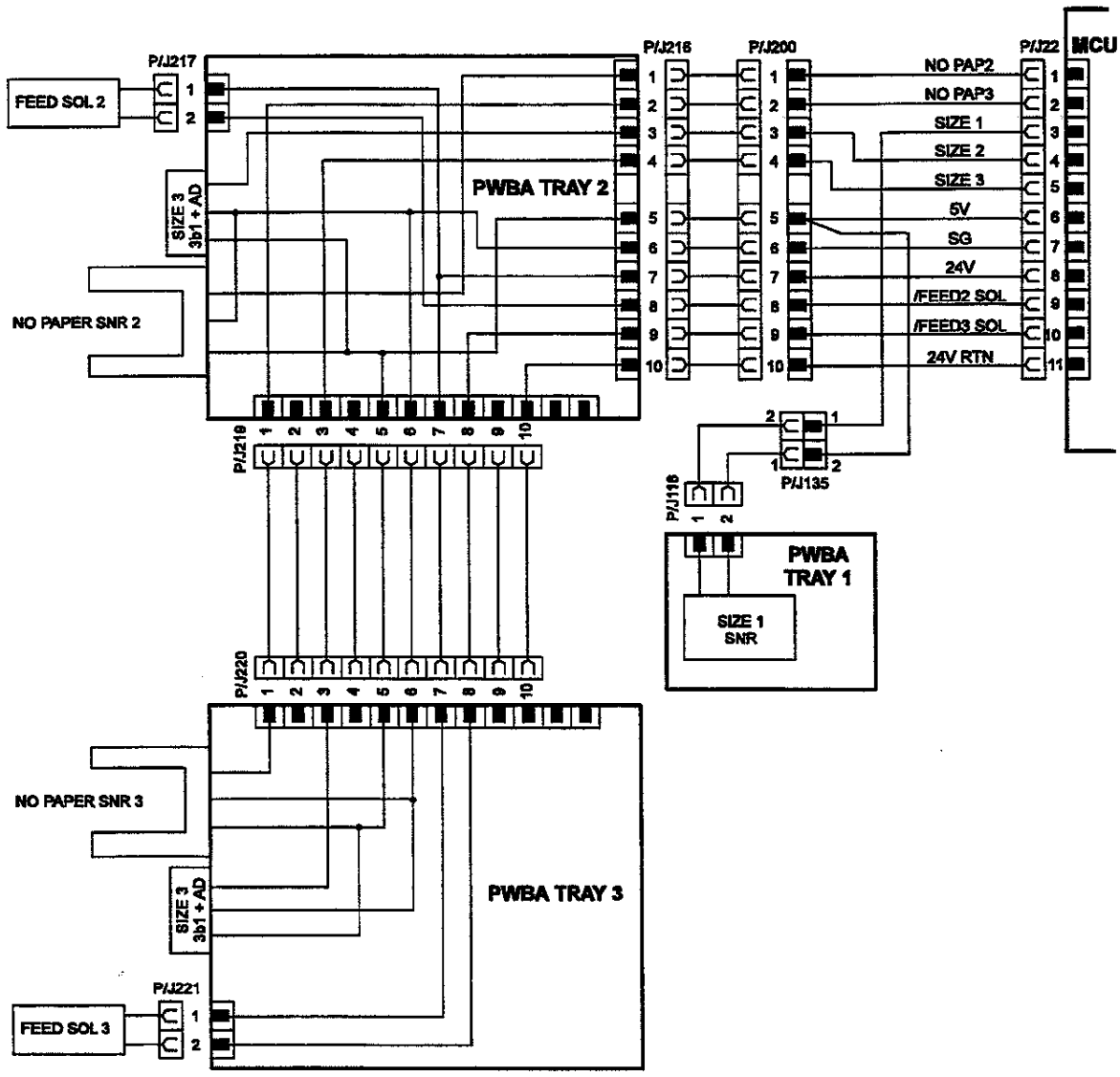
Figure 8.6.1.2.1 Locations of Major Components

8.7 500 Sheet Paper Feeder and Trays Wiring Diagrams

8.7.1 Connector Locators



8.7.2 Wiring Schematic



8.7.3 P/J Table

NOTE: If "-1" is attached on the PJ number, the PJ is a part of the Second Tray; and, if "-2" is attached, the PJ is a part of the third Tray.

PJ	Coordinate	Mounting (*1)		Harness (*2)		Description
		Mounted on	PL	Name (*3)	PL	
200	G7 G6	P: 500 Left Cover J: (*4)	13-3	500 Harness Assembly	13-20	1. Connection between the Tray Harness Assembly of the base engine and the 500 Harness Assembly of the Second Tray. 2. Connection between the Tray Harness Assembly of the Second Tray and the 500 Harness Assembly of the Third Tray.
216	F7	500 Paper Size PWB Assembly	13-17	500 Harness Assembly	13-20	1. Connection between the Tray Harness Assembly of the base engine and the 500 Paper Size PWB Assembly of the Second Tray. 2. Connection between the 500 Harness Assembly of the Second Tray and the 500 Paper Size PWB Assembly of the Third Tray.
217	E8	500 Paper Size PWB Assembly	13-17	@ 500 Solenoid Assembly	13-19	Connection between the 500 Paper Size PWB Assembly and the 500 Solenoid Assembly.

(*1): The "PL" on the "Mounting" column indicates the corresponding parts list and item number in Section 3.

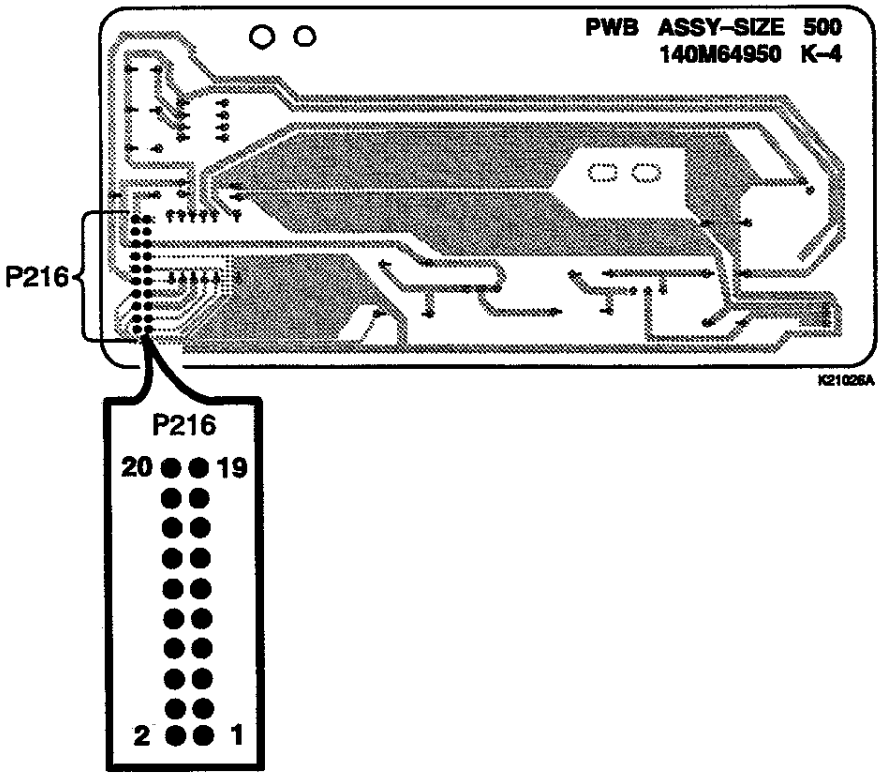
(*2): The "PL" on the "Harness" column indicates the corresponding parts list and item number in Section 3.

(*3): @ at the beginning of the harness name indicates that the harness is a part of the component.

(*4): It has not fixed yet because it is set at installation.

8.7.4 P216 Pin Layout

Refer to the P216 Pin Layout when troubleshooting the 500-Sheet Paper Feeder option.



8.8 How to Perform Troubleshooting

Refer to *8.7.2 Wiring Schematic* in this section for the 500 Sheet Paper Feeder wiring diagram.

8.9 RAPs

8.9.1 Lower Tray Fail (E11)

1 There is +5VDC between P216-5 and P216-6.

Y: Go to step 4.

N: Go to step 2.

2 There is +5VDC between J200-5 and J200-6.

Y: Replace the Deck 2 Harness Assembly.

N: Go to step 3.

3 There is +5VDC between P/J22-6 and P/J22-7.

Y: Replace the Tray Harness Assembly.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

4 There is +5VDC between P220-5 and P200-6.

Y: Go to step 5.

N: Replace the Deck 3 Harness Assembly.

5 There is voltage between P/J22-4 and P/J22-7 and between P/J22-5 and P/J22-7 in the range of 1.9VDC to 3.6VCD.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck. Second set of voltages are present only when Deck 2 is installed.

Y: Replace the Print Engine Controller.

N: Go to step 6.

6 There is voltage between P/J200-3 and P/J200-6 and between P/J200-4 and P/J200-6 in the range of 1.9VDC to 3.6VCD.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck. Second set of voltages are present only when Deck 2 is installed.

Y: Replace the 500 Tray Harness Assembly.

N: Go to step 7.

7 There is voltage between P/J216-3 and P/J216-6 and between P/J216-4 and P/J216-6 in the range of 1.9VDC to 3.6VCD.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck. Second set of voltages are present only when Deck 2 is installed.

Y: Replace the Deck 2 Harness Assembly.

N: Go to step 8.

8 There is voltage between P/J216-3 and P/J216-6.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck.

Y: Go to step 9.

N: Replace the Tray 2 PWB.

9 There is voltage between P/J219-3 and P/J219-6.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck. Check required only when Deck 2 is installed.

Y: Replace the Tray 2 PWB.

N: Go to step 10.

10 There is voltage between P/J220-3 and P/J220-6.

NOTE: Measure voltage with paper loaded into the paper tray and the tray inserted into the paper deck. Check required only when Deck 2 is installed.

Y: Replace the Deck 3 Harness Assembly.

N: Replace the Tray 3 PWB.

8.9.2 Lower 1 Out, Lower 2 Out (C3)

1 Remove the 500 sheet paper tray and inspect the condition of the Size Sensor switch actuators. The switch actuators contact the size switch sensor springs when the tray is inserted.

Y: Go to step 2.

N: Replace the 500 sheet tray.

2 Execute Diagnostic Mode 1 DG 00, Size Sensor. The paper size reported corresponds to the size of the paper loaded.

Y: Replace the Print Engine Controller.

N: Go to *RAP 8.9.5 Sensor Assembly Size Failure.*

8.9.3 Lower Tray 1 or Lower Tray 2, Load XX X XX Message (C5)

Initial Action

In this case, C5 is a Status Code that usually appears when trying to reproduce a paper-out condition while printing in the Diagnostics Mode from the lower tray(s). When a C5 "No Paper" condition is displayed, an associated tray is usually displayed with it. Please ensure that the correct size paper is in the tray.

1 The selected tray is out of paper.

Y: Load the paper tray with the correct size paper.

N: Go to step 2.

2 Remove the 500 Tray Assembly. Check if the plate in the tray will rise up ***fully into position*** when the plate release is actuated.

Y: Go to step 3.

N: Remove any obstructions that might be preventing the tray from rising fully into position. Ensure that the plate release actuator is projecting out from the left side far enough to actuate the plate release as the tray is inserted into the printer. Replace the 500 Tray Assembly.

3 The No Paper Actuator for the 500 Tray Assembly is functioning normally.

Y: Go to step 4.

N: Inspect and correct/replace the No Paper Actuator.

4 The No Paper Sensor for the 500 Tray Assembly is functioning correctly. This can be verified by performing Diagnostic Code DG 02.

Y: Replace the Print Engine Controller.

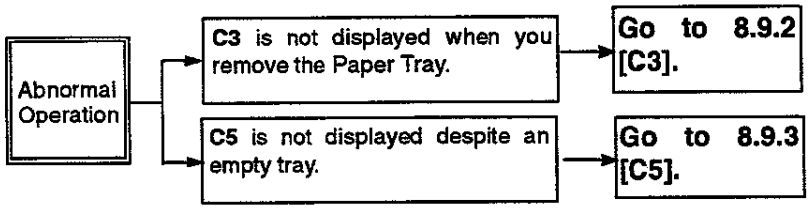
N: Go to step 5.

5 Verify the continuity of the Deck Harness Assembly and the Tray Harness Assembly. The Harness is good.

Y: Replace the Deck Tray 500 Paper Size PWB.

N: Replace the defective harness.

8.9.4 Abnormal Operation



8.9.5 Sensor Assembly Size Failure

1 Press the Sensor Size Assembly. Check if the spring actuates the corresponding Paper Size switch. Conduct a visual inspection after removing the 500 Tray Assembly.

Y: Go to step 2.

N: Replace the relevant 500 Paper Size PWB Assembly.

2 There is +5VDC between P/J22-6 and P/J22-7.

Y: Go to step 3.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

3 Check for the voltage between P/J22-4 and PJ22-7, and between P/J22-5 and P/J22-7. The result is compatible with the value the switch combination shown in *Table 8.9.5.1 Second and Third Trays.*

Y: Replace the Print Engine Controller.

N: Go to step 4.

4 There is continuity between J22 and J200.

Y: Go to step 5.

N: Replace the Tray Harness Assembly.

5 There is continuity between J200 and J216 (Deck 2). There is continuity between J219 and J220 (Deck 3).

Y: Replace the 500 Paper Size PWB Assembly.

N: Replace the 500 Harness Assembly.

Table 8.9.5.1 Second and Third Trays

Size	Size SNR Voltage (V) Vsnr (Size 2 and Size 3) +5VDC Measured at P/J22-6			S2 (*)	S1 (*)	S0 (*)
	4.77V Min.	5.10V Typ.	5.44 Max.			
No Deck	0.00	0.00	0.00	0	0	0
No Tray	0.55	0.60	0.65	0	0	0
Legal 13"	2.31	2.49	2.69	1	1	0
Letter	3.19	3.43	3.68	0	0	1
A4	1.91	2.07	2.23	0	1	1
Legal 14"	3.03	3.27	3.51	1	1	1

The following legend applies to *Table 8.9.5.1 Second and Third Trays.*

- (*): Contact Actuation of Paper Size Sensor
- 1: Closed
- 0: Open
- Position of contacts: S2: Top; S1: Middle; S0: Bottom

8.10 Installation, Removal, and Call Information

For the installation and removal of the 500 Sheet Paper Feeder, see the 4517/4517mp User Guide.

Section 9

Offset Catch Tray (OCT) Option

Specifications **9-3**
Configuration 9-3
Basic Configuration 9-3
Installation into the base engine 9-3
Electrical Specifications 9-3
Power Supply 9-3
Mechanical Specifications 9-3
Dimensions and Weight 9-3

Offset Catch Tray (OCT) Parts List **9-4**
PL 14 OCT 9-4
PL 14 OCT 9-5
PL 15 OCT 9-6
PL 15 OCT 9-7

OCT REPS **9-8**
OCT Unit 9-8
Exit Tray Assembly 9-9
Exit Tray 9-10
Exit Chute Assembly 9-11
Rear Cover 9-12
Lower Chute/Full Stack Sensor/Full Stack Actuator 9-13
Direction Solenoid/Solenoid Lever 9-14
OCT PWB Assembly 9-15

Offset Assembly/Exit Sensor Assembly 9-16
Offset Motor/OCT Sensor/Cam Gear 9-17
Exit Roll Assembly 9-18
Exit Roll 9-19
Drive Motor Assembly/Middle Roll Assembly 9-20

Paper Transportation 9-22
Paper Transportation Mechanism 9-22
Paper Path 9-23
Drive Power Transmission 9-24

Function of Major Components 9-25
OCT Unit 9-25
Function 9-25
Major Components of the OCT Unit (View 1) 9-26
Major Components of the OCT Unit (View 1) 9-27

Wiring Diagrams 9-28
Connector Locator 9-28
P/J Table 9-29
Wiring Schematic 9-30

OCT RAPS 9-31
Offset Tray Fail Service Required (E9) 9-31
Offset Jam/Open Rear Cover (E6) 9-32
Abnormal Operation 9-33
Offset Failure 9-34
OCT Stack Full Sensor Failure 9-35
OCT Home Sensor Failure 9-37
OCT Exit Sensor Failure 9-38
OCT Drive Motor Assembly Failure 9-39
Offset Motor Assembly Failure 9-40
Direction Solenoid Failure 9-41

Installation and Removal 9-42

9.1 Specifications

9.1.1 Configuration

9.1.1.1 Basic Configuration

This unit is the optional Offset Catch Tray (OCT) which is mounted on top of the base engine and offsets printed paper sheets to separate copies.

9.1.1.2 Installation into the base engine.

See the 4517/4517mp User Guide for instructions on installing the OCT into the base engine.

9.1.2 Electrical Specifications

9.1.2.1 Power Supply

+24V DC and +5V DC are supplied from the base engine.

9.1.3 Mechanical Specifications

9.1.3.1 Dimensions and Weight

Width	Depth	Height	Weight
399 mm	280 mm (407.8 mm *1)	130 mm (157 mm *2)	2.25 kg

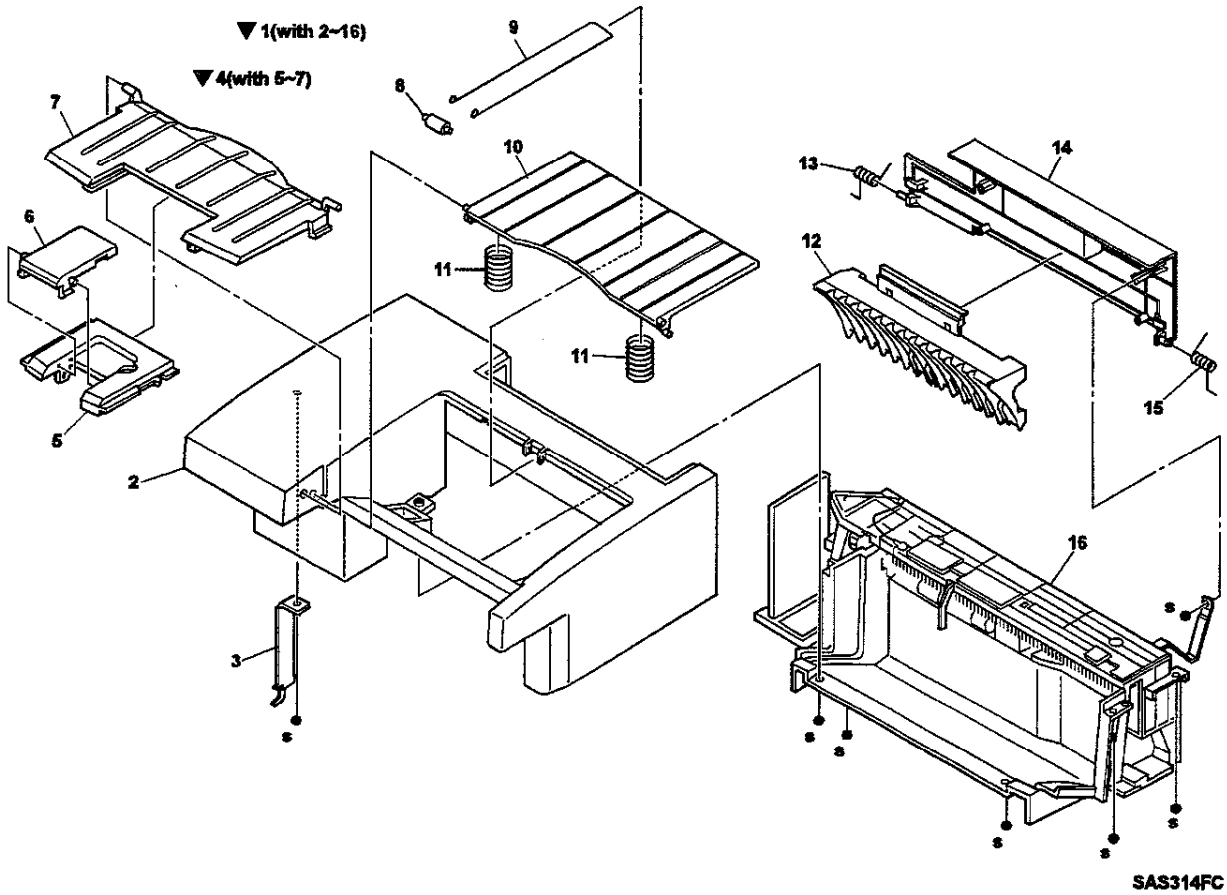
*1: When the Exit Tray Assembly is extended.

*2: When the connector to the base engine is included.

9.2 Offset Catch Tray (OCT) Parts List

The Parts List shows the names of the parts of the OCT that are shown in the exploded drawings. For the locations of the connectors (P/J), see *Section 9.6 Wiring Diagrams*.

9.2.1 PL 14 OCT

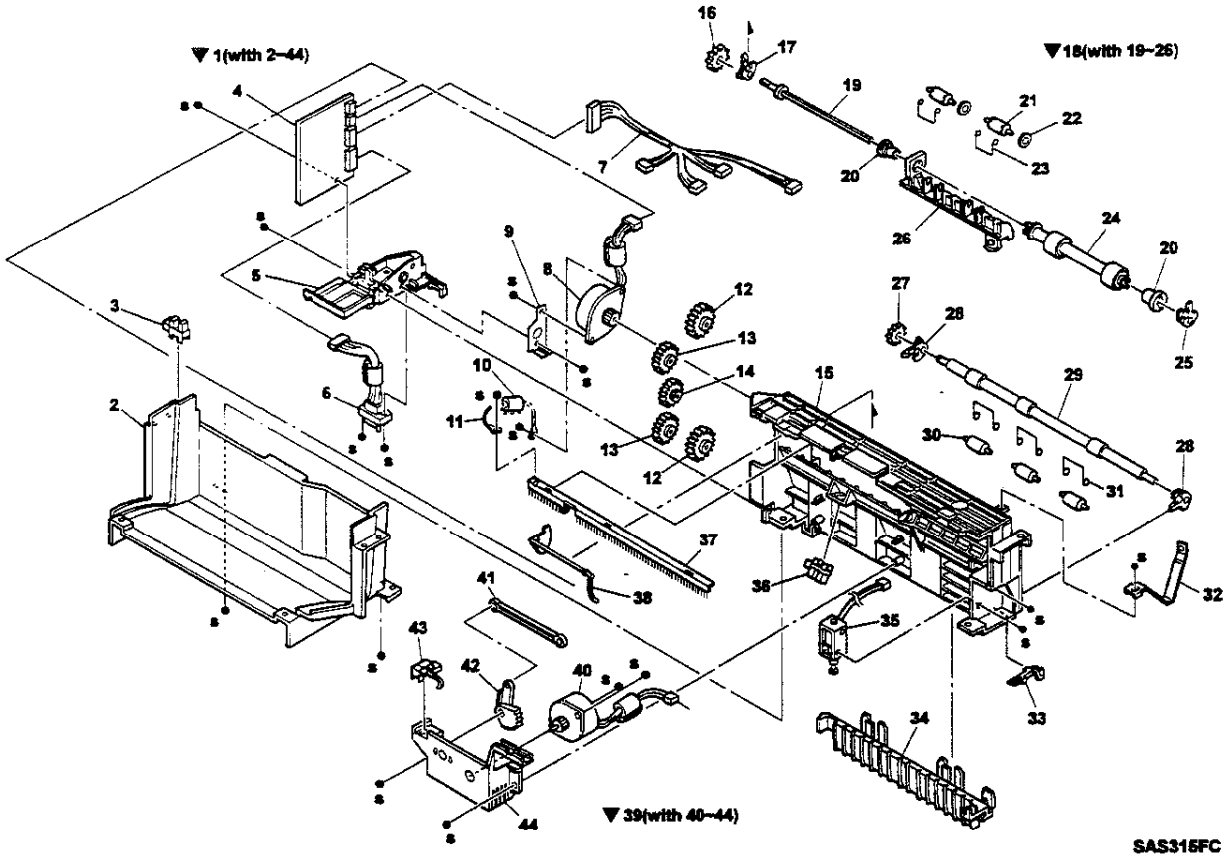


SAS314FC

9.2.2 PL 14 OCT

Item	Part	Description
1.	54K88522	OCT Assembly (with items 2-16)
2.	--	OCT Cover
3.	--	Hook Cover
4.	50K26264	Exit Tray Assembly (with items 5-7)
5.	--	Stopper Guide
6.	--	Stopper
7.	--	Exit Tray
8.	59E91461	Weight Roller
9.	12E94642	OCT Stopper Link
10.	50E84160	Exit Tray
11.	--	Tray Spring
12.	--	Exit Chute
13.	--	Left Chute Spring
14.	--	Rear Cover
15.	--	Right Chute Spring
16.	--	Exit Chute Assembly (Exploded on PL 16)

9.2.3 PL 15 OCT



9.2.4 PL 15 OCT

Item	Part	Description
1.	--	Exit Chute Assembly (with items 2-44)
2.	--	Lower Chute
3.	130E81600	OCT Full Sensor
4.	140K64531	OCT PWB
5.	--	Holder
6.	152K65882	OCT Harness
7.	152K65891	CONN Harness
8.	127K15740	(Drive) Step Motor
9.	--	H Earth Plate
10.	--	OCT Wire
11.	--	Ferrite Core
12.	--	Gear (27T)
13.	--	Gear (26T)
14.	--	Gear (47W)
15.	--	Gear Housing
16.	--	Exit Gear
17.	--	Exit Bearing
18.	22K33690	Roll Assembly (with items 19-26)
19.	--	Exit Shaft
20.	--	Offset Bearing
21.	59E90680	Exit Pinch Roll
22.	--	Washer
23.	--	Pinch Spring
24.	--	Exit Roll
25.	--	Exit Bearing
26.	--	OCT Guide
27.	--	Exit Gear
28.	--	Exit Bearing
29.	22K35081	Mid Roll
30.	59E92270	Mid Pinch Roll
31.	--	Pinch Spring
32.	--	Cover Stopper
33.	11E94070	Solenoid Lever
34.	--	Exit Chute
35.	121E82281	Direction Solenoid
36.	130K84220	OCT Exit Sensor
37.	--	Eliminator
38.	120E98240	OCT Full Actuator
39.	--	Offset Assembly (with items 40-44)
40.	127K15730	Offset Step Motor
	127K19410	Offset Step Motor, Alternate
41.	11E93900	Lever
42.	7E88790	Cam Gear
43.	130E81300	OCT Home Sensor
44.	--	Offset Chassis

9.3 OCT REPS

9.3.1 OCT Unit

Removal

1 Press the two latches in the bottom part of the rear surface of the OCT Unit, and raise the unit from behind.

2 Disengage the hook inserted in the Top Cover near the Fan at the left side for the base engine from the Top Cover.

NOTE: Raise the OCT Unit about 3 cm by step 1 and then move it rearward about 3 cm; the hook comes out of the Top Cover.

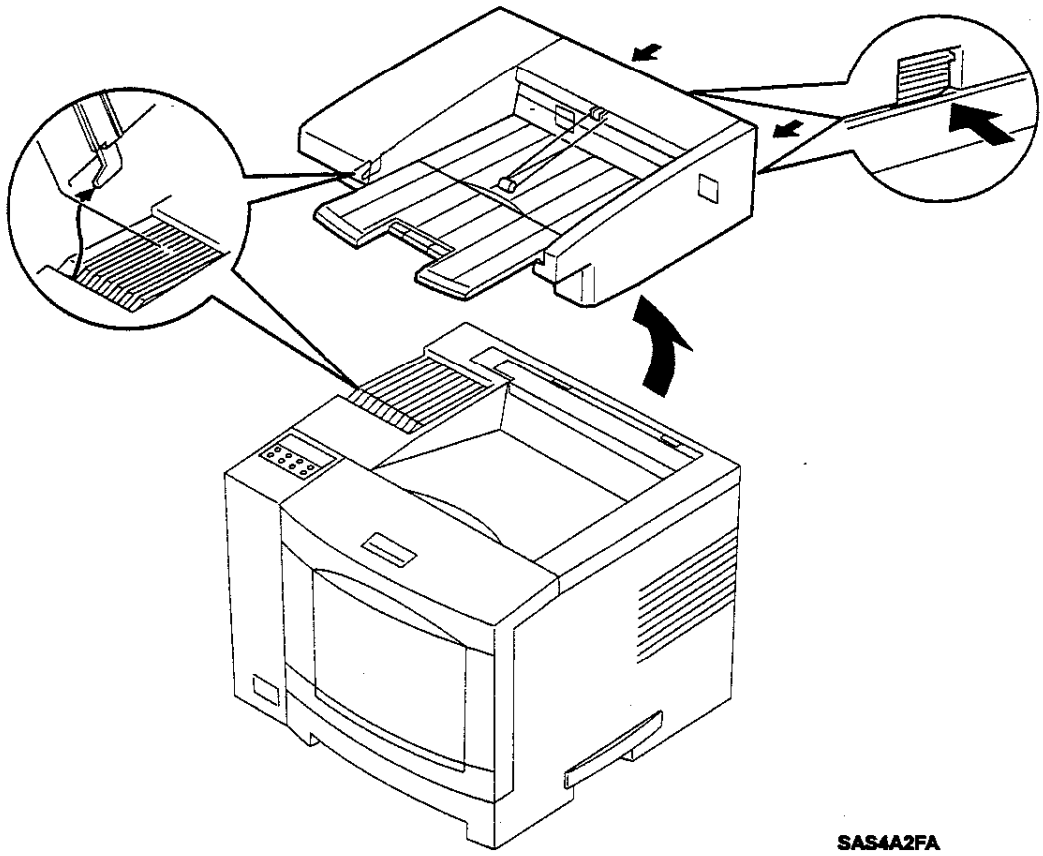


Figure 9.3.1.1 Removing the OCT Unit

Replacement

Perform the removal steps in reverse order.

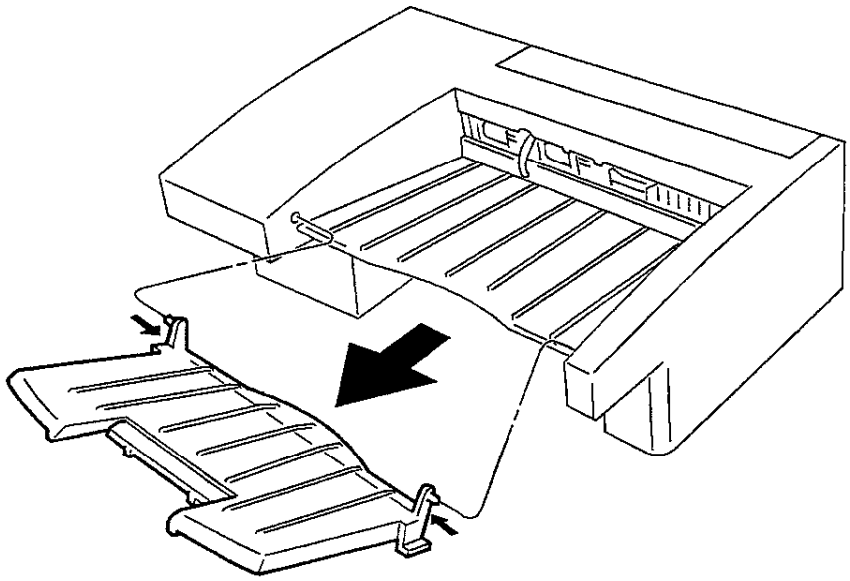
9.3.2 Exit Tray Assembly

Removal

1 Remove the OCT Unit (*REP 9.3.1 OCT Unit*).

2 Press the right side portion of the OCT Cover outward to disengage the projection in the right side of the Exit Tray Assembly from the OCT Cover.

3 Press the left side portion of the OCT Cover outward to disengage the projection in the left side of the Exit Tray Assembly from the OCT Cover.



SAS4A3F

Figure 9.3.2.1 Removing the Exit Tray Assembly

Replacement

Perform the removal steps in reverse order.

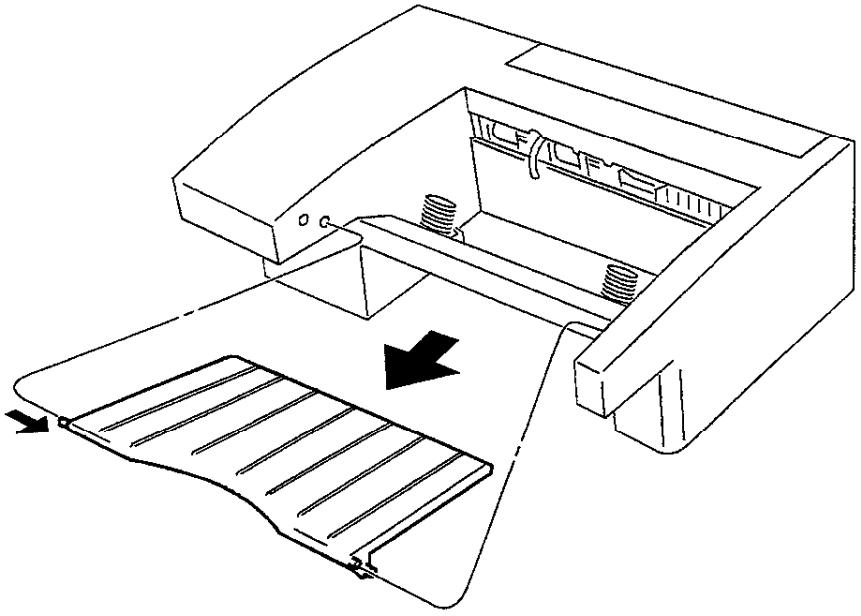
9.3.3 Exit Tray

Removal

1 Remove the OCT Unit (*REP 9.3.1 OCT Unit*).

2 Disengage the left side of the Exit Tray from the holes in the OCT Cover.

3 Disengage the right side of the Exit Tray from the holes in the OCT Cover, taking care of the springs.



SAS4A4F

Figure 9.3.3.1 Removing the Exit Tray

Replacement

Perform the removal steps in reverse order.

9.3.4 Exit Chute Assembly

Removal

1 Remove the OCT Unit (*REP 9.3.1 OCT Unit).*

2 Put the OCT Unit upside down.

3 Remove the five screws which secure the Exit Chute Assembly to the OCT Cover.

4 Open the Rear Cover about 45 degrees, and raise the Exit Chute Assembly off of the OCT Cover.

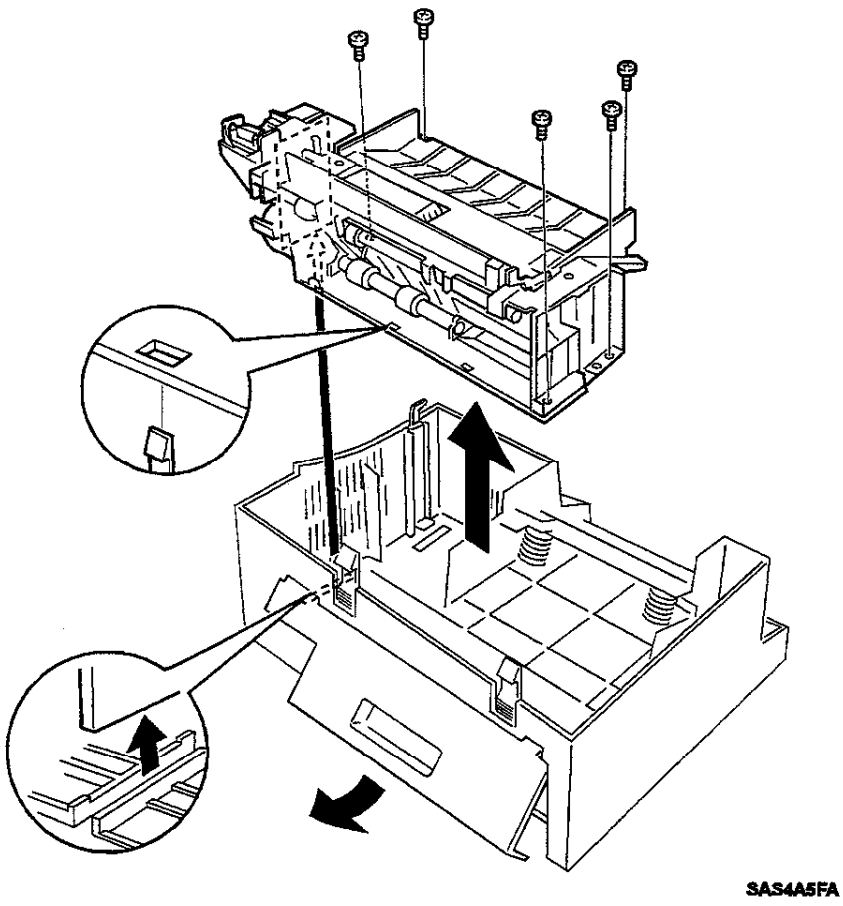


Figure 9.3.4.1 Removing the Exit Chute

Replacement

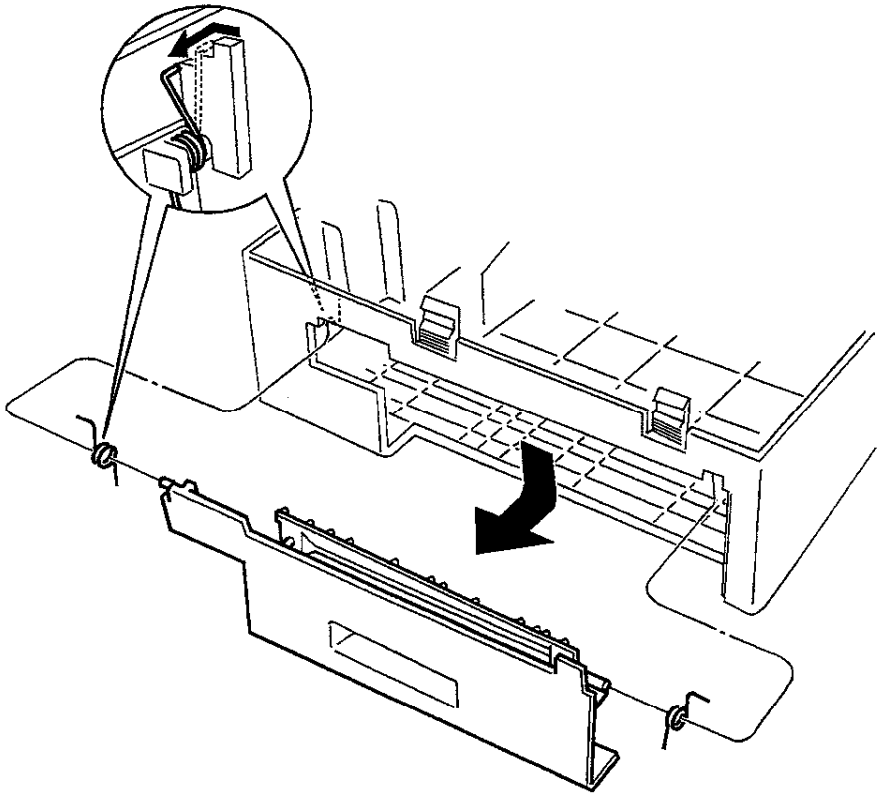
Perform the removal steps in reverse order.

NOTE: Be careful not to pinch the OCT Full Actuator when replacing the Exit Chute Assembly.

9.3.5 Rear Cover

Removal

1 Remove the OCT Unit (*REP 9.3.1 OCT Unit).*
2 Put the OCT Unit upside down with the rear directed to you.
3 Press the end of the left spring towards you and then inward (to the right) to disengage.
4 Press the end of the right spring in the same manner.
5 Remove the Rear Cover downward.



SAS4A6FA

Figure 9.3.5.1 Removing the Rear Cover

Replacement

Perform the removal steps in reverse order.

9.3.6 Lower Chute/Full Stack Sensor/Full Stack Actuator

Removal

1 Remove the Exit Chute Assembly (*REP 9.3.4 Exit Chute Assembly*).
2 Push back a portion of the H Earth Plate that lowers the Eliminator.
3 Press the latches securing the Eliminator and detach the Eliminator from the Exit Chute Assembly.
4 Pull the Full Stack Actuator out of the bearings at both sides.
5 Disconnect the harness of the Full Stack Sensor.
6 Press the latches of the Full Stack Sensor to detach the Full Stack Sensor from the Lower Chute.
7 Remove the two screws which fasten the Lower Chute.
8 Lift off the Lower Chute.

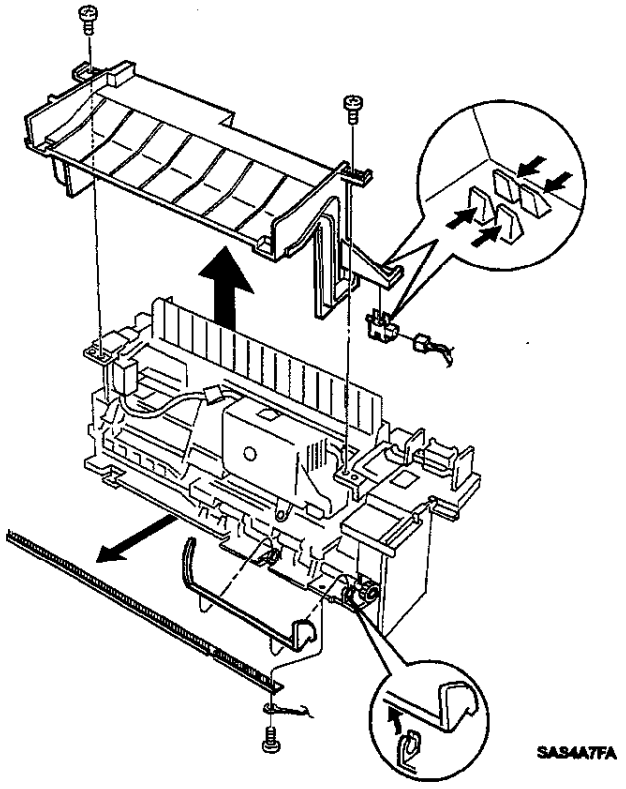


Figure 9.3.6.1 Removing the Lower Chute/Full Stack Sensor/Full Stack Actuator

Replacement

Perform the removal steps in reverse order.

9.3.7 Direction Solenoid/Solenoid Lever

Removal

1 Remove the Lower Chute (*REP 9.3.6 Lower Chute/Full Stack Sensor/Full Stack Actuator).*

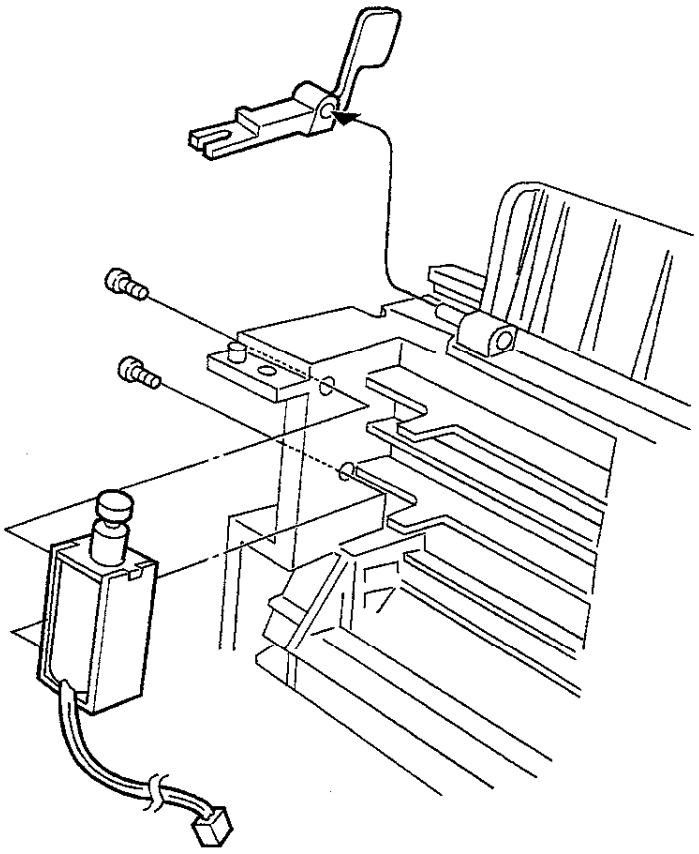
2 Disconnect the Solenoid Harness from the relay connector between the Connector Harness Assembly and Solenoid.

3 Remove the two screws which fasten the Solenoid.

4 Slide the Solenoid off the Solenoid Lever.

5 Pry off the Exit Chute latch near the Direction Solenoid.

6 Slide the Solenoid Lever off the pivot projection.



SAS4A8F

Figure 9.3.7.1 Removing the Solenoid/Solenoid Lever

Replacement

Perform the removal steps in reverse order.

9.3.8 OCT PWB Assembly

Removal

1 Remove the Inner Exit Chute (*REP 9.3.4 Exit Chute Assembly*).

2 Remove the four connectors (J209, J224, J210, and J223) connected to the OCT PWB Assembly.

3 Remove one screw which fastens the OCT PWB Assembly.

4 Remove the OCT PWB Assembly.

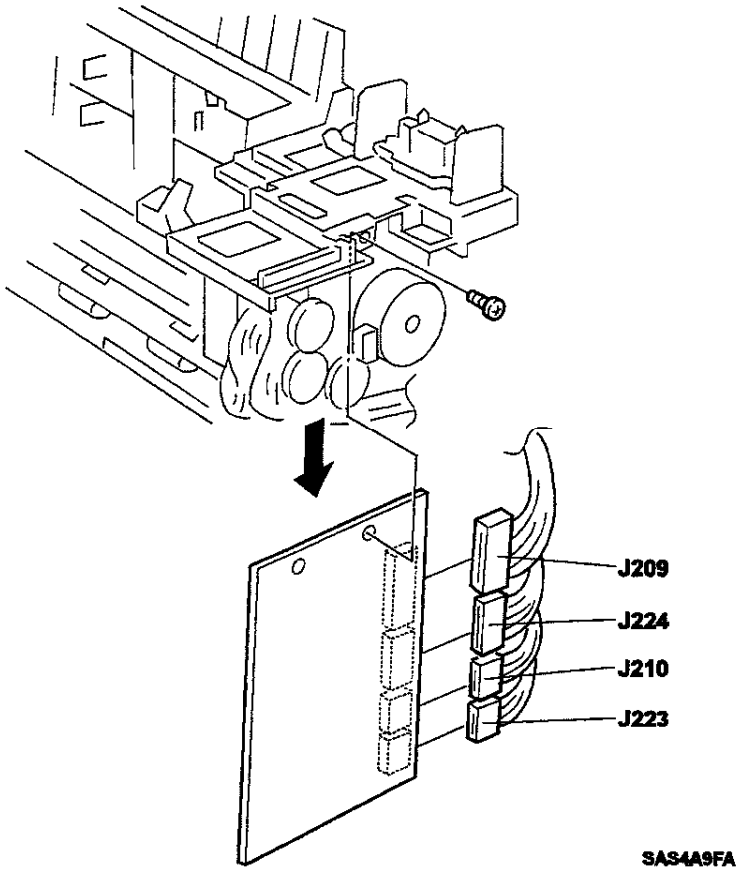


Figure 9.3.8.1 Removing the OCT PWB Assembly

Replacement

Perform the removal steps in reverse order.

9.3.9 Offset Assembly/Exit Sensor Assembly

Removal

1 Remove the Lower Chute (*REP 9.3.6 Lower Chute/Full Stack Sensor/Full Stack Actuator).*
2 Remove the Lever from the OCT Guide.
3 Disconnect the connector from P223 of the PWB.
4 Release the Connector Harness Assembly (J223) disconnected from P223 from the wiring path.
5 Remove the two screws which fasten the Offset Assembly.
6 Raise and slide the Offset Assembly off of the Roll Assembly and disconnect connector J226 from the OCT Home Sensor.
7 Remove the Offset Assembly.
8 Disconnect connector J227 of the Exit Sensor Assembly.
9 Press the latches with a screwdriver to detach the sensor.

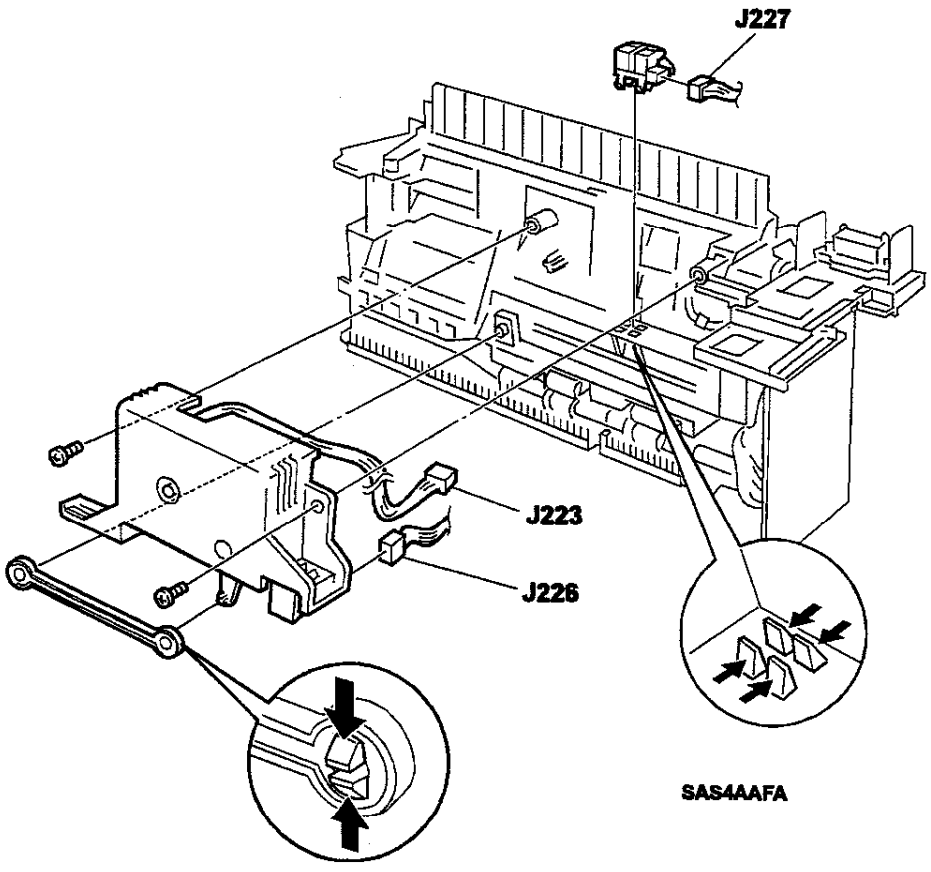


Figure 9.3.9.1 Removing the Offset Assembly/Exit Sensor Assembly

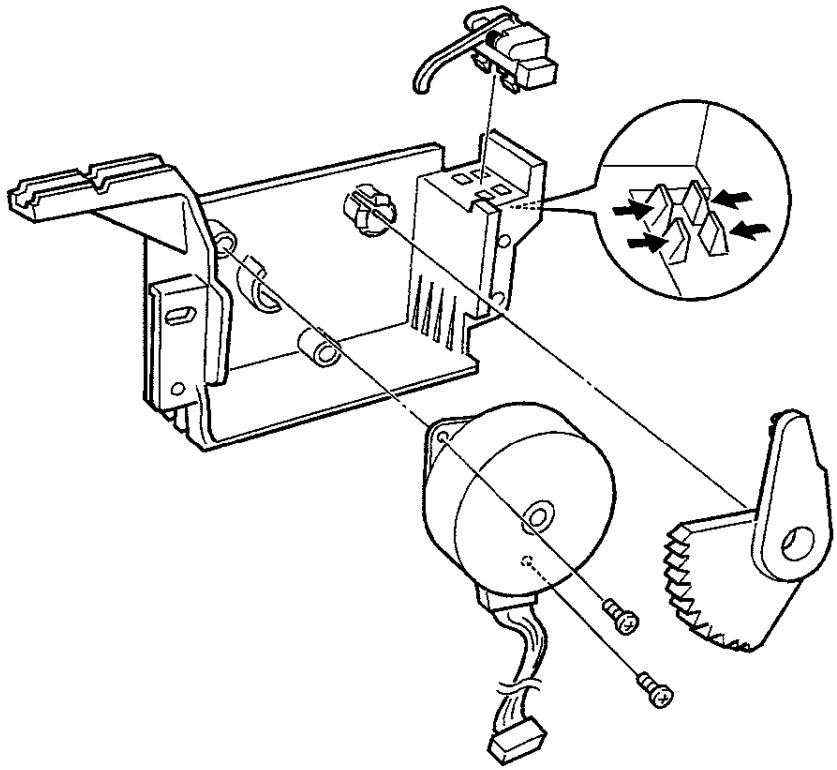
Replacement

Perform the removal steps in reverse order.

9.3.10 Offset Motor/OCT Sensor/Cam Gear

Removal

1 Remove the Offset Assembly (*REP 9.3.9 Offset Assembly/Exit Sensor Assembly).*
2 Remove the two screws which fasten the Offset Motor.
3 Lift off the Offset Motor.
4 Press the latches of the shaft of the Cam Gear inward to slide off the Cam Gear.
5 Press the latches of the OCT Home Sensor inward to detach the OCT Home Sensor.



SAS4ABF

Figure 9.3.10.1 Removing the Offset Motor/OCT Sensor/Cam Gear

Replacement

Perform the removal steps in reverse order.

9.3.11 Exit Roll Assembly

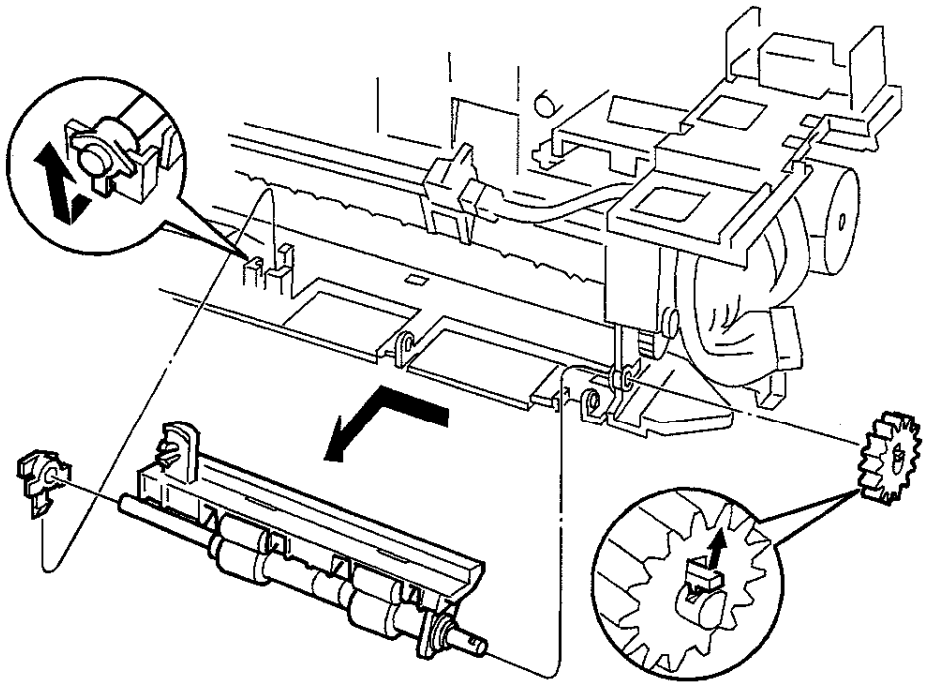
Removal

1 Remove the Offset Assembly (*REP 9.3.9 Offset Assembly/Exit Sensor Assembly*).

2 Release the latch of the Exit Bearing at the right side and lift off the Exit Bearing.

3 Press the latch of the Gear to disengage and pull the shaft towards the right to slide the Gear off of the shaft.

4 Remove the shaft together with the Exit Roll Assembly.



SAS4ACFA

Figure 9.3.11.1 Removing the Exit Roll Assembly

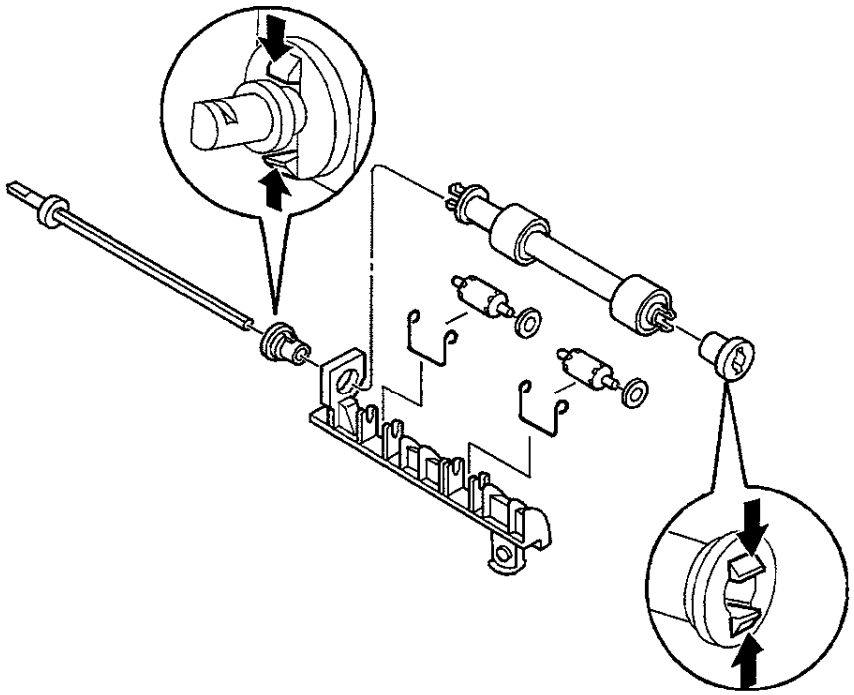
Replacement

Perform the removal steps in reverse order.

9.3.12 Exit Roll

Removal

1 Remove the Exit Roll Assembly (*REP 9.3.11 Exit Roll Assembly).*
2 Release the left Offset Bearing and slide it towards the left on the shaft.
3 Slide the Exit Roll off the shaft towards the right.
4 Detach the right Offset Bearing from the Exit Roll.
5 Pull the shaft out towards the left together with the left Offset Bearing.
6 Remove the two Pinch Rolls and the two washers from their respective springs.



SAS4ADFA

Figure 9.3.12.1 Removing the Exit Roll

Replacement

Perform the removal steps in reverse order.

9.3.13 Drive Motor Assembly/Middle Roll Assembly

Removal

1 Remove the Exit Chute Assembly (*REP 9.3.4 Exit Chute Assembly).*

2 Remove the OCT PWB Assembly (*REP 9.3.8 OCT PWB Assembly).*

NOTE: At this time, J210 is removed.

3 Remove the one screw that secures the Holder.

4 Remove the one screw that secures the Drive Motor Assembly and the H Earth Plate.

5 Remove the Holder together with the Earth Plate from the Gear Housing (**1** in Figure 9.3.13.1).

6 Remove the one screw which secures the Earth Plate to the Holder.

7 Remove the Earth Plate from the Holder.

8 Hold the Drive Motor Assembly and remove the one screw which secures the Drive Motor Assembly and OCT Wire Assembly.

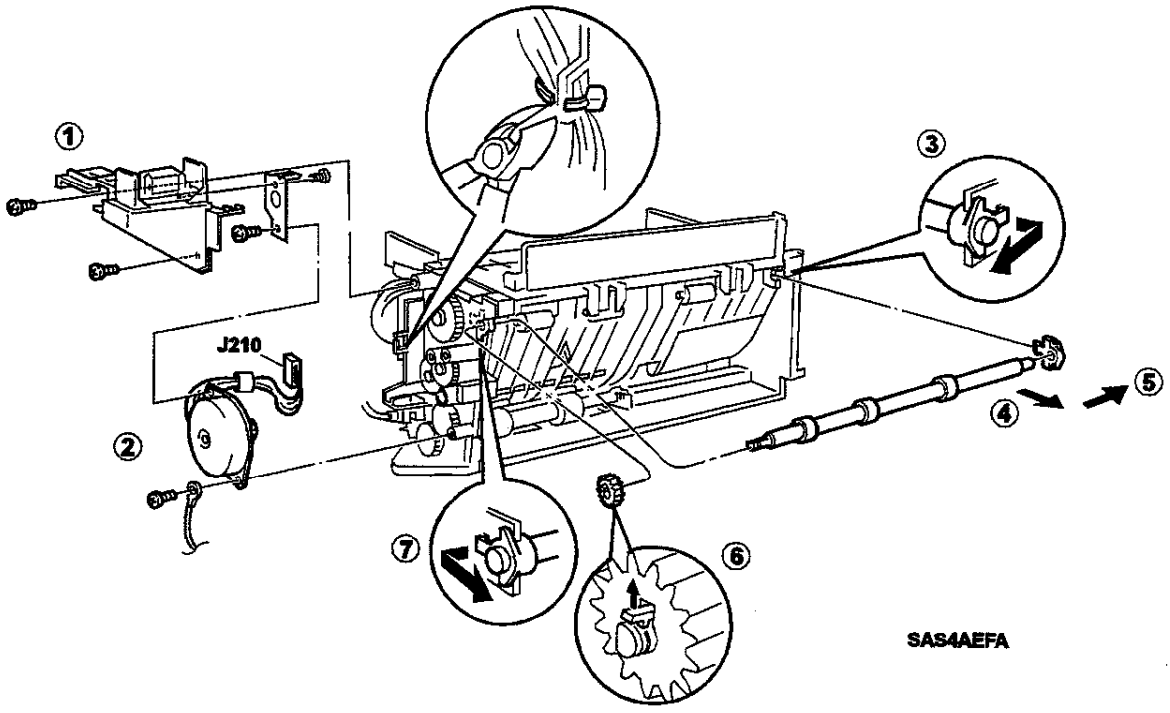
9 Pull off the Drive Motor Assembly (**2** in Figure 9.3.13.1).

10 Release the latch of the Exit Bearing of the Middle Roll Assembly and detach the Exit Bearing (**3** in Figure 9.3.13.1).

11 Pull the right end of the Middle Roll Assembly towards you about 3 cm (**4** in Figure 9.3.13.1); release the latch of the left Exit Gear while holding the Middle Roll Assembly at the position (**6** in Figure 9.3.13.1); and pull off the Roll Assembly towards the right (**5** in Figure 9.3.13.1).

12 Detach the left Exit Bearing from the Gear Housing (**7** in Figure 9.3.13.1).

Figure 9.3.13.1 Removing the Drive Motor Assembly/Middle Roll Assembly



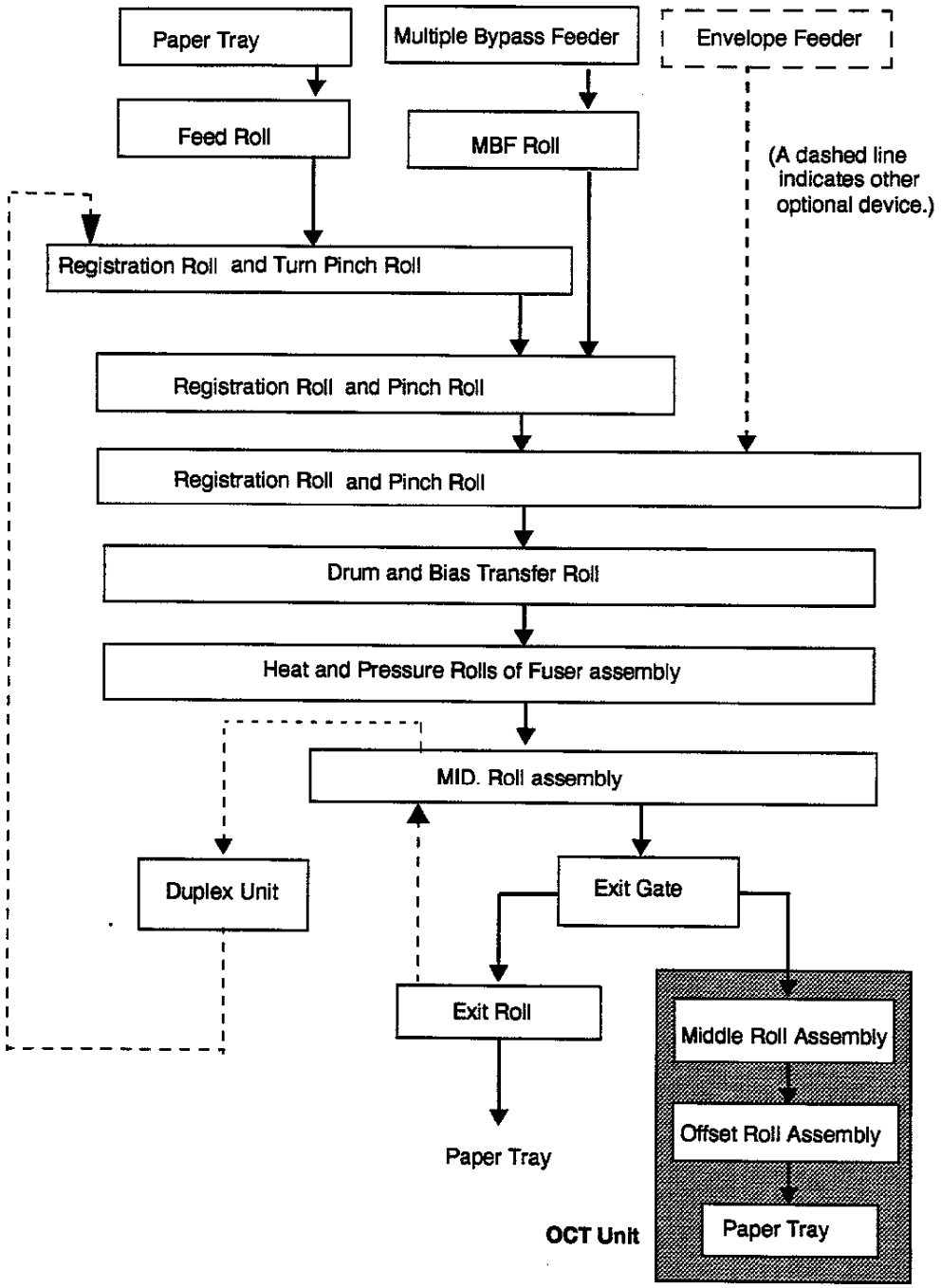
Replacement

Perform the removal steps in reverse order.

9.4 Paper Transportation

9.4.1 Paper Transportation Mechanism

The paper transportation mechanism is shown below along the path of paper travel. (For the paper transportation in other devices, refer to their respective service manuals.)



9.4.2 Paper Path

The path of paper travel through the printer with the OCT Unit installed is shown in Figure 9.4.2.1.

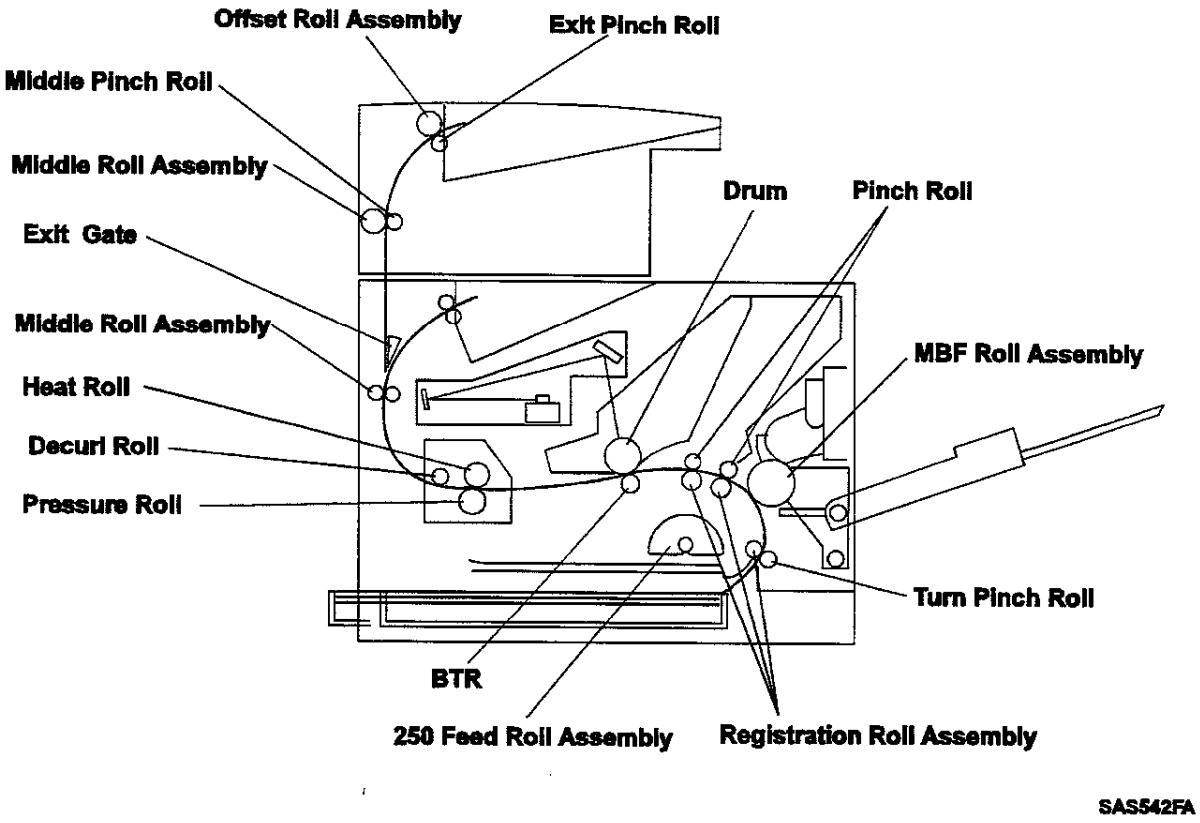


Figure 9.4.2.1 Paper Path

9.4.3 Drive Power Transmission

The drive power for the OCT Unit is generated and distributed as shown below.

The OCT Motor Assembly Drive generates the drive power for ejecting paper. The Offset Motor Assembly moves the Offset Roll Assembly (Exit Roll Assembly) in alternate directions (offsetting movement) by means of the Cam Gear.

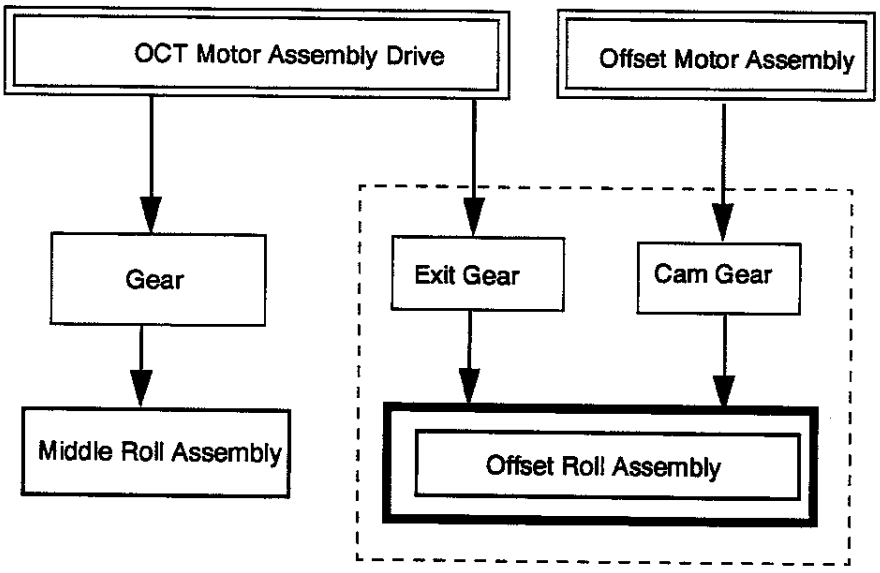


Figure 9.4.3.1 Drive Power Transmission

9.5 Function of Major Components

The function of the major components constituting the OCT Unit are described below with reference to the drawings.

9.5.1 OCT Unit

9.5.1.1 Function

- OCT Motor Assembly Drive:

  The OCT Motor Assembly drives the Middle Roll Assembly and the Offset Roll Assembly.

- Offset Motor Assembly:

  The Offset Motor Assembly shifts the Offset Roll Assembly to produce an offset of about 28 mm.

- Stack Full Sensor and Stack Full Sensor Actuator:

  The Stack Full Sensor and the Stack Full Sensor Actuator detect when printed sheets accumulate in the Tray beyond the capacity (500 sheets).

- OCT PWB Assembly:

  The OCT PWB Assembly controls the operation.

- Offset Roll Assembly:

  The Offset Roll Assembly ejects printed sheets into the Exit Tray. During the Offset operation, it ejects printed sheets at the offset-position displaced 28 mm from the normal position.

- Exit Sensor:

  The Exit Sensor is located between the Middle Roll Assembly and the Offset Roll Assembly; it detects printed sheets.

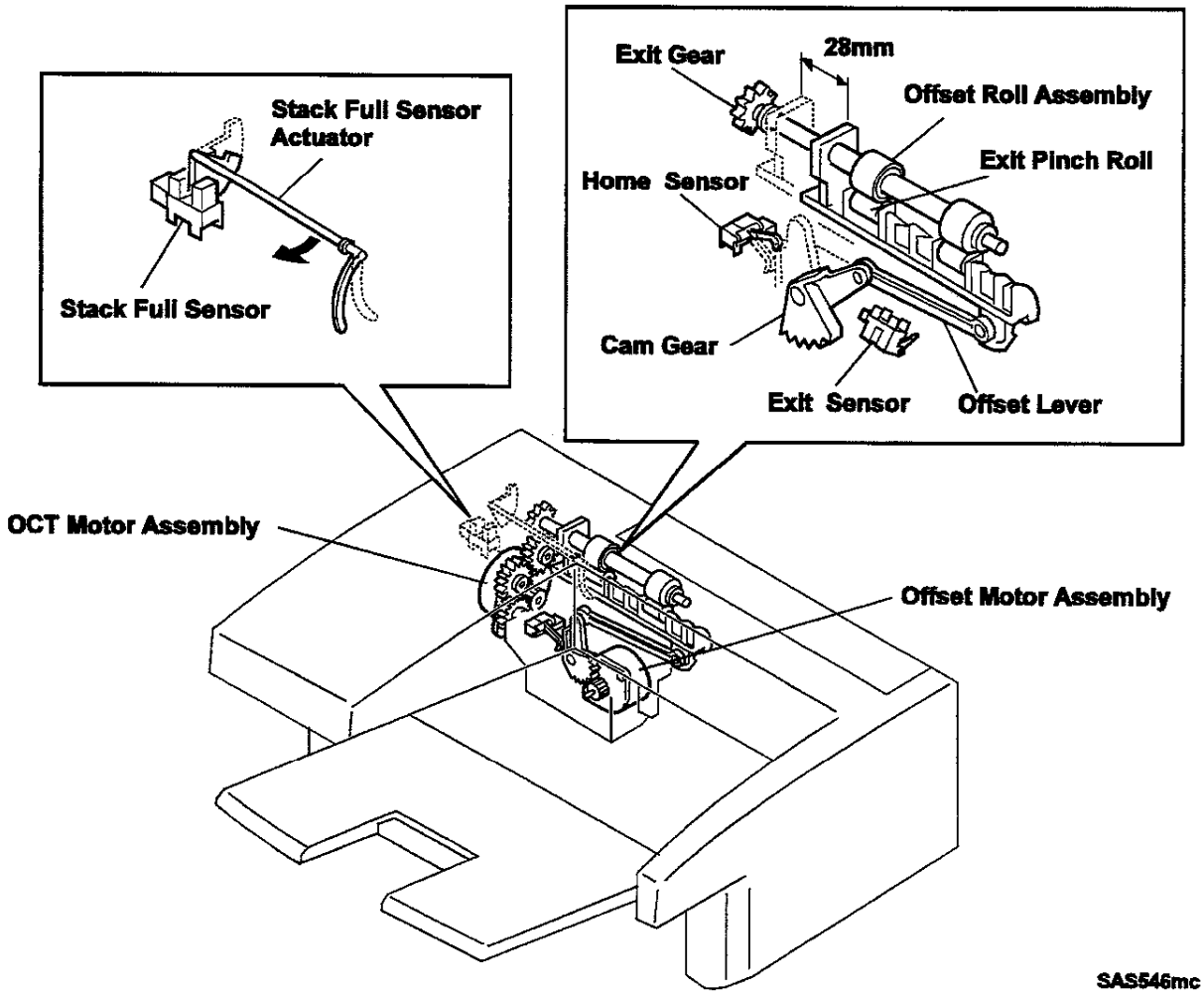
- Home Sensor:

  The Home Sensor is operated On and Off by the Cam Gear; it detects when the Offset Roll Assembly is at the home position.

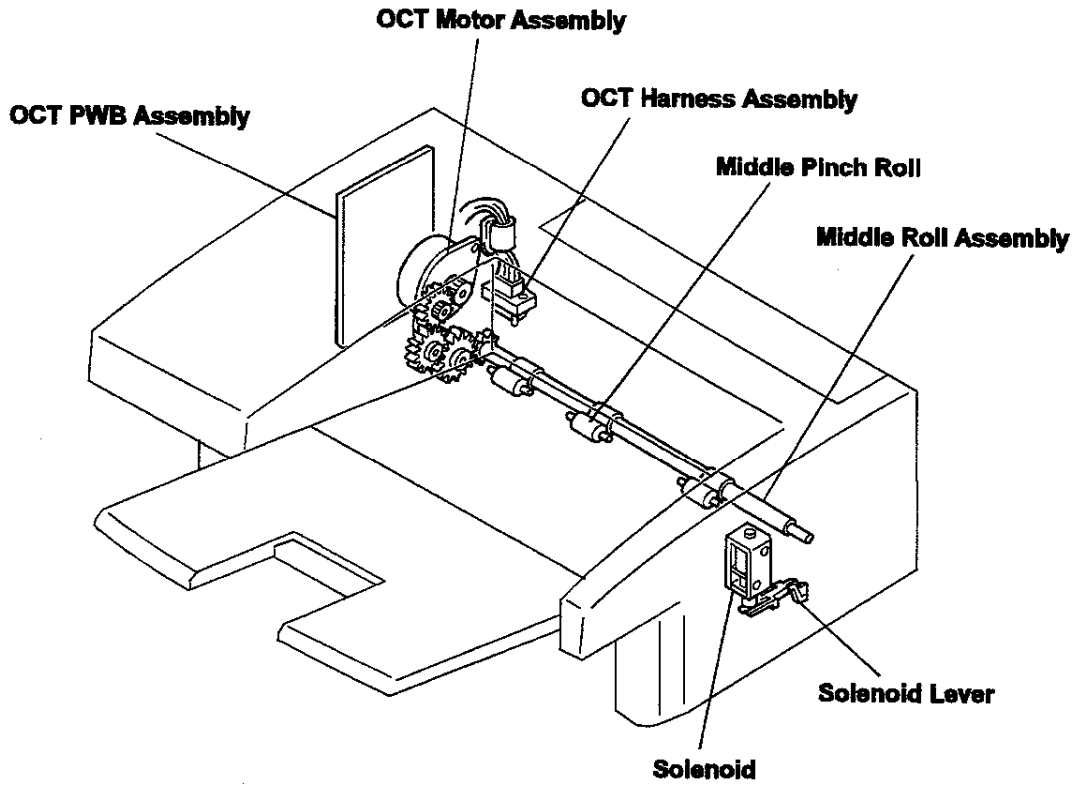
- Solenoid and Solenoid Lever:

  The Solenoid and Solenoid Lever switches the paper path between the Printer Engine and the OCT Unit. When the solenoid is actuated, the Solenoid Lever is pushed to move the Exit Gate of the Printer Engine. The paper path is then switched from the Exit Tray of the Printer Engine to the OCT.

9.5.1.2 Major Components of the OCT Unit (View 1)



9.5.1.3 Major Components of the OCT Unit (View 1)



9.6 Wiring Diagrams

9.6.1 Connector Locator

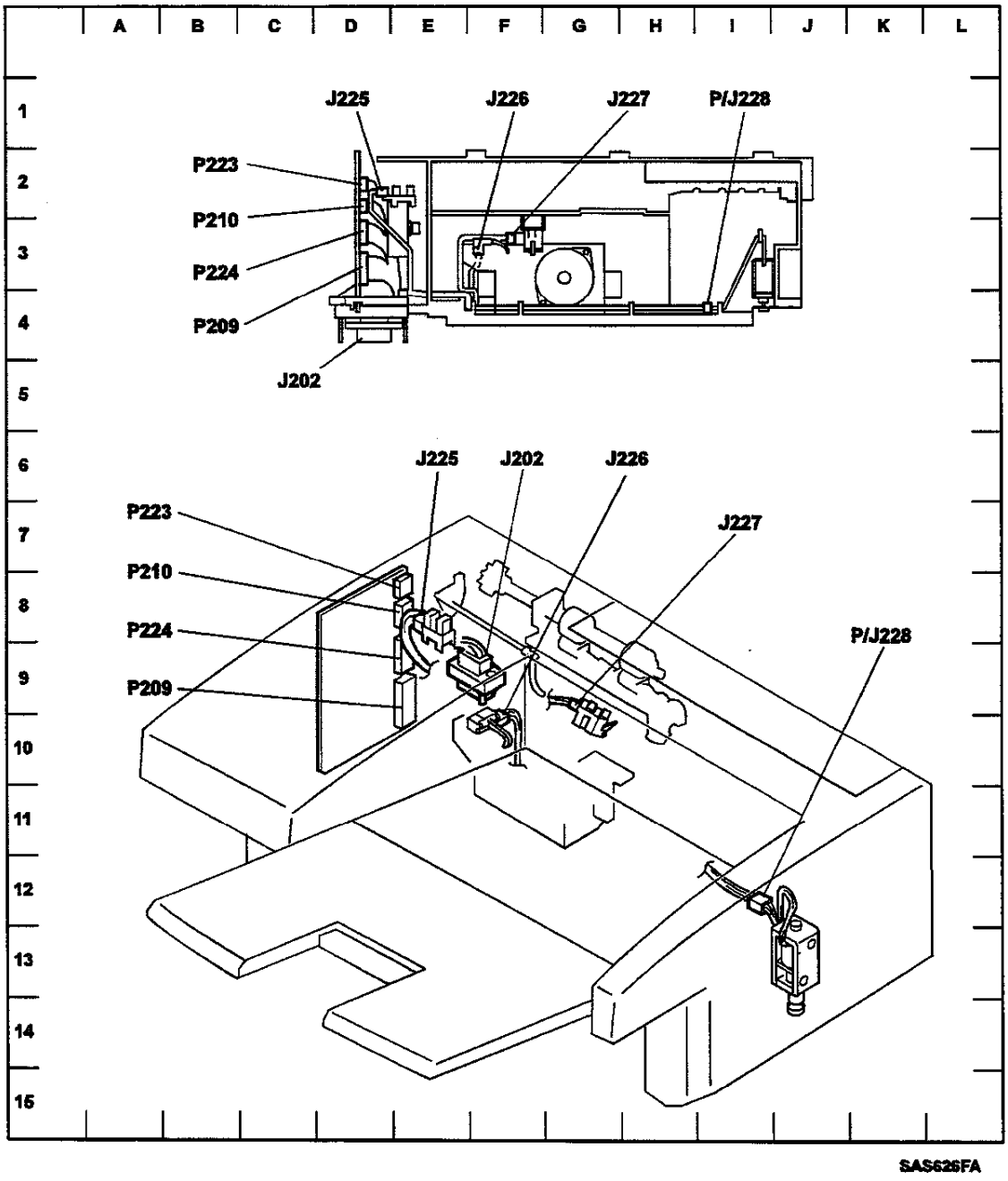


Figure 9.6.1.1 Wiring Diagram - Connector Locator

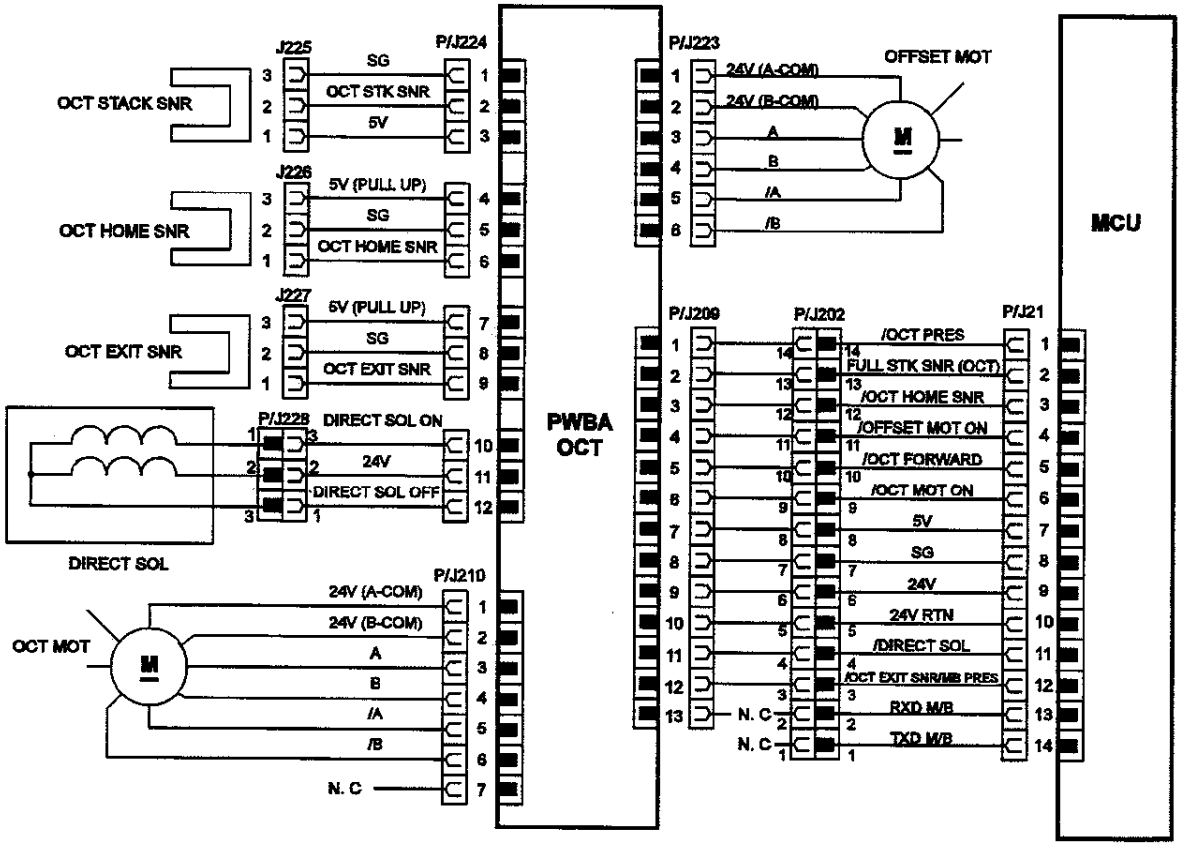
9.6.2 P/J Table

PJ	Coordinate	Mounting		Harness		Description
		Mounted on	PL*1	Name*2	PL*1	
202	D4 E9	Holder	15-5	OCT Harness Assembly	15-6	Connects the OCT PWB and the Print Engine Controller.
209	D3 E9	OCT PWB	15-4	OCT Harness Assembly	15-6	Connects the OCT PWB and the Print Engine Controller.
210	D2 E8	OCT PWB	15-4	@Drive Motor Assembly	15-8	Connects the OCT PWB and the Drive Motor Assembly.
223	D2 E7	OCT PWB	15-4	@Offset Motor Assembly	15-40	Connects the OCT PWB and the Offset Motor Assembly.
224	D3 E8	OCT PWB	15-4	Connector Harness Assembly	15-7	Connects the OCT PWB and J225 (Stack Full Sensor)], J226 (OCT Home Sensor), J227 (Exit Sensor), and P/J228 (Direct Solenoid).
225	D2 E8	Stack Full Sensor	15-3	Connector Harness Assembly	15-7	Connects the OCT PWB and the Stack Full Sensor.
226	F3 F9	Home Sensor	15-43	Connector Harness Assembly	15-7	Connects the OCT PWB and the Home Sensor.
227	F3 G9	Exit Sensor	15-36	Connector Harness Assembly	15-7	Connects the OCT PWB and the Exit Sensor.
228	I4 I12	Bottom part of Gear Housing	15-15	P: Connector Harness Assembly	15-7	Connects the OCT PWB and the Direction Solenoid.

*1: indicates the corresponding Parts list and item number in Section 3.

*2: @ at the beginning of the harness name indicates that the harness is a part of the component.

9.6.3 Wiring Schematic



9.7 OCT RAPS

NOTE: Refer to the Wiring Diagram 9.7.14 when problem solving the following RAPS.

9.7.1 Offset Tray Fail Service Required (E9)

1 There is +5VDC between J209-7 and J209-8.

Y: Go to step 2.

N: Go to step 4.

2 Check the OCT PWB. The voltage between J209-1 and J209-8 is at the Low level.

Y: Go to step 3.

N: Replace the OCT PWB.

3 Check the Print Engine Controller. The voltage between J21-1 and J21-8 is at the Low level.

Y: Replace the Print Engine Controller.

N: Replace the OCT Harness Assembly.

4 Check the LVPS. There is +5VDC between J21-7 and J21-8.

Y: Replace the OCT Harness Assembly.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

9.7.2 Offset Jam/Open Rear Cover (E6)

Initial Actions

- Inspect the OCT paper path for torn pieces of paper or other foreign material.
- Inspect the OCT Exit Sensor and Stack Full Sensor Actuators for free movement.

1 Check for rotation of OCT Middle and Exit Roll Assemblies while executing Diagnostic Code 95 (OCT Motor). The rolls rotate normally.

Y: Go to step 5.

N: Go to step 2.

2 There is +24VDC between P/J210-1 and P/J210-3 and between P/J210-2 and P/J210-4.

Y: Go to *RAP 9.7.9 OCT Drive Motor Assembly Failure.*

N: Go to step 3.

3 There is +24VDC between J209-9 and J209-10.

Y: Replace the OCT PWB.

N: Go to step 4.

4 There is +24VDC between P/J21-9 and P/J21-10.

Y: Replace the OCT Harness Assembly.

N: Go to *RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

5 The OCT Exit Sensor is functioning properly.

NOTE: This can be inspected by performing Diagnostic Code 02.

Y: Replace the Print Engine Controller.

N: Got to step 6.

6 The voltage between P/J224-9 and P/J224-8 is at the Low level when paper is present and at the High level when paper is not present.

Y: Go to step 7.

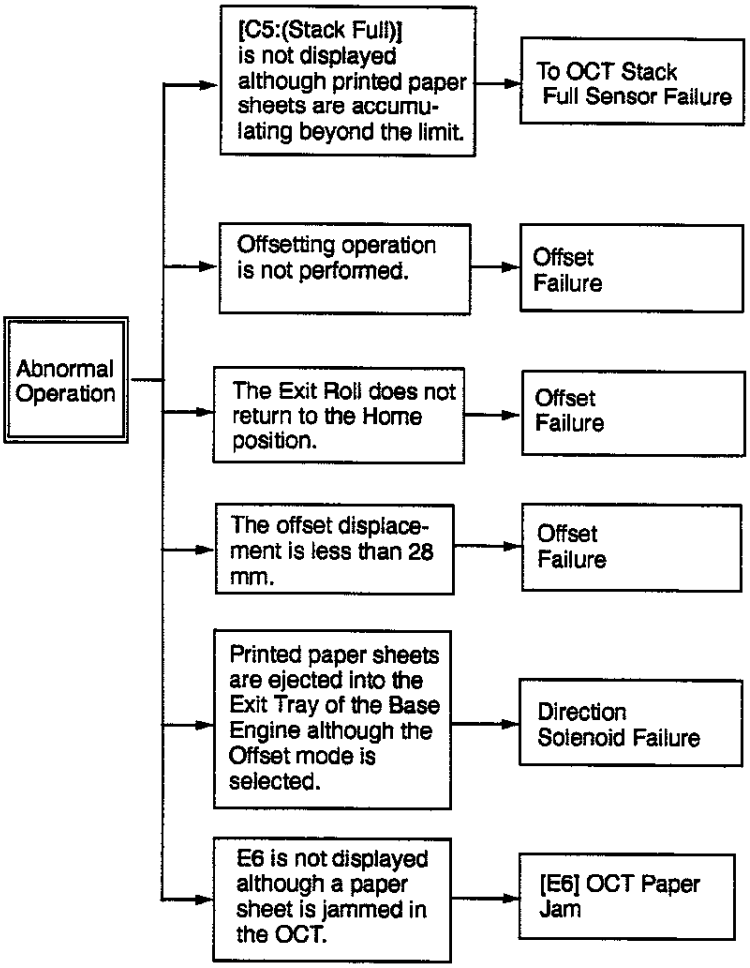
N: Go to *RAP 9.7.8 OCT Exit Sensor Failure.*

7 The voltage between P/J209-12 and P/J209-8 is at the Low level when paper is present and at the High level when paper is not present.

Y: Replace the OCT Harness Assembly.

N: Replace the OCT PWB.

9.7.3 Abnormal Operation



9.7.4 Offset Failure

1 Manually move the offset arm back and forth from the home position to check the OCT Home Sensor. Does the OCT Home Sensor function correctly?

NOTE: Execute Diagnostic Code 02 and check the operation of the OCT Home Sensor.

Y: Go to step 2.

N: Go to *RAP 9.7.7 OCT Home Sensor Failure.*

2 Check the Offset Motor Assembly. Does the Offset Motor Assembly move the Offset Exit Roll Assembly in the offset direction?

NOTE: Execute Diagnostic Code DG 96 and check the operation of the Offset Motor Assembly.

Y: Go to step 3.

N: Go to step 4.

3 Does the OCT Offset Motor Assembly move the Exit Roll Assembly back to the Home position?

NOTE: Execute Diagnostic Code 97 and check operation.

Y: Replace the Print Engine Controller PWB.

N: Go to step 4. Check the Offset Motor Assembly.

4 The voltage measured between P/J209-4 and P/J209-8 is at a Low level when the motor is switched On and a high level when switched Off.

Y: Go to *RAP 9.7.9 OCT Drive Motor Assembly Failure* and *RAP 9.7.10 Offset Motor Assembly Failure.*

N: Go to step 5.

5 The voltage measured between P/J21-4 and P/J21-8 is at a Low level when the motor is switched On and High level when switched Off.

Y: Replace the OCT Harness Assembly.

N: Replace the Print Engine Controller.

9.7.5 OCT Stack Full Sensor Failure

Initial Actions

Check that the Full Stack Sensor Actuator has free movement.

1 The Full Stack Sensor functions correctly.

NOTE: This can be inspected by performing Diagnostic Code 02.

Y: Replace the Print Engine Controller

N: Go to step 2.

2 Check the voltage applied to the Stack Full Sensor. There is +5VDC between P224-1 and P224-3.

Y: Go to step 3.

N: Go to step 6.

3 Check the signal of the Stack Full Sensor (OCT STK SNR). There is +5VDC between P224-2 and P224-3.

Y: Go to step 4.

N: Replace the OCT PWB.

4 Check the signal of the Stack Full Sensor (OCT STK SNR). The voltage between P/J224-2 and P/J224-1 is at the High level when the Exit Tray is full and at the Low level when the Exit Tray is not full.

Y: Go to step 6.

N: Go to step 5.

5 Check the Connector Harness Assembly. There is continuity between J225 and J224.

Y: Replace the Stack Full Sensor.

N: Replace the Connector Harness Assembly.

6 Check the voltage applied to the Stack Full Sensor. There is +5VDC between P21-7 and P21-8.

Y: Go to step 7.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

7 Check the signal of the Stack Full Sensor (STK FULL SNR (OCT)). There is +5VDC between P21-2 and P21-8, when the OCT is full.

Y: Go to step 8.

N: Replace the Print Engine Controller.

8 Check the signal of the Stack Full Sensor (STK FULL SNR (OCT)). The voltage between P/J21-2 and P/J21-8 is at the High level when the Exit Tray is full and at the Low level when the Exit Tray is not full.

Y: Replace the Print Engine Controller.

N: Go to step 9.

9 Check the OCT Harness Assembly. There is continuity between J209 and J202 and between P202 and J21.

Y: Replace the OCT PWB.

N: Replace the OCT Harness Assembly.

9.7.6 OCT Home Sensor Failure

1 There is +1.2VDC between P224-4 and P224-5.

Y: Go to step 2.

N: Go to step 5.

2 There is +5VDC between P224-6 and P224-5 when off of the Home position.

Y: Go to step 3.

N: Go to step 6.

3 The voltage between P/J224-6 and P/J224-5 is at the High level when the OCT Exit Roll Assembly is not at the Home position and at the Low level when at the Home position.

Y: Go to step 7.

N: Go to step 4.

4 There is continuity between J226 and J224.

Y: Replace the OCT Home Sensor.

N: Replace the Connector Harness Assembly.

5 There is +5VDC between P21-7 and P21-8.

Y: Go to step 8.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

6 There is +5VDC between P21-3 and P21-8 when the OCT Exit Roll Assembly is off of the Home position.

Y: Go to step 8.

N: Replace the Print Engine Controller.

7 The voltage between P/J21-3 and P/J21-8 is at the High level when the Exit Roll Assembly is not at the Home position and at the Low level when at the Home position.

Y: Replace the Print Engine Controller.

N: Go to step 8.

8 Check the OCT Harness Assembly. There is continuity between J209 and J202 and between P202 and J21.

Y: Replace the OCT PWB.

N: Replace the OCT Harness Assembly.

9.7.7 OCT Exit Sensor Failure

1 Check the voltage applied to the OCT Exit Sensor Assembly. There is +1.2VDC between P224-7 and P224-8.

Y: Go to step 2.

N: Go to step 5.

2 Check the signal of the OCT Exit Sensor Assembly (OCT EXIT SNR). There is +5VDC between P224-9 and P224-8.

Y: Go to step 3.

N: Go to step 6.

3 Check the signal of the OCT Exit Sensor Assembly (OCT EXIT SNR). The voltage between P/J224-9 and P/J224-8 is at the High level when paper is not present and at the Low level when paper is present.

Y: Go to step 7.

N: Go to step 4.

4 Check the Connector Harness Assembly. There is continuity between J227 and J224.

Y: Replace the OCT EXIT Sensor Assembly.

N: Replace the Connector Harness Assembly.

5 Check the voltage applied to the OCT Exit Sensor Assembly from the Print Engine Controller. There is +5VDC between P21-7 and P21-8.

Y: Go to step 8.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

6 Check the signal of the OCT Exit Sensor Assembly (OCT EXIT SNR). There is +5VDC between P21-12 and P21-8 (paper not present).

Y: Go to step 7.

N: Replace the Print Engine Controller.

7 Check the signal of the Sensor Assembly (OCT EXIT SNR). The voltage between P/J21-12 and P/J21-8 is at the High level when paper is not present and at the Low level when paper is present.

Y: Replace the Print Engine Controller.

N: Go to step 8.

8 Check the OCT Harness Assembly. There is continuity between J209 and J202 and between P202 and J21.

Y: Replace the OCT PWB.

N: Replace the OCT Harness Assembly.

9.7.8 OCT Drive Motor Assembly Failure

1 Check the Power Supply to the OCT Drive Motor Assembly. There is +24VDC between the following pins:

- P210-1 and P209-8
- P210-2 and P209-8
- P210-3 and P209-8
- P210-4 and P209-8
- P210-5 and P209-8
- P210-6 and P209-8

Y: Go to step 2.

N: Replace the OCT PWB.

2 Check the resistance of the windings of the OCT Drive Motor Assembly. There is approximately 115 ohms resistance between the following pins:

- J210-1 and J210-3
- J210-1 and J210-5
- J210-2 and J210-4
- J210-2 and J210-6

Y: Replace the OCT PWB.

N: Replace the OCT Drive Motor Assembly (Exit).

9.7.9 Offset Motor Assembly Failure

1 Check the Cam Gear. Does the rotation of the gear of the Offset Motor Assembly move the Cam Gear smoothly?

NOTE: Check by rotating the Cam Gear manually.

Y: Go to step 2.

N: Replace the Cam Gear.

2 Check the Power Supply to the Step Motor Assembly. There is +24VDC between the following pins:

- P223-1 and P209-8
- P223-2 and P209-8
- P223-3 and P209-8
- P223-4 and P209-8
- P223-5 and P209-8
- P223-6 and P209-8

Y: Go to step 3.

N: Replace the OCT PWB.

3 Check the resistance of the windings of the Offset Motor Assembly. There is approximately 115 ohms resistance between the following pins:

- J223-1 and J223-3
- J223-1 and J223-5
- J223-2 and J223-4
- J223-2 and J223-6

Y: Replace the OCT PWB.

N: Replace the Offset Motor Assembly.

9.7.10 Direction Solenoid Failure

1 Does the Direction Solenoid function correctly?

NOTE: Execute Diagnostic Code 86 and check the operation.

Y: Check the condition of the Solenoid Lever and the Exit Gate.

N: Go to step 2.

2 Check the voltage applied to the Solenoid. There is +24VDC between P224-11 and P224-8.

Y: Go to step 3.

N: Go to step 6.

3 Check the signal to the Solenoid. The voltage between P/J224-10 and P/J224-8 is at the Low level when the OCT is selected and at the High level (+24VDC) when not selected. The voltage between P/J224-12 and P/J224-8 is at the High level (+24VDC) when the OCT is selected and at the Low level when not selected.

Y: Replace the Direction Solenoid.

N: Go to step 4.

4 Check the Connector Harness Assembly. There is continuity between J224 and J228.

Y: Go to step 5.

N: Replace the Connector Harness Assembly.

5 Check the resistance of the windings of the Solenoid. The resistance between J228-1 and J228-2 is about 90Ω. The resistance between J228-3 and J228-2 is about 90Ω.

Y: Go to step 6.

N: Replace the Direction Solenoid.

6 Check the voltage applied to the Solenoid. There is +24VDC between P21-9 and P21-10.

Y: Go to step 7.

N: Go to *RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

7 Check the control signal of the Solenoid. The voltage between P/J21-11 and P/J21-8 at the Low level when the OCT is selected and at the High level (+5VDC) when not selected.

Y: Replace the Print Engine Controller.

N: Go to step 8.

8 Check the OCT Harness Assembly. There is continuity between J209 and J202 and between P202 and J21.

Y: Replace the OCT PWB.

N: Replace the OCT Harness Assembly.

9.8 Installation and Removal

For the installation and removal of the OCT Unit, see the 4517/4517mp User Guide.

Section 10

Duplex Module Option

Specifications **10-3**
Configuration 10-3
External View 10-3
Installation in the Base Engine 10-3
Electric Specifications 10-4
Power Supply 10-4
Mechanical Specifications 10-4
Dimensions and Weight: 10-4

Duplex Module Parts List **10-6**
PL 16 Duplex Module 10-6

Duplex Module REPS **10-8**
Duplex Module 10-8
Direction Chute and Upper Chute 10-9
Duplex Pinch Roll (on the Upper Chute) 10-10
Duplex Cover 10-11
Connector Chute 10-12

Duplex Pinch Roll (Connector Chute Side)..... 10-13
Duplex PWB Assembly..... 10-14
Duplex Sensor Assembly..... 10-15
Duplex Harness Assembly..... 10-16
Duplex Motor Assembly..... 10-17
Duplex Transfer Roller Assembly..... 10-18
Latch..... 10-19

Paper Transportation..... 10-20
Paper Transportation Mechanism..... 10-20
Paper Path..... 10-21

Drive Power Transmission..... 10-22

Function Of Major Components..... 10-22
Function of Duplex Transport Roll Assemblies..... 10-22
Locations of Major Components..... 10-23

Wiring Diagrams..... 10-24
Connector Locators..... 10-24
P/J Table..... 10-25

Duplex Module RAPS..... 10-26
Duplex Unit Fail (E7)..... 10-26
Paper Jam in Duplex Unit (E1)..... 10-27
Non-Supported Paper Size Inserted in the Duplex Mode..... 10-29
Abnormal Operation..... 10-30
Exit Switch-to-Duplex Failure..... 10-31
Duplex Sensor Assembly Failure..... 10-32

Installation and Removal..... 10-33

10.1 Specifications

10.1.1 Configuration

10.1.1.1 External View

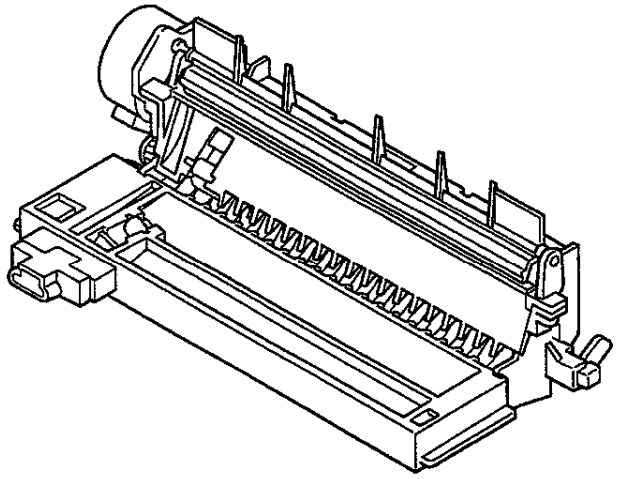


Figure 10.1.1.1.1 External View

10.1.1.2 Installation in the Base Engine

The Duplex Unit is installed in the base engine from the rear with the Rear Cover opened. (See the 4517/4517mp User Guide for the detailed installation procedure.)

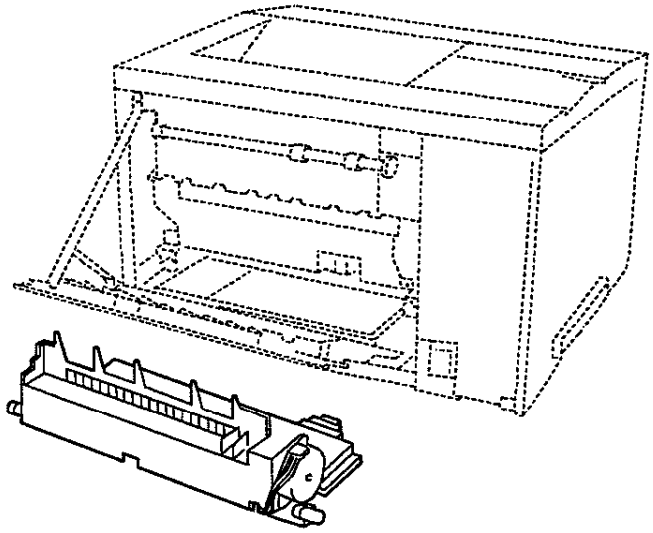


Figure 10.1.1.2.1 Installation in the Base Engine

10.1.2 Electric Specifications

10.1.2.1 Power Supply

+24V DC and +5V DC are supplied from the base engine.

10.1.3 Mechanical Specifications

10.1.3.1 Dimensions and Weight:

Width	Depth	Height	Weight
300 mm	135 mm	100 mm	1.0 kg

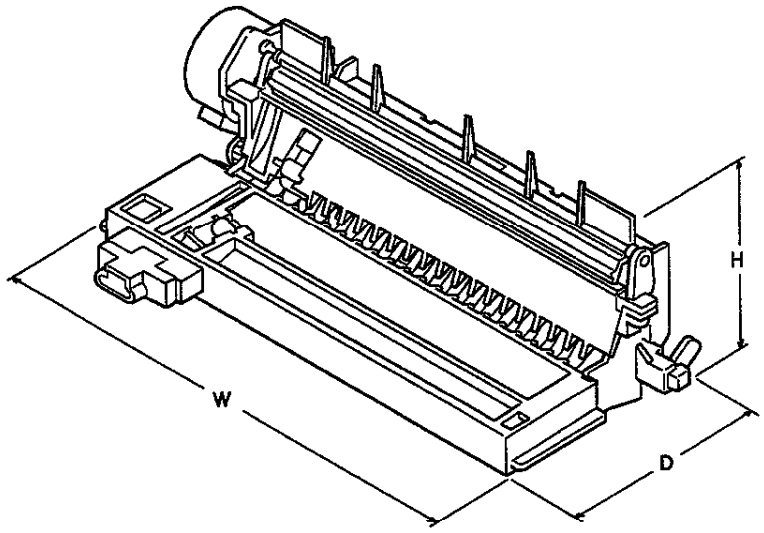
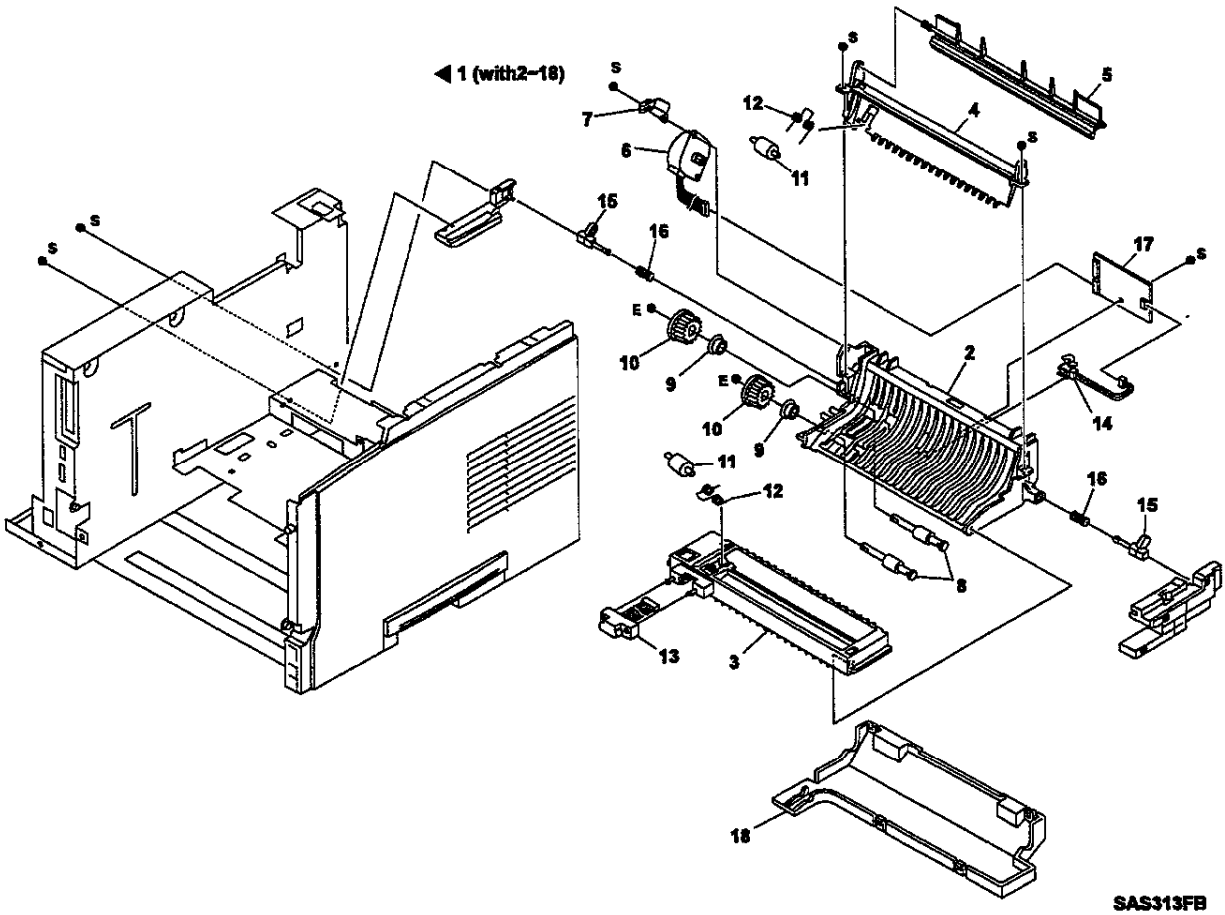


Figure 10.1.3.1.1 Mechanical Specifications

This page intentionally blank.

10.2 Duplex Module Parts List

10.2.1 PL 16 Duplex Module



10.2.2 PL 16 Duplex Module

Item	Part	Description
1.	48K12991	Duplex Module Assembly (with Item 2-18)
2.	--	Duplex Lower Chute
3.	--	Connector Chute
4.	--	Upper Chute
5.	--	Direction Chute
6.	127K88531	Duplex Drive
7.	--	Ground Spring
8.	59K00420	Duplex Transfer Roller
9.	--	Bearing
10.	--	Roll Gear (15T)
11.	59E90690	Duplex Pinch Roll
12.	9E52640	Pinch Spring
13.	152K65420	Duplex Harness
14.	130K83310	Duplex Sensor
15.	--	Latch
16.	--	Compression Spring
17.	140K64930	Duplex PWB
18.	--	Duplex Cover

10.3 Duplex Module REPS

10.3.1 Duplex Module

Removal

1 Open the Rear Cover Assembly.
2 Press both latches inward and pull out the Duplex Module.

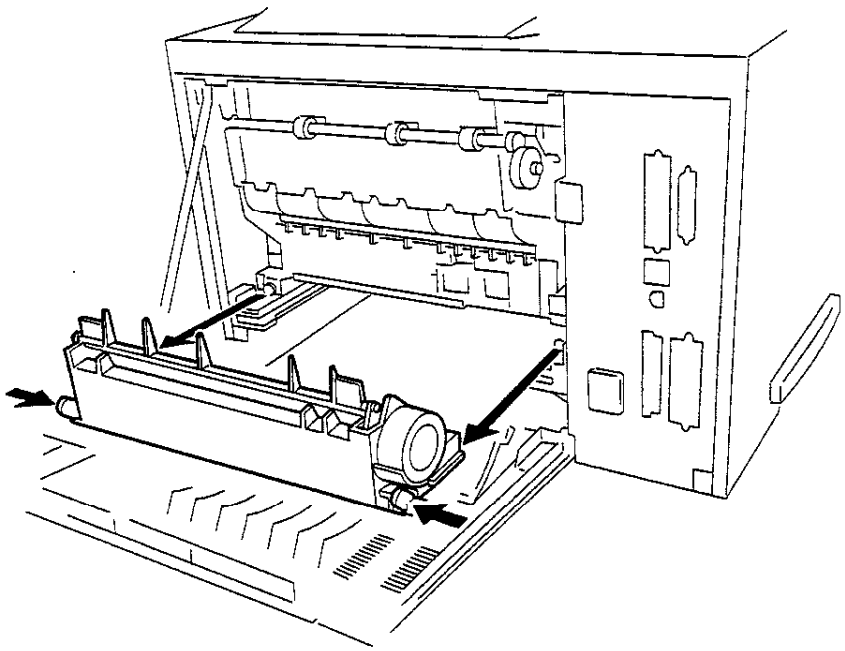


Figure 10.3.1.1 Duplex Module Removal

Replacement

Perform the removal steps in reverse order.

10.3.2 Direction Chute and Upper Chute

Removal

1 Remove the Duplex Module (*REP 10.3.1 Duplex Module*).
2 Raise the left end of the Direction Chute off the holder, then slide the Direction Chute to the left in the direction of the axis to take the right end off the holder.
3 Remove the two screws which secure the Upper Chute to the Duplex Module.
4 Lift off the Upper Chute.

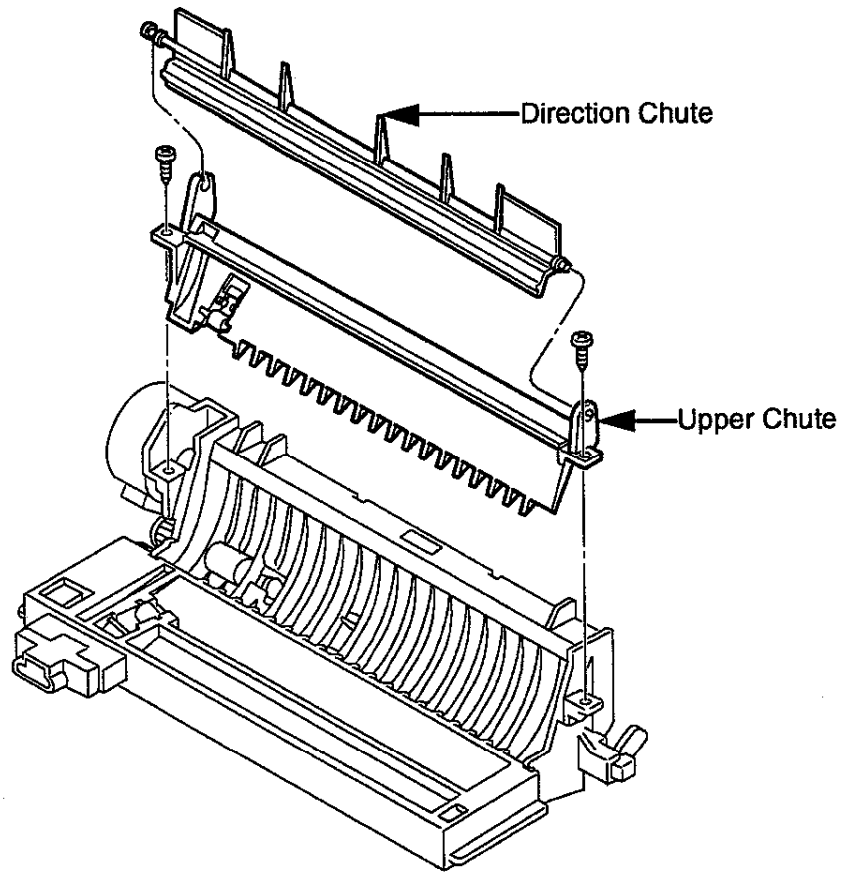


Figure 10.3.2.1 Removing the Direction Chute and the Upper Chute

Replacement

Perform the removal steps in reverse order.

10.3.3 Duplex Pinch Roll (on the Upper Chute)

Removal

1 Remove the Upper Chute (*REP 10.3.2 Direction Chute and Upper Chute*).
2 Press the Duplex Pinch Roll from behind to take it off the Upper Chute.
3 Remove the Pinch Spring from the hook.

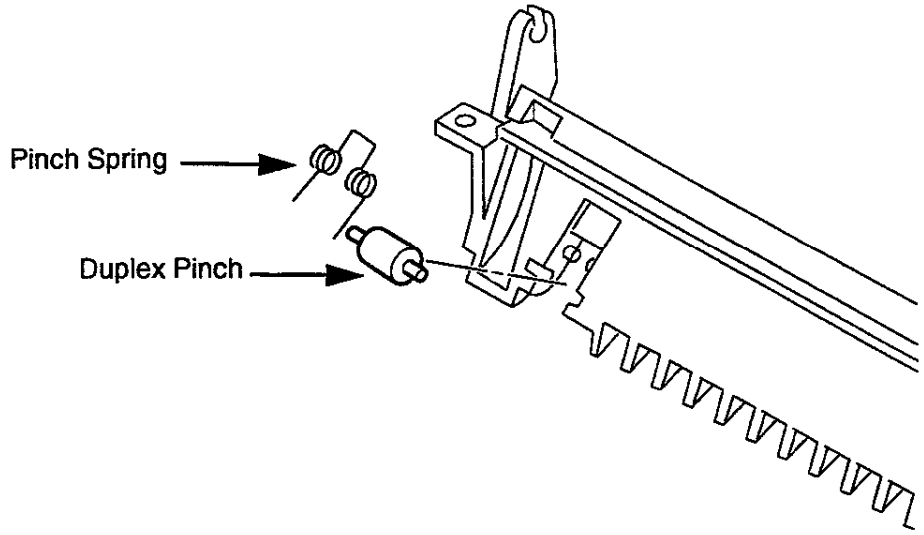


Figure 10.3.3.1 Removing the Duplex Pinch Roll

Replacement

Perform the removal steps in reverse order.

10.3.4 Duplex Cover

Removal

1 Remove the Duplex Module (*REP 10.3.1 Duplex Module*).
2 Put the Duplex Module upside down with the Duplex Cover up.
3 Press the Duplex Cover in the direction shown by the smaller arrows in the figure below and raise it to remove from the Duplex Module.

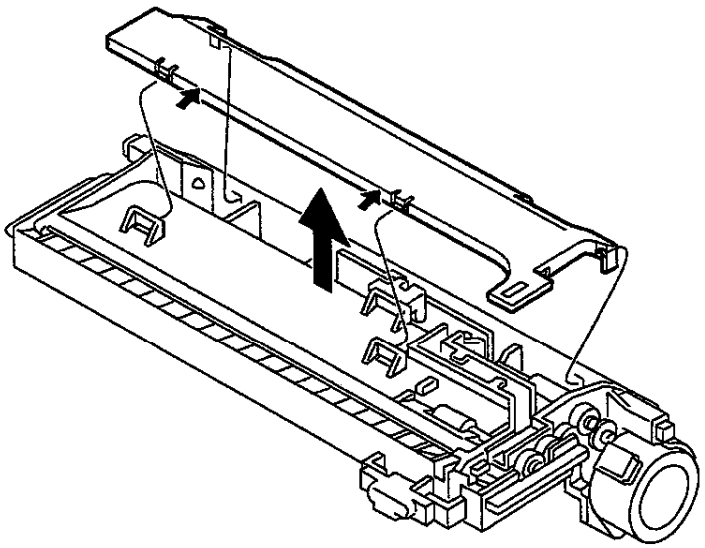


Figure 10.3.4.1 Removing the Duplex Cover

Replacement

Perform the removal steps in reverse order.

10.3.5 Connector Chute

Removal

1 Remove the Duplex Module (*REP 10.3.1 Duplex Module*).
2 Remove the one screw which secures the Connector Chute to the Duplex Module.
3 Press inward the two claws which retain the Duplex Harness Assembly to disengage and detach the Duplex Harness Assembly from the Connector Chute.

NOTE: Leave the Duplex Harness Assembly detached.

4 Shift/pry the Connector Chute slightly to the right to disengage the pin in the inside of the right end of the Connector Chute from the Duplex Module.
5 Pull the Connector Chute off the indentations of the Duplex Module.

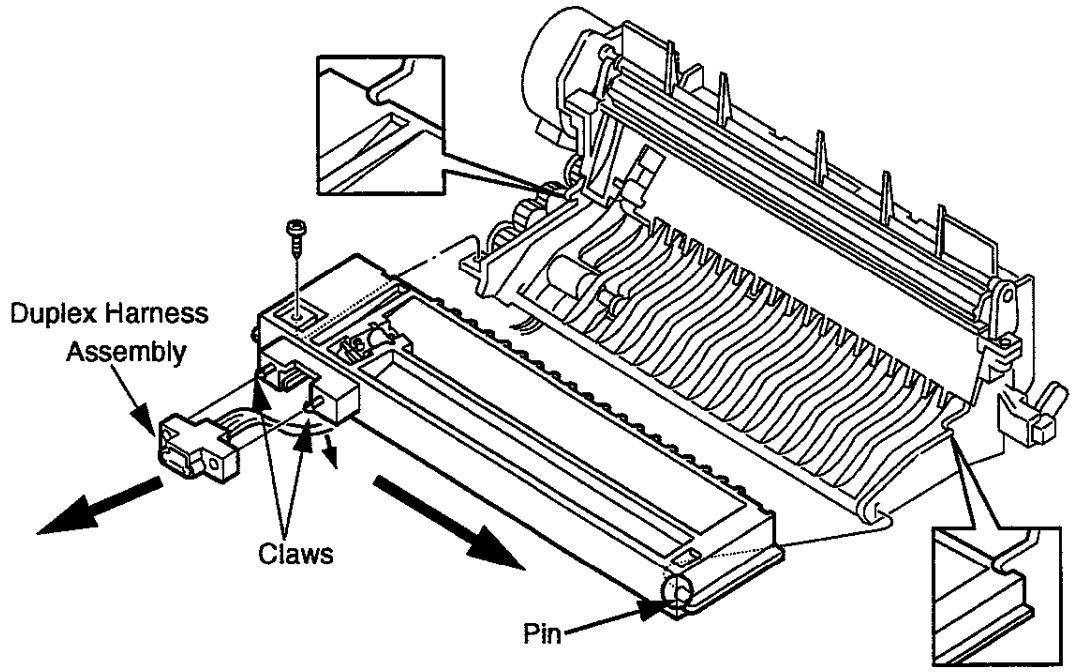


Figure 10.3.5.1 Removing the Connector Chute

Replacement

Perform the removal steps in reverse order.

10.3.6 Duplex Pinch Roll (Connector Chute Side)

Removal

1 Remove the Connector Chute (*REP 10.3.5 Connector Chute*).
2 Press the Duplex Pinch Roll from behind to remove it from the Connector Chute.
3 Remove the Pinch Spring from the hook.

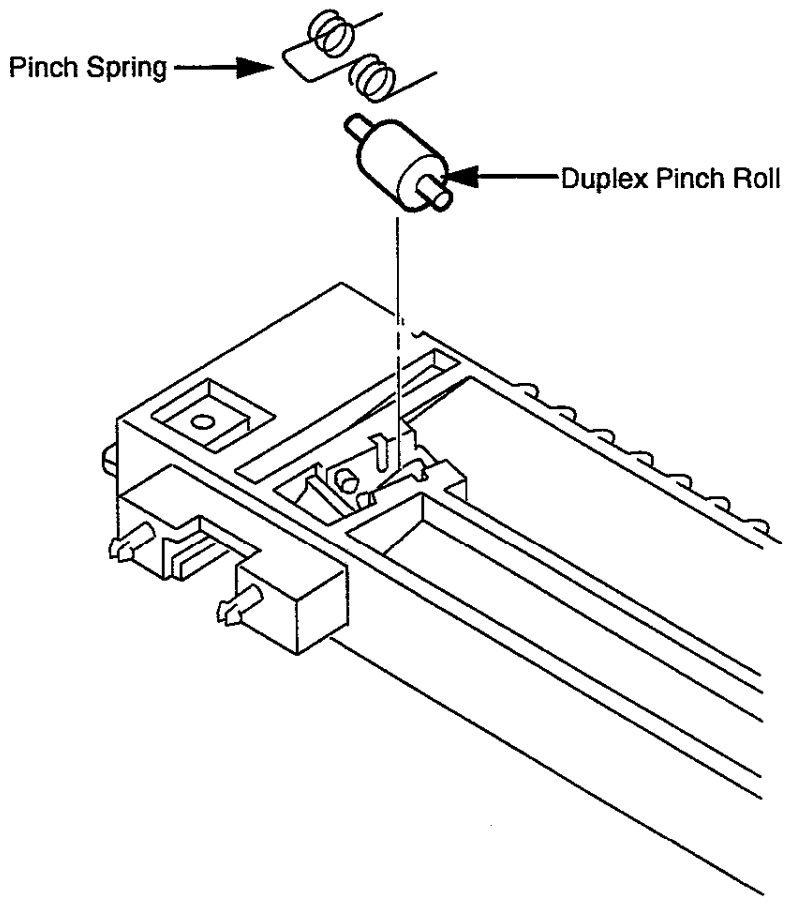


Figure 10.3.6.1 Removing the Duplex Pinch Roll (Connector Chute Side)

Replacement

Perform the removal steps in reverse order.

10.3.7 Duplex PWB Assembly

Removal

1 Remove the Duplex Cover (*REP 10.3.4 Duplex Cover*).
2 Press/pull out the pin that secures the Duplex PWB Assembly.
3 Slide the Duplex PWB Assembly upward to remove it from the Duplex Module.
4 Disconnect the three Connectors connected to the PWB Assembly.

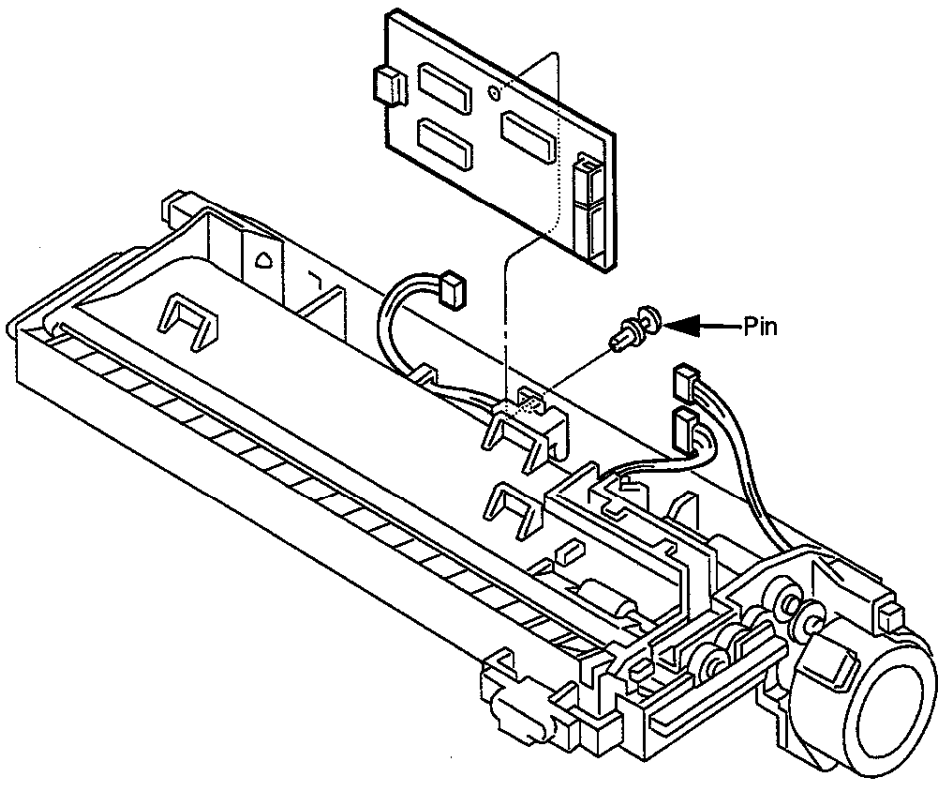


Figure 10.3.7.1 Removing the Duplex PWB Assembly

Replacement

Perform the removal steps in reverse order.

10.3.8 Duplex Sensor Assembly

Removal

1 Remove the Duplex PWB Assembly (*REP 10.3.7 Duplex PWB Assembly*).
2 Press the claws of the Duplex Sensor Assembly inward to disengage and pull the Duplex Sensor Assembly, together with the harness, off the Duplex Module.

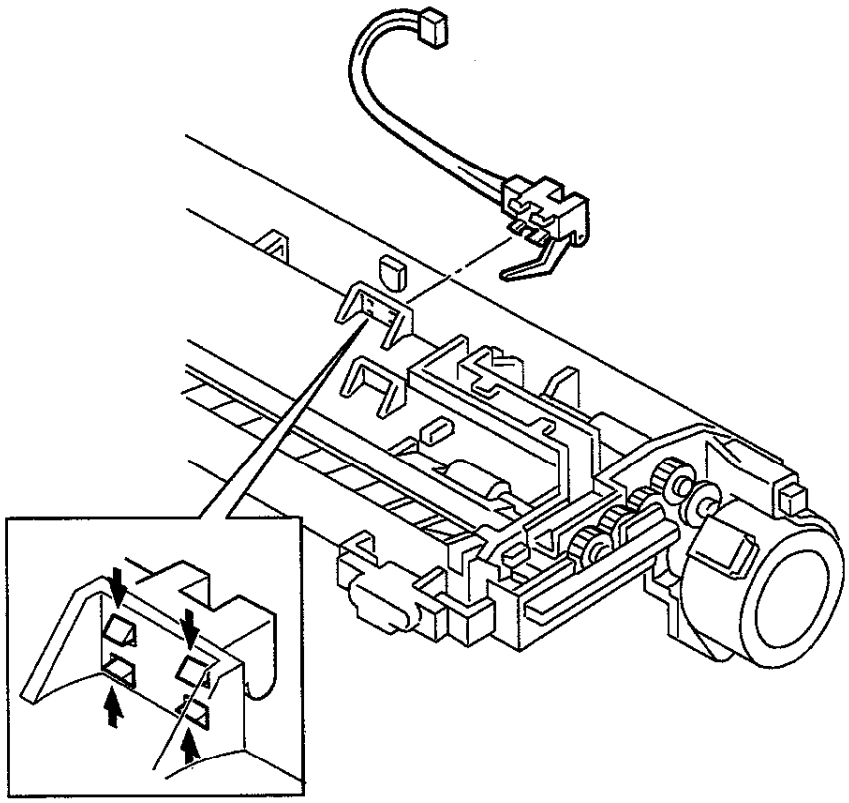


Figure 10.3.8.1 Removing the Duplex Sensor Assembly

Replacement

Perform the removal steps in reverse order.

10.3.9 Duplex Harness Assembly

Removal

1 Remove the Duplex PWB Assembly (*REP 10.3.7 Duplex PWB Assembly*).
2 Press the two claws which retain the Duplex Harness Assembly towards each other to disengage and detach the Duplex Harness Assembly from the Connector Chute.
3 Remove the Duplex Harness Assembly from the Duplex Module along the wiring path.

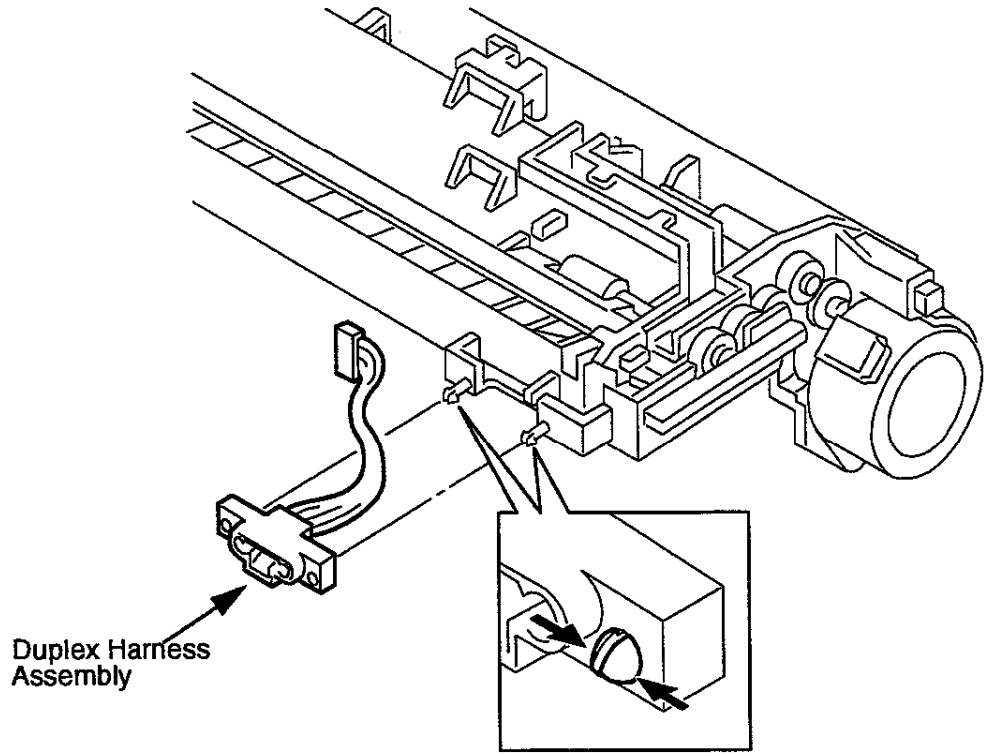


Figure 10.3.9.1 Removing the Duplex Harness Assembly

Replacement

Perform the removal steps in reverse order.

10.3.10 Duplex Motor Assembly

Removal

1 Remove the Duplex PWB Assembly (*REP 10.3.7 Duplex PWB Assembly*).
2 Remove the two screws which secure the Duplex Motor Assembly to the Duplex Module.
3 Remove the Earth Spring attached to the Drive Motor.
4 Remove the Duplex Motor Assembly together with the harness.

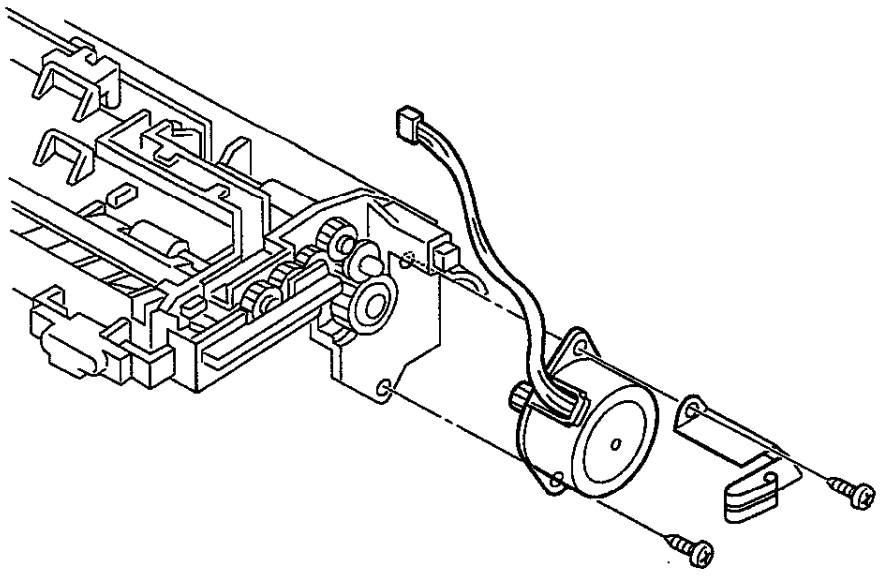


Figure 10.3.10.1 Duplex Motor Assembly

Replacement

Perform the removal steps in reverse order.

10.3.11 Duplex Transfer Roller Assembly

Removal

1. Remove the Duplex Cover (*REP 10.3.4 Duplex Cover*).
2. Slide the Roller Gear off the shaft of each of the two Duplex Transfer Roller Assemblies, pulling the lever on the gear away from the shaft.
3. Slide the bearing off the shaft of each Duplex Transfer Roller Assembly.
4. Shift each Duplex Transfer Roller Assembly to the inside to align the chordal grooves in the shaft with the supporting wall (with the grooves directed vertically) and then lift and pull towards the Duplex PWB.

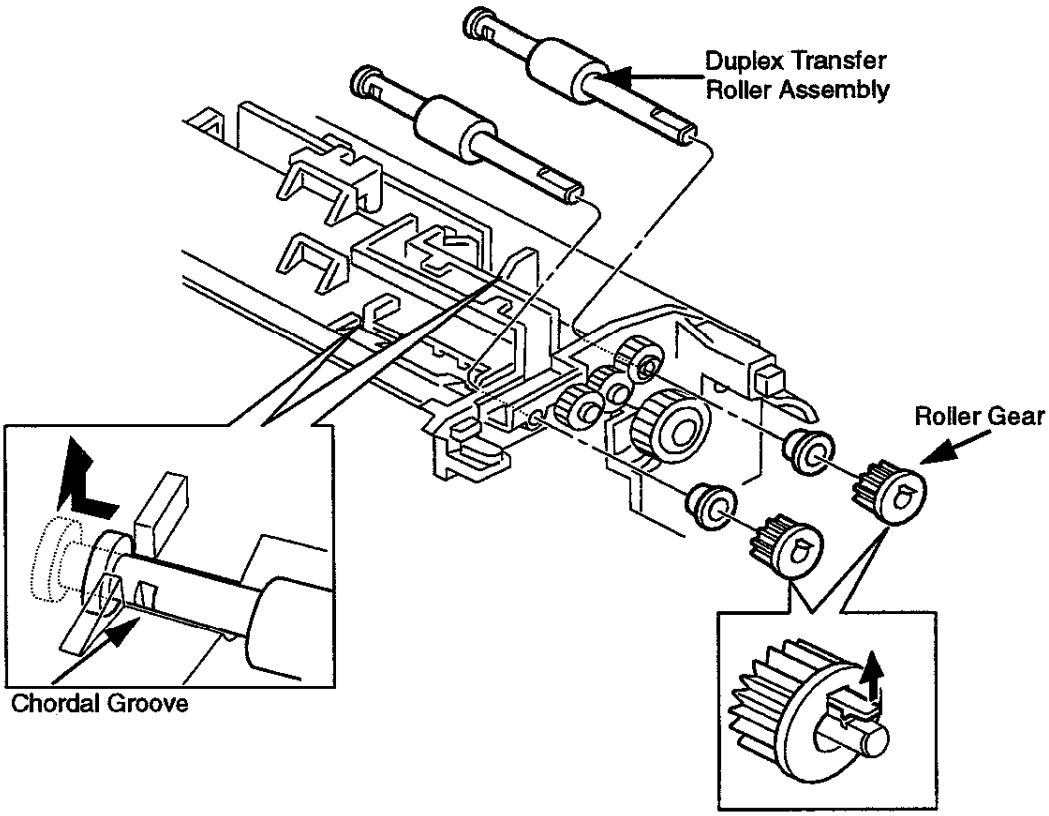


Figure 10.3.11.1 Duplex Transfer Roller Assembly

Replacement

Perform the removal steps in reverse order.

10.3.12 Latch

Removal

1 Remove the Duplex Cover (*REP 10.3.4 Duplex Cover*).
2 Pull off the latches outward, pressing the hooks towards each other to disengage.

NOTE: Be careful not to lose the Compression Spring.

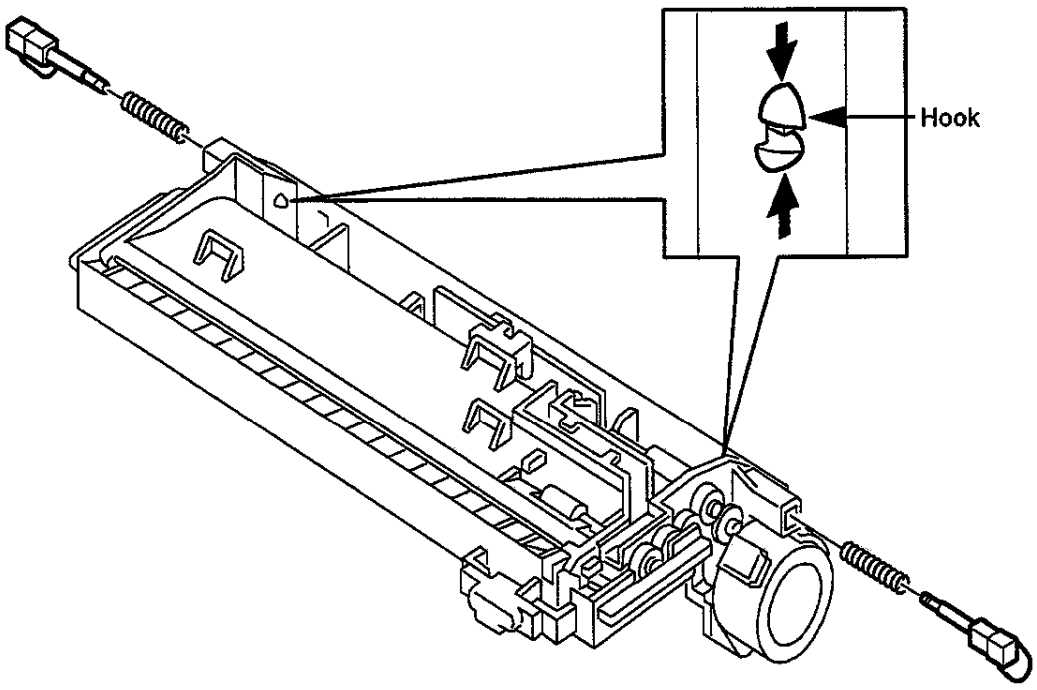


Figure 10.3.12.1 Removing the Latch

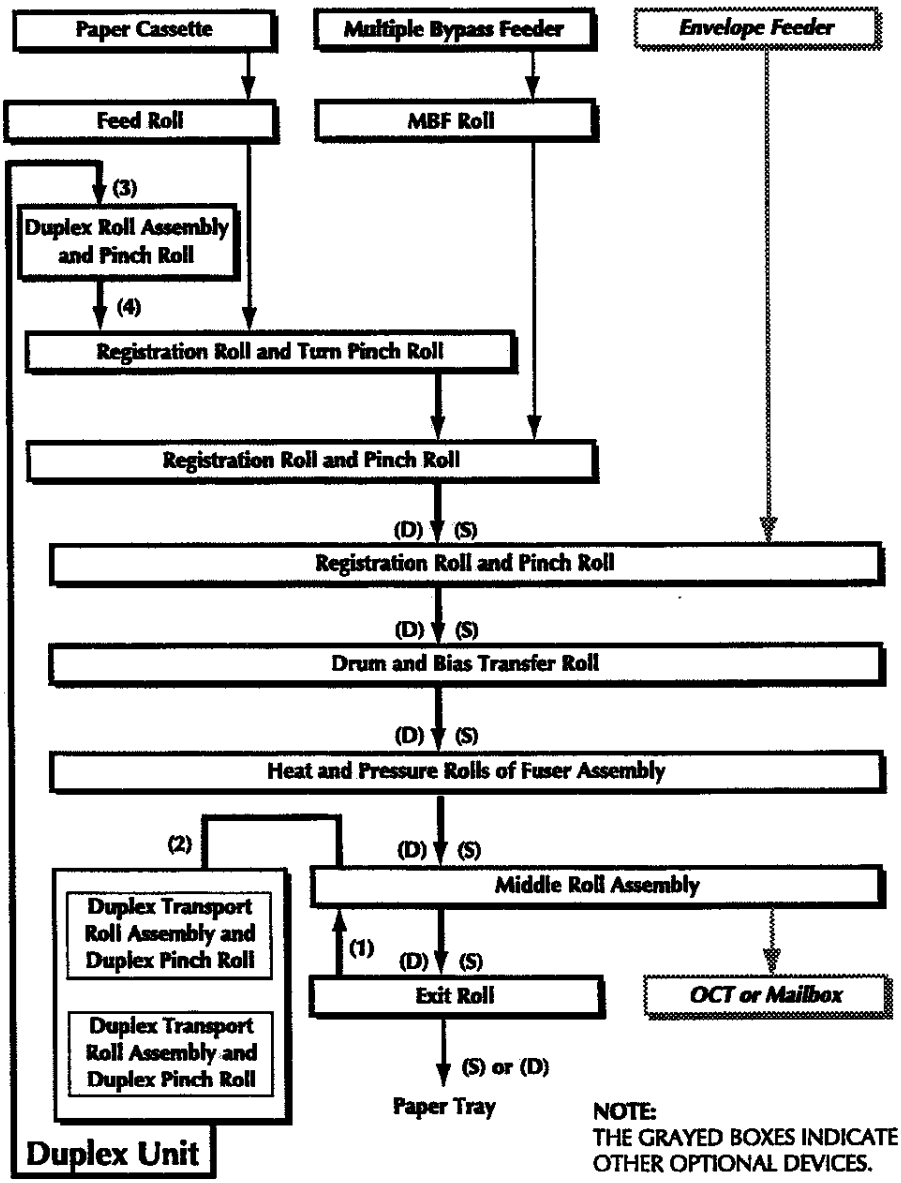
Replacement

Perform the removal steps in reverse order.

10.4 Paper Transportation

10.4.1 Paper Transportation Mechanism

The paper transport mechanism is shown below along the path of paper travel. (S) and (D) designate Simplex and Duplex. In the Duplex transport, paper is turned upside down by rolls 1 to 4. (For the paper transportation in other devices, refer to their respective service manuals.)



10.4.2 Paper Path

The path of paper travel through the printer with the Duplex Unit installed is shown in Figure 10.4.2.1.

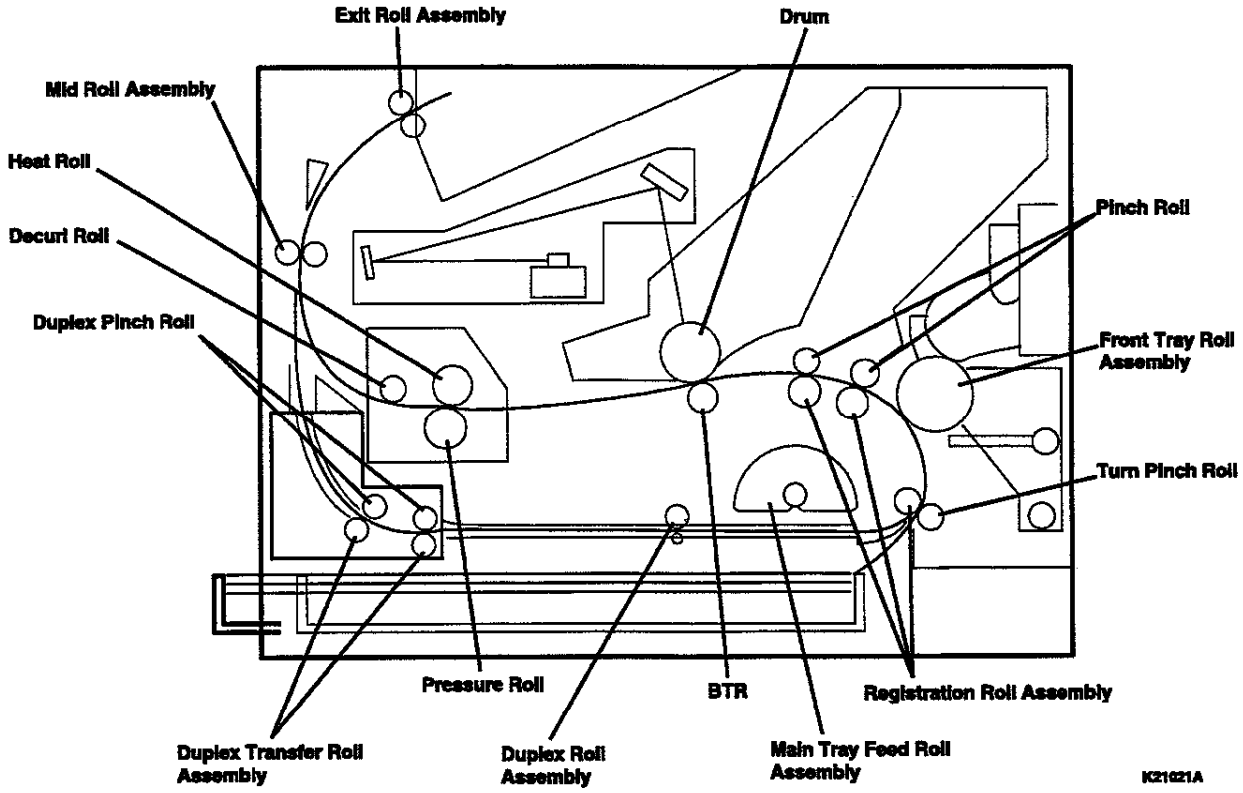


Figure 10.4.2.1 Paper Path

10.5 Drive Power Transmission

The drive power for the Duplex Unit is generated by the Duplex Drive Assembly and transmitted in the flow as shown in Figure 10.5.1.

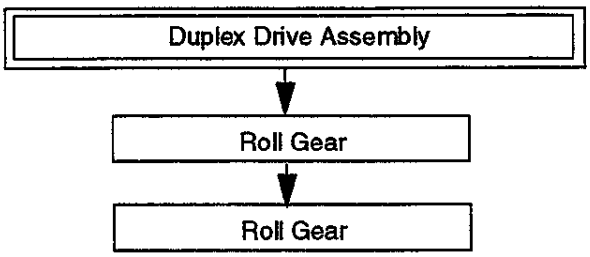


Figure 10.5.1 Drive Power Transmission

10.6 Function Of Major Components

The function of the major components is described below with reference to the drawings.

10.6.1 Function of Duplex Transport Roll Assemblies

These roll assemblies transport the paper sent from the Middle Roll Assembly of the base engine along the Chute.

- Duplex Drive Assembly

  The Duplex Drive Assembly drives the Duplex Transport Roll Assemblies.
- Duplex Sensor Assembly

  This sensor detects the entrance of paper into and the exit of paper from the Duplex Unit.
- Duplex PWB Assembly

  This PWB Assembly controls the operation of the Duplex Unit.

10.6.2 Locations of Major Components

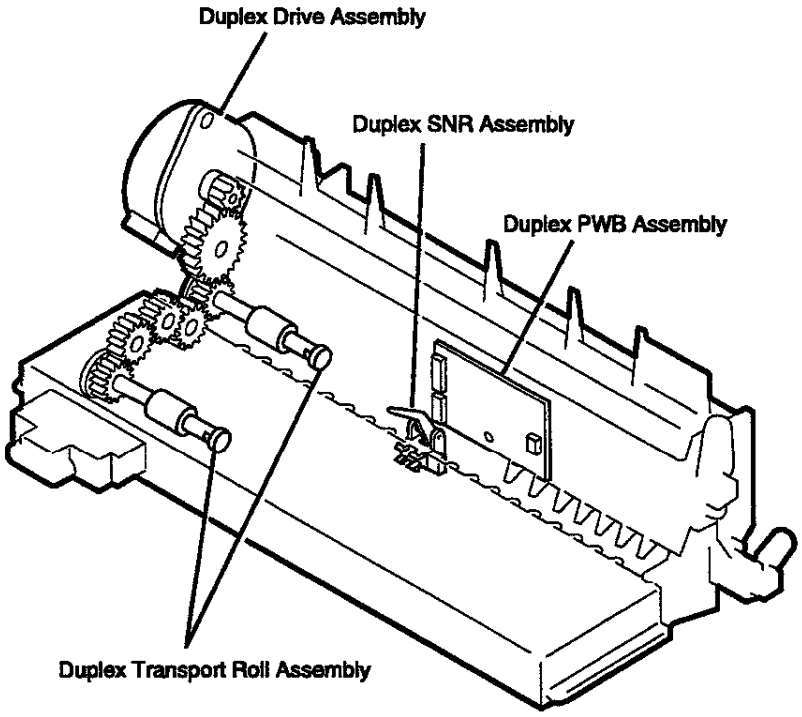


Figure 10.6.2.1 Locations of Major Components

10.7 Wiring Diagrams

10.7.1 Connector Locators

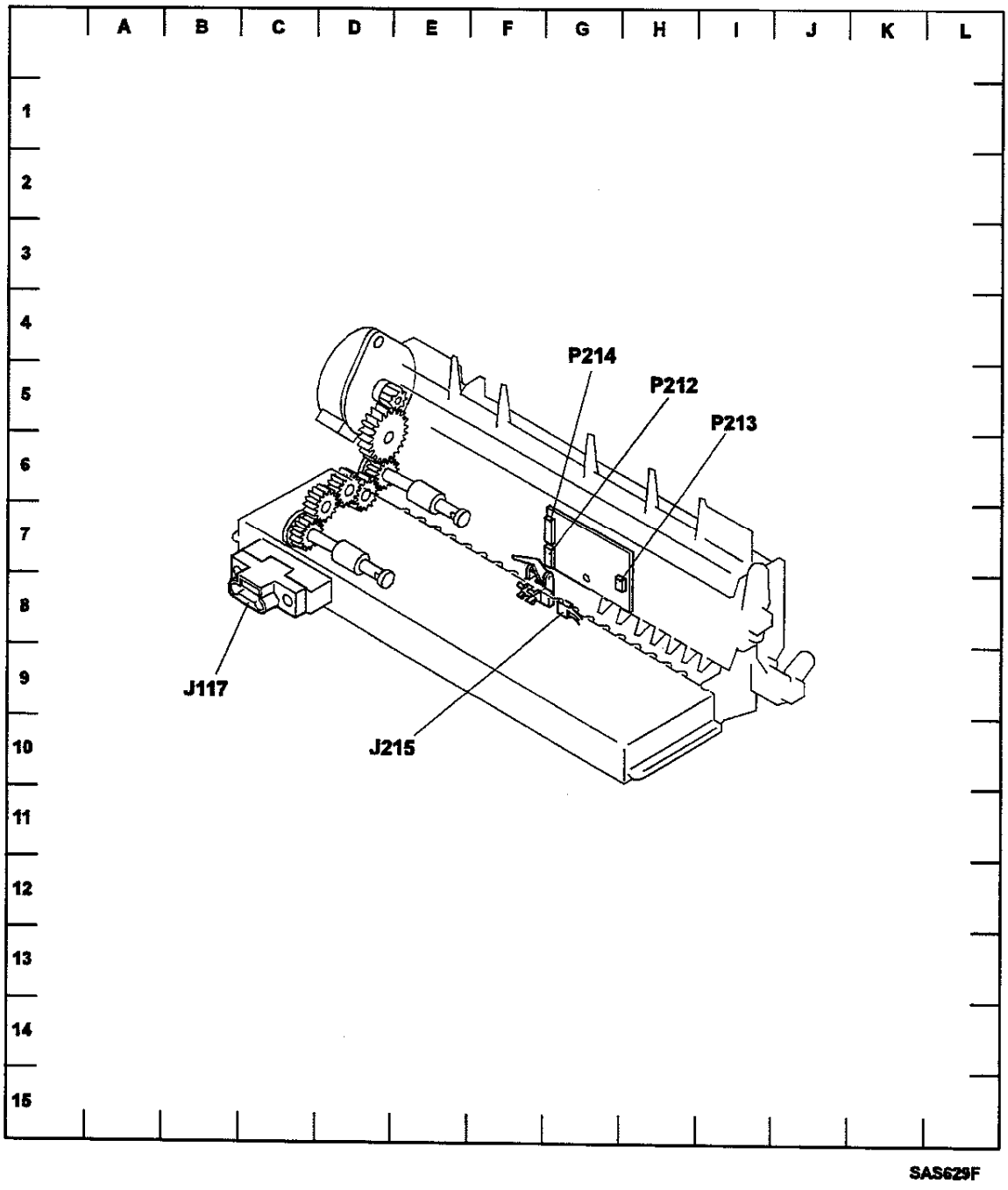


Figure 10.7.1.1 Connector Locators

10.7.2 P/J Table

PJ	Coordinate	Mounting (*1)		Harness (*2)		Description
		Mounted on	PL	Name (*3)	PL	
117	B7	Connector Chute	16-3	Duplex Harness Assembly	16-13	Connection between the Duplex PWB and Print Engine Controller
212	G7	Duplex PWB	16-17	@Motor Assembly	16-6	Connection between the Duplex PWB and Motor Assembly
213	H8	Duplex PWB	16-17	@Duplex Sensor Assembly	16-14	Connection between the Duplex PWB and the Duplex Sensor Assembly
214	G7	Duplex PWB	16-17	Duplex Harness Assembly	16-13	Connection between the Duplex PWB and the Print Engine controller
215	G8	Duplex Sensor Assembly	16-14	@Duplex Sensor Assembly	16-14	Connection between the Sensor and Harness of the Duplex Sensor Assembly (*4)

Notes:

(*1): The "PL" on the "Mounting" column indicates the corresponding parts list and item number.

(*2): The "PL" on the "Harness" column indicates the corresponding parts list and item number.

(*3): @ at the beginning of the harness name indicates that the harness is a part of the component.

(*4): The Sensor and the Harness are detachable, but they are treated as an assembly in this manual.

10.8 Duplex Module RAPS

10.8.1 Duplex Unit Fail (E7)

1 Check the Duplex Harness Assembly. Is there +5VDC between P/J214-7 and P/J214-8?

Y: Go to step 2.

N: Go to step 6.

2 Check the Duplex PWB. Is the voltage between P/J214-1 and P/J214-7 at the low level?

Y: Go to step 3.

N: Replace the Duplex PWB.

3 Check the PWB Fuser. Is the voltage between P/J116-1 and P/J116-11 at the low level?

Y: Go to step 4.

N: Replace the Fuser PWB.

4 Check the HVPS. Is the voltage between P/J111-A3 and P/J111-B6 at the low level?

Y: Go to step 5.

N: Replace the HVPS.

5 Check the Print Engine Controller. Is the voltage between P/J15-B7 and P/J15-A10 at the low level?

Y: Replace the Print Engine Controller.

N: Replace the HVPS Harness Assembly.

6 Check the LVPS. Is there +5VDC between P/J117-12 and P/J117-7?

Y: Replace the Duplex Harness Assembly.

N: Go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

10.8.2 Paper Jam in Duplex Unit (E1)

1 Does the jam occur immediately when the power is switched on?

Y: Go to step 2.

N: Go to step 3.

2 Are pieces of paper or any foreign matter in the Duplex Unit area?

Y: Remove what is in the Exit area.

N: Go to step 3.

3 Check the rotation of the Duplex Roll Transport Assembly. Does the Duplex Roll Transport Assembly rotate normally?

NOTE: Execute Diagnostic Codes 91 and 92 and perform a visual inspection. (91 is high-speed rotation, and 92 is low-speed rotation.)

Y: Go to step 5.

N: Go to step 4.

4 Check the Motor Assembly. Is there +24VDC between P/J212-1 and P/J212-3 and between P/J212-2 and P/J212-4?

Y: Replace the Motor Assembly.

N: Go to step 9.

5 Check the Duplex Sensor Assembly. Does the Duplex Sensor Assembly operate normally?

NOTE: Execute Diagnostic Code 02 to check it.

Y: Go to step 6.

N: Go to *RAP 10.8.6 Duplex Sensor Assembly Failure.*

6 Check the Duplex Sensor Assembly. Is the voltage between P/J213-3 and P/J213-2 at the low level when paper is present and at the high level when paper is not present?

Y: Go to step 7.

N: Replace the Duplex Sensor Assembly.

7 Check the Duplex PWB. Is the voltage between P/J214-7 and P/J214-2 at the low level when paper is present and at the high level when paper is not present?

Y: Go to step 8.

N: Replace the Duplex PWB.

8 Check the Print Engine Controller. Is the voltage between P/J15-A5 and P/J15-A10 at the low level when paper is present and at the high level when paper is not present?

Y: Replace the Print Engine Controller.

N: Replace the Duplex Harness Assembly.

9 There is 24V between P/J214-6 and P/J214-5.

Y: Go to step 10.

N: Replace the Duplex PWB.

10 There is 24V between P/J116-8 and P/J116-9.

Y: Go to step 11.

N: Replace the Fuser PWB.

11 There is 24V between P/J111-A5 and P/J111-B11.

Y: Go to step 12.

N: Replace the HVPS.

12 There is 24V between P/J15-A8 and P/J15-B2.

Y: Replace the Print Engine Controller if the problem is not solved. Go to *RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

N: Replace the Print Engine Controller HVPS Harness.

10.8.3 Non-Supported Paper Size Inserted in the Duplex Mode

1 Check the paper size. Is one of the four available sizes of paper (Legal 14", Legal 13", A4, or Letter) used?

Y: Go to step 2.

N: Use paper in a size that is supported.

2 Check the configuration sheet for the paper size set for the Front Tray. Does the paper match that selected on the configuration sheet.

Y: Go to step 3.

N: Use the paper size corresponding to configuration code "A".

3 Check the paper size. Does the paper size switch ("Size Sensor"), configuration code "00", correspond to the size of the paper in the Tray Assembly?

Y: Go to step 5.

N: Go to step 4.

4 Perform a Tray Assembly analysis.

NOTE: Check if the paper guide in the back of the Tray is adjusted properly.

NOTE: Refer to Table 7.4.15.1 and Table 7.4.15.2 for switch combinations for various sheet sizes.

Check if the Size Sensor Assembly shows a correct switch combination for the size of the print sheets present in the Tray when the Tray presses the Size Spring Sensor Assembly.

Remove the Tray Assembly and perform a visual inspection while inserting the Paper Tray into the slot.

Y: Go to *RAP 10.8.6 Duplex Sensor Assembly Failure.*

N: Replace the Tray Assembly.

5 Perform a Duplex Sensor Assembly analysis. Check if the Duplex Sensor Assembly pushes the actuator when it detects the presence of a sheet and turns it back when there is no sheet present.

Remove the Duplex Sensor Assembly and perform a visual inspection.

Y: Go to step 6.

N: Replace the Duplex Sensor Assembly.

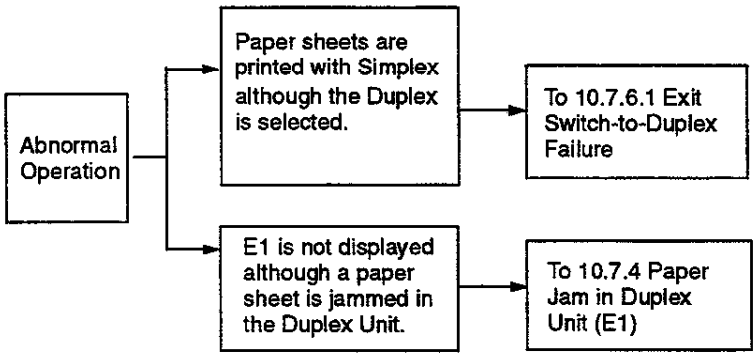
6 Perform a Duplex Sensor Assembly analysis. Check if the Duplex Sensor Assembly is functioning normally.

You can inspect it by performing Diagnostic Code 02.

Y: Replace the Print Engine Controller.

N: Go to *RAP 10.8.6 Duplex Sensor Assembly Failure.*

10.8.4 Abnormal Operation



10.8.5 Exit Switch-to-Duplex Failure

1 Check the Exit Assembly. Does the Exit Assembly function correctly?

NOTE: Execute Diagnostic Code 93, and check if the Exit Motor rotates clockwise.

Y: Go to step 2.

N: Go to *RAP 7.4.10 Exit Sensor Assembly Failure.*

2 Check the Print Engine Controller. Does the "Exit Switch-to-Duplex Failure" occur after the Print Engine Controller was replaced?

Y: Check the System Controller PWB Assembly connection to the Print Engine Controller PWB connection.

N: The problem is solved.

10.8.6 Duplex Sensor Assembly Failure

1 Is there +5VDC between P213-1 and P213-2?

Y: Go to step 6.

N: Go to step 2.

2 Is there +5VDC between P124-8 and P124-7?

Y: Replace the Duplex PWB.

N: Go to step 3.

3 Is there +5VDC between P115-6 and P115-2?

Y: Replace the Fuser PWB.

N: Go to step 4.

4 Is there +5VDC between P111-A4 and P111-A3?

Y: Replace the HVPS.

N: Go to step 5.

5 Is there +5VDC between P15-A9 and P15-A10?

Y: Replace the Print Engine Controller to the HVPS Harness.

N: Replace the Print Engine Controller. If the problem is not resolved, go to *RAP 7.4.5 Low Voltage Power Supply (LVPS) Assembly Failure (+5VDC).*

6 Is voltage between P213-3 and P213-2 at a high level when the Duplex Sensor is not actuated and at a low level when actuated?

Y: Go to step 7.

N: Verify the continuity of the Sensor Harness. If this is fine, replace the Duplex Sensor.

7 Is voltage between P117-2 and P117-7 at a high level when the Duplex Sensor is not actuated and at a low level when actuated?

Y: Go to step 8.

N: Replace the Duplex PWB.

8 Is voltage between P115-11 and P115-2 at a high level when the Duplex Sensor is not actuated and at a low level when actuated?

Y: Go to step 9.

N: Replace the Fuser PWB.

9 Is voltage between P15-A5 and P15-A10 at a high level when the Duplex Sensor is not actuated and at a low level when actuated?

Y: Replace the Print Engine Controller.

N: Validate the continuity of the Print Engine to the HVPS Harness. If this is fine, replace the HVPS.

10.9 Installation and Removal

For installation and removal of the Duplex Unit, see the 4517/4517mp User Guide.

Section 11

Mailbox/Collator Option

Specifications **11-5**
Configuration 11-5
Basic Configuration 11-5
Installation on the base engine 11-5
Electrical Specifications 11-5
Power Supply 11-5
Mechanical Specifications 11-5
Dimensions and Weight 11-5

Mailbox Parts List **11-7**
PL17 Mailbox 11-8
PL18 Mailbox 11-10
PL19 Mailbox 11-12

Mailbox REPS **11-14**
Before You Start Any REP 11-14
Mailbox Removal 11-15
Left/Right/Top Cover 11-16
Rear Chute/Lower Chute Assembly 11-17
Pass Interlock Sensor 11-18
Mailbox Tray Assembly 11-19
Indicator Panel Assembly/Main Switch 11-21
LVPS Frame Assembly 11-22
Main PWB 11-24
Link Solenoid Assembly 11-25
Stack Full Sensor 11-27

Left Keylock Stopper 11-28
Gate 11-29
Gate Link 11-29
Print Engine Controller Harness 11-31
Motor Bracket Assembly 11-32
Right Solenoid Assembly 11-34
Motor Belt 11-35
Right Keylock Stopper 11-36
Transport Roll 11-37
Exit Roll 11-38
Direction Solenoid 11-39

Diagnostics 11-40
Mailbox Stand-Alone Diagnostic Mode 11-40
Tray Unlock Test 11-40
Motor Test 11-40
Exiting the Stand-Alone Diagnostic Mode 11-40
Mailbox Diagnostic Mode 11-41
DG 100 Sensor Check 11-42
DG 101 Gate/Keylock Solenoids 11-43
DG 102 Motor 1 and 2 11-44
DG 103 Tray LED On 11-45
DG 104 Tray LED Off 11-46
DG 105 ROM Version 11-47

Password Override 11-48

Paper Transportation 11-49
Paper Transport Mechanism 11-49
Paper Path 11-50
Drive Power Transmission 11-51

Wiring Diagrams 11-52
Connector Locator 11-52
P/J Table 11-53
General Wiring Diagram 11-54
Wiring for Connection Between Components 11-55
Organization 11-55
Notes on Use of Connection and Wiring Diagrams between Components 11-55
Connection and Wiring between Components 11-56

Mailbox RAPS 11-67
RAPs with Error or Status Messages 11-67
Nonvolatile Memory Failure 11-68
Mailbox Failure/Service Required 11-69
Close Covers/Mailbox Rear Cover is Open 11-70
Mailbox Jam/Open Mailbox Door/Clear Paper Path .. 11-71
Remove Output and Close Bin (n) 11-72

RAPs without Error or Status Messages 11-73
Malfunctioning Left Solenoid Assembly 11-73
Faulty Power Supply 11-74
Faulty LED Indication 11-76
Faulty Unlocking 11-77
Faulty Exit Path Switching 11-78
LVPS PWB +5VDC Failure 11-79
Pass Interlock Sensor Failure 11-80
Motor Assembly Failure 11-81
Left Solenoid Assembly Failure 11-83
Stack Full Sensor Failure 11-85
LED PWB Failure 11-86
Right Solenoid Assembly Failure 11-87
Direction Solenoid Failure 11-88

Installation and Removal 11-89

11.1 Specifications

11.1.1 Configuration

11.1.1.1 Basic Configuration

The Mailbox/Collator option is mounted on the Xerox 4517/4517mp Network Laser Printer and can sort up to 50 sheets of 20 lb. letter and A4 size paper into each of ten bins.

11.1.2 Installation on the base engine

See the 4517/4517mp User Guide for the detailed procedure.

11.1.3 Electrical Specifications

11.1.3.1 Power Supply

+24VDC and +5VDC are supplied from the LVPS PWB.

11.1.4 Mechanical Specifications

11.1.4.1 Dimensions and Weight

Unit	Width	Depth	Height	Weight
Metric	410 mm	360 mm	370 mm	8.1 Kg
SAE	16.1 in	14.2 in	14.6 in	17.8 lbs

This Page Is Intentionally Blank

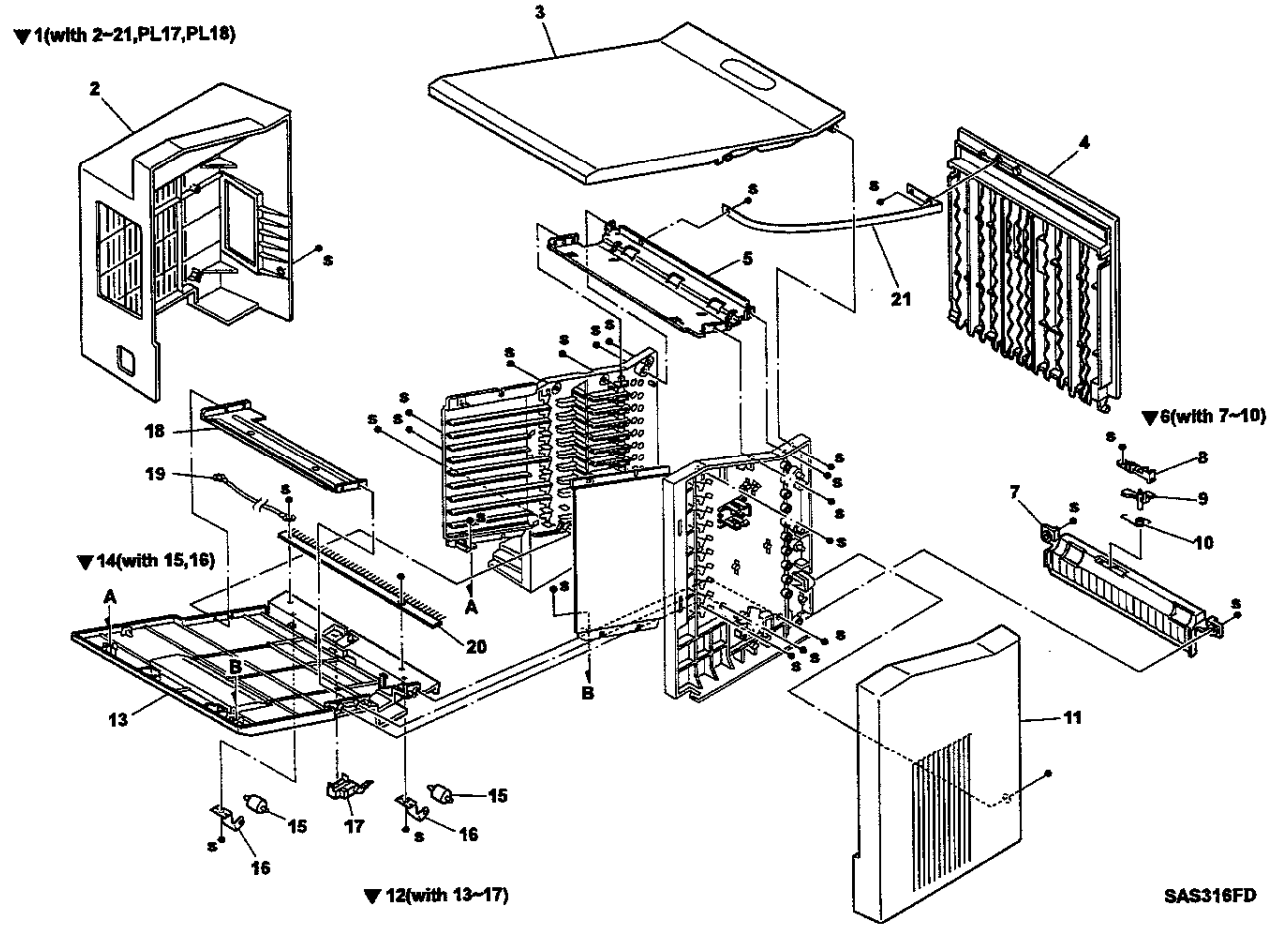
11.2 Mailbox Parts List

The parts list identifies the parts constituting the Mailbox option and are shown in three exploded drawings:

- PL17 Mailbox
- PL18 Mailbox
- PL19 Mailbox

For the locations of the connectors (P/J), see *Section 11.7 Wiring Diagrams*.

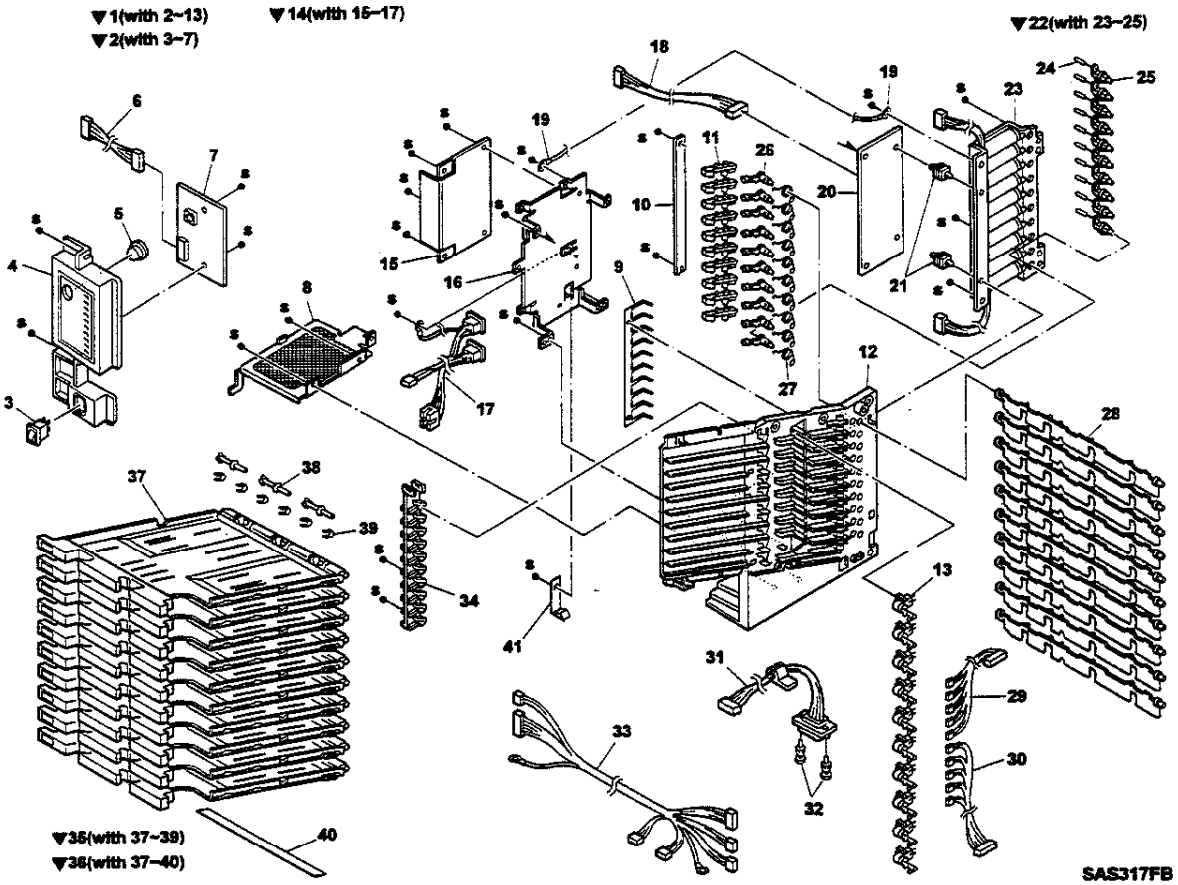
11.2.1 PL17 Mailbox



11.2.2 PL17 Mailbox

Item	Part	Description
1.	--	Final Mailbox Assembly (with 2-18, PL17, and PL18)
2.	48E22710	Left Cover
3.	48E22690	Top Cover
4.	54E87550	Rear Chute
5.	15K19570	Top Plate Assembly
6.	54K06130	Lower Chute Assembly (with 7-10)
7.	--	Lower Chute
8.	--	Cover Interlock
9.	--	Interlock Link
10.	--	Interlock Spring
11.	48E22720	Right Cover
12.	--	Bottom Frame Assembly (with 13-17)
13.	--	Bottom Frame
14.	22K41110	Pinch Roll Assembly (with 15 and 16)
15.	--	Pinch Roll
16.	--	Pinch Spring TP
17.	130K85960	Pass Interlock Sensor
18.	--	Bottom Plate
19.	--	Earth Harness
20.	--	Static Eliminator
21.	74E91261	Tape - Support

11.2.3 PL18 Mailbox

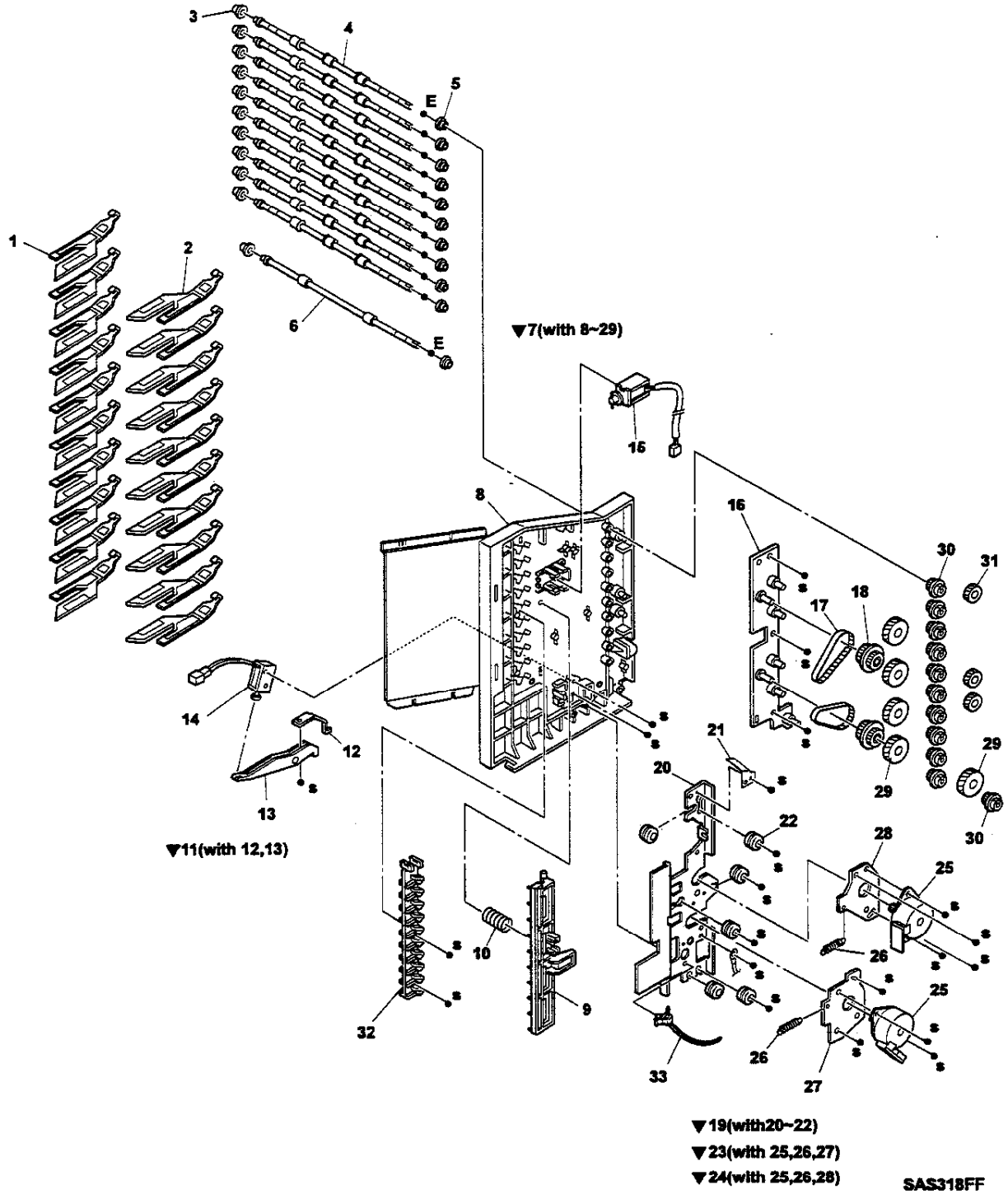


11.2.4 PL18 Mailbox

Item	Part	Description
1.	--	Left Frame Assembly (with 1-13)
2.	48K35770	Indicator Panel Assembly (with 3-7)
3.	--	Main Switch
4.	--	Panel Assembly
5.	--	Button
6.	--	LED Harness
7.	--	LED PWB
8.	48K35792	Bottom Cover Assembly
9.	9E67870	Left Latch Spring
10.	49E41460	Left Keylock Support
11.	3E30650	Left Keylock Stopper
12.	--	Left Frame
13.	130K85950	Stack Full Sensor
14.	1K43720	LVPS Frame Assembly (with 15-17)
15.	--	LVPS PWB
16.	--	LVPS Frame
17.	--	Inlet Harness
18.	162K13780	LVPS Harness
19.	162K13800	Earth Harness
20.	160K14273	Main PWB
21.	--	PWB Support
22.	121K86910	Link Solenoid Assembly (with 23-25)
23.	--	Left Solenoid Assembly
24.	--	Spring Pin
25.	--	Solenoid Link
26.	12E94691	Gate Link
27.	9E67910	Torsion Spring
28.	50E84843	Gate
29.	162K13760	S-SNR-1 Harness
30.	162K13770	S-SNR-2 Harness
31.	162K13741	Print Engine Controller Harness
32.	--	Print Engine Controller Harness Support
33.	162K13750	Main Harness
34.	3E30681	Tray Stopper
35.	50K26405	MBX Tray Assembly (with items 36, 37, and 38 for Trays 1 to 9)
36.	--	MBX Tray
37.	--	Pinch Roll
38.	--	Pinch Spring
39.	--	Left Earth Spring
40.	--	Cable Tie
41.	50K26394	MBX Tray Assembly, 1 (with items 37, 38, and 42 for Trays 10)
42.		MBX Tray
43.		Earth - Core Harness
44.	600K51780	Tray Label Kit (not shown)

NOTE: When replacing item 35 or 36 and/or 41 or 42, also order item 44 Tray Label Kit.

11.2.5 PL19 Mailbox



11.2.6 PL19 Mailbox

Item	Part	Description
1.	12K92882	Left Paper Link Assembly
2.	12K92892	Right Paper Link Assembly
3.	13E84640	Bearing
4.	22E17430	Exit Roll
5.	13E84650	Bearing
6.	22E17440	Transport Roll
7.	--	Right Frame Assembly (with 8-29)
8.	--	Right Frame
9.	3E30670	Right Keylock Stopper
10.	9E67880	Lock Spring
11.	12K92870	Solenoid Gate Link Assembly (with 12 and 13)
12.	--	Push Link
13.	--	Direction Solenoid Link
14.	121K86900	Direction Solenoid
15.	121K86890	Right Solenoid Assembly
16.	--	Gear Bracket
17.	423W27153	Motor Belt
18.	7K82830	Pulley Gear 19/42T
19.	68K86690	Motor Bracket Assembly (with 21-23)
20.	--	Motor Bracket
21.	9E67890	Right Earth Spring
22.	--	Damper
23.	15K19810	Motor Plate Assembly,2 (with 26,27 and 28)
24.	15K19800	Motor Plate Assembly,1 (with 26,27 and 29)
25.	--	Motor Assembly
26.	--	Tension Spring
27.	--	Motor Plate,2
28.	--	Motor Plate,1
29.	7K35430	Idler Gear 30T
30.	7E35450	Idler Gear 16T
31.	7E35440	Idler Gear 18T
32.	3E30681	Tray Stopper
33.	--	Cable Tie

11.3 Mailbox REPS

This section explains the removal and replacement procedures (REPS) for the Mailbox parts which are listed in *Section 11.2 Mailbox Parts List.*

NOTE: Parts listed on the parts list that do not have a REP can be easily removed and replaced without a procedure. However, carefully look at how they are installed before removing them.

11.3.1 Before You Start Any REP

There are a number of steps you should follow **before** you begin any procedure:

1 If applicable, cancel pending jobs and take the printer offline.

2 Switch OFF the printer main power and the Mailbox power, and disconnect the power cord from the wall outlet.

3 Remove the EP Cartridge from the printer; and store it in a safe, dark place.

4 Do not use force to remove or install printer or Mailbox components.

5 Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.

6 Wear a wrist strap to dissipate static electricity, which may damage sensitive electronic parts.

7 See *Section 6, Wiring Diagrams,* for detailed wiring diagrams.

11.3.2 Mailbox Removal

Removal

1 Press the two latches in the bottom part of the rear surface of the Mailbox, and raise and tilt the unit from behind.

2 Disengage the hook inserted in the Top Cover near the Fan at the left side of the printer.

NOTE: Move the Mailbox about 3 cm rearward while raising it about 3 cm.

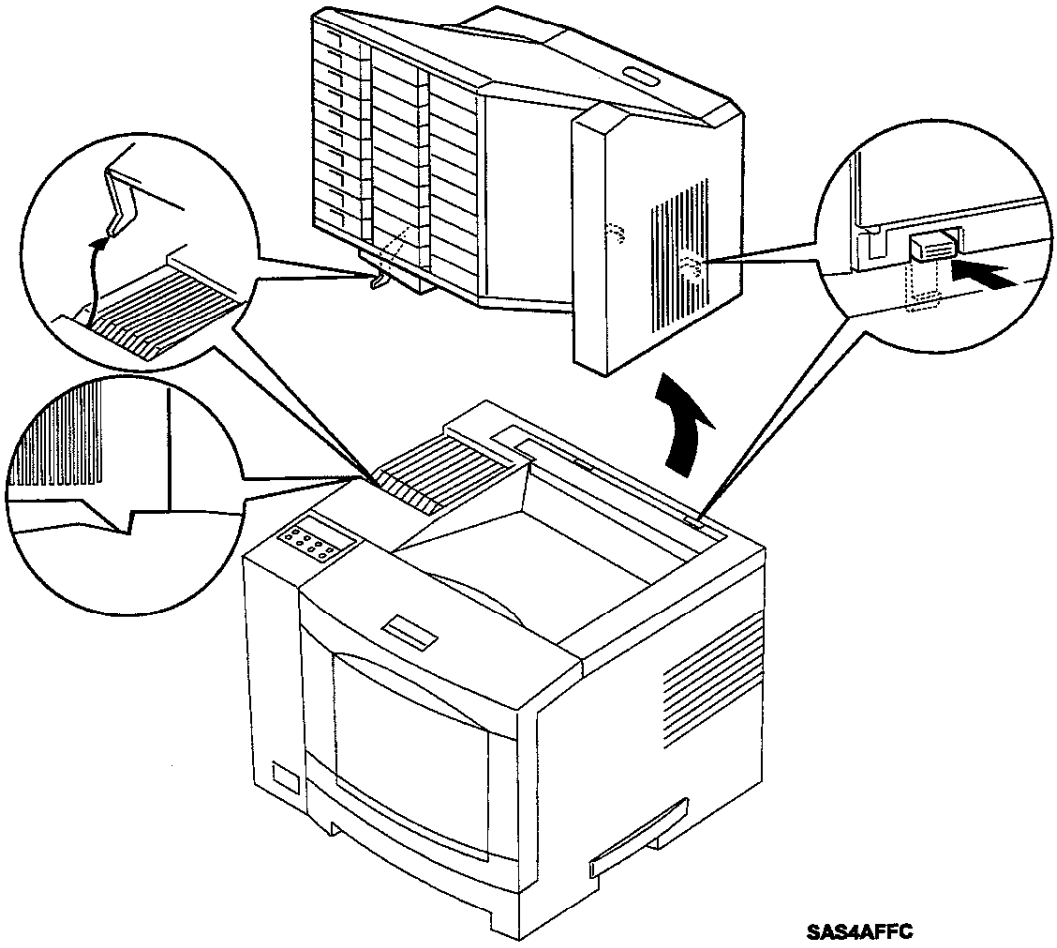


Figure 11.3.2.1 Removing the Mailbox

Replacement

Perform the removal steps in reverse order

11.3.3 Left/Right/Top Cover

Removal

1 Remove the screw on the rear of the Left Cover.

2 Lift and pull the Left Cover toward the left of the unit and remove.

3 Remove the screw on the rear of the Right Cover.

4 Lift and pull the Right Cover toward the right of the unit and remove.

5 Remove the four screws securing the Top Cover (two on each side).

6 Release the Top Cover latches (located toward the upper front of the Mailbox), by pressing the upper front sides of the Mailbox while simultaneously pushing up the Top Cover.

7 Raise the released Top Cover front portion and pull upward to remove the Top Cover.

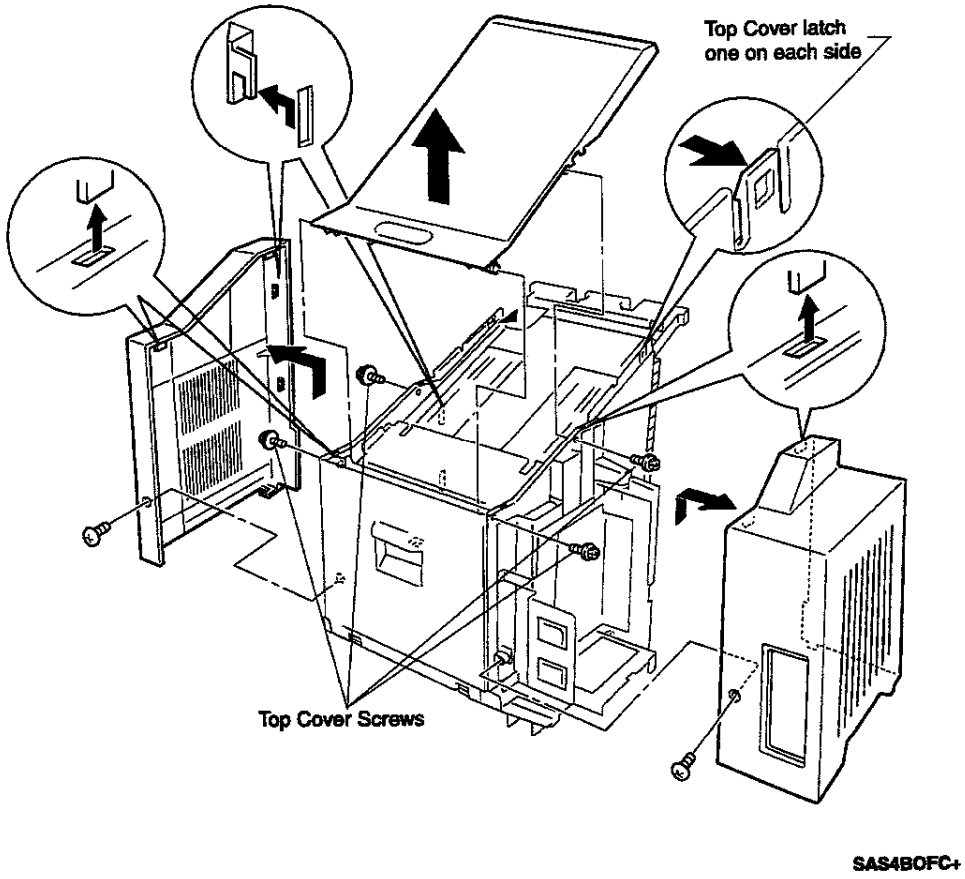


Figure 11.3.3.1 Removing the Left/Right/Top Cover

Replacement

Perform the removal steps in reverse order.

11.3.4 Rear Chute/Lower Chute Assembly

Removal

NOTE: This REP is more easily performed with the Mailbox removed from the printer (REP 11.3.2 Mailbox Removal).

1 Remove the Left Cover/Right Cover (*REP 11.3.3 Left/Right/Top Cover).*
2 Remove the two screws on both ends of the Lower Chute Assembly.
3 Pull the Lower Chute Assembly toward you.
4 Remove the screw which secures the stopper to the Rear Chute.
5 Pull the Rear Chute toward you.

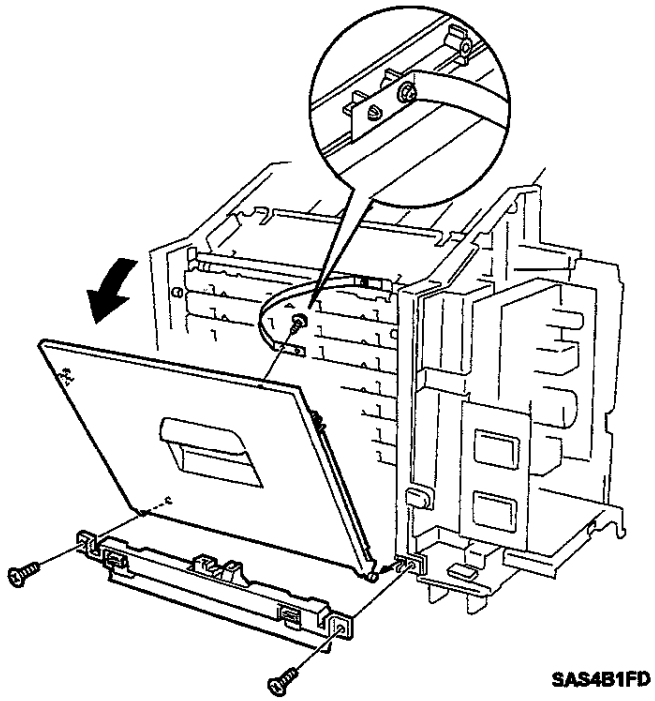


Figure 11.3.4.1 Removing the Rear Chute and Lower Chute Assembly

Replacement

Perform the removal steps in reverse order.

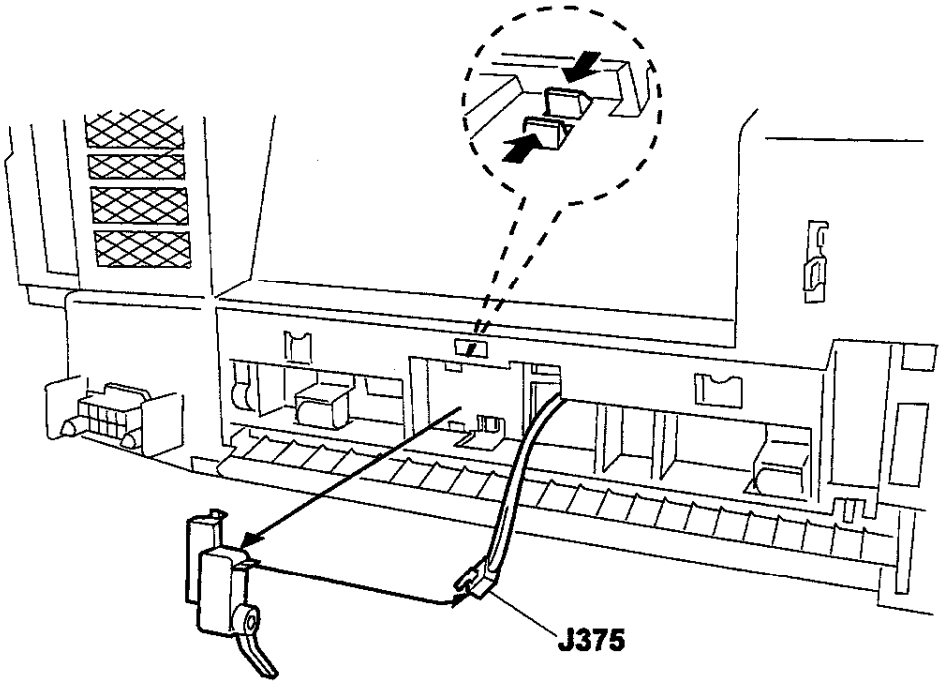
11.3.5 Pass Interlock Sensor

Removal

1 Put the Mailbox on its back with the bottom facing you

2 Disconnect the harness connector (J375) from the Pass Interlock Sensor.

3 Press the locking tabs of the Pass Interlock Sensor with the blade of a screwdriver to disengage and remove the sensor.



SAS4B2FB

Figure 11.3.5.1 Removing the Pass Interlock Sensor

Replacement

Perform the removal steps in reverse order.

11.3.6 Mailbox Tray Assembly

Removal

1 Remove the Left Cover/Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the two screws from the left Tray Stopper and detach the Tray Stopper from the Left Frame by squeezing the top two tabs (1 and 2 in the figure).

3 Remove the two screws which fasten the right Tray Stopper and detach the Tray Stopper from the Right Frame by squeezing the top two tabs (3 and 4 in the figure).

4 Open the Right Keylock Stopper (5 in the figure).

5 Pull out the Mailbox trays from the top tray (7 in the figure) down while pressing the corresponding Left Solenoid Assembly (6 in the figure).

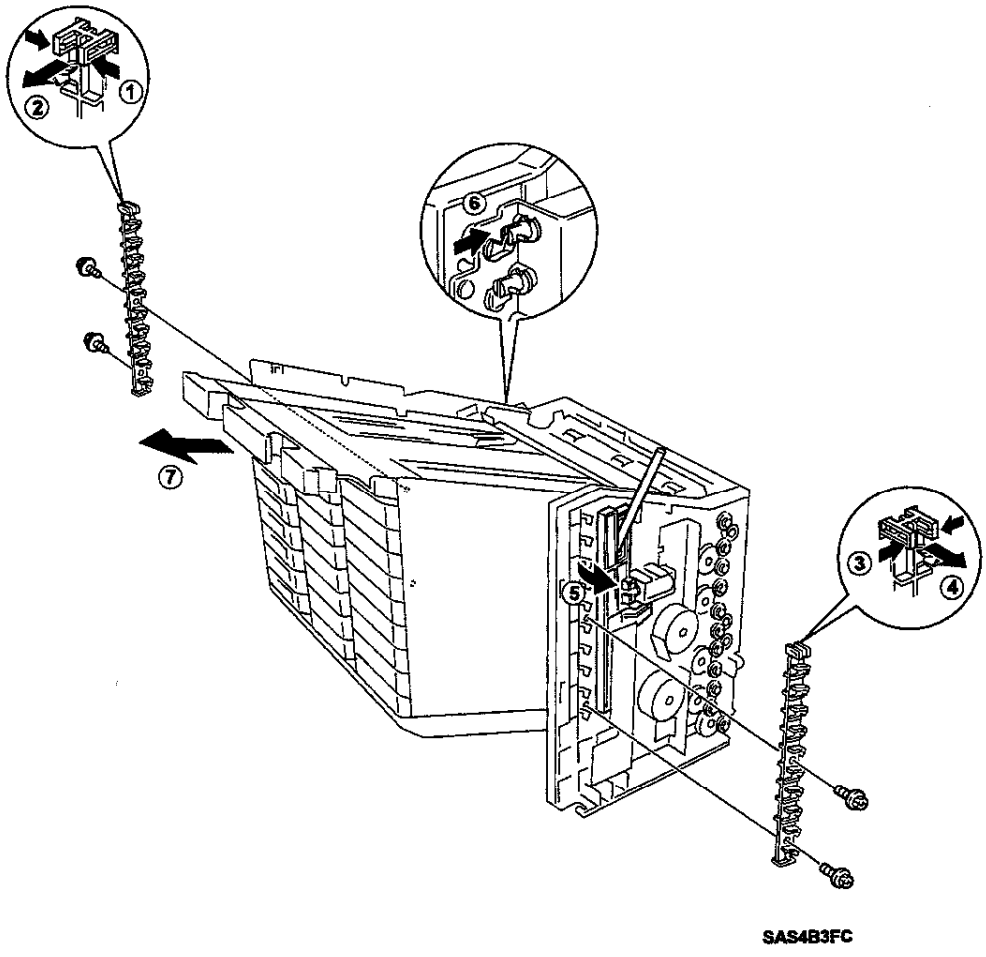


Figure 11.3.6.1 Removing the Mailbox Tray Assembly

Replacement

Perform the removal steps in reverse order (see the caution note on the next page).

CAUTION **When installing the Mailbox Tray Assemblies, partially insert the Mailbox Tray Assembly into the Mailbox Tray slot and ensure the Paper Link Assemblies (left and right) are positioned on top of the correct Mailbox Tray Assembly before fully inserting the Mailbox Tray Assembly. Failure to correctly position the Paper link Assemblies can result in damage or jams.**

NOTE: It may be easier to reinstall the Mailbox trays (because of the positioning of the Paper Link Assemblies) by standing the Mailbox on its left side.

11.3.7 Indicator Panel Assembly/Main Switch

Removal

1 Remove the Left Cover (*REP 11.3.3 Left/Right/Top Cover*).

2 Remove the two screws which fasten the Indicator Panel Assembly to the Left Frame.

3 Disconnect J359 on the LED Harness from the Main PWB and J360 from the LED PWB.

4 Disconnect the harnesses from the four terminals of the Main Switch.

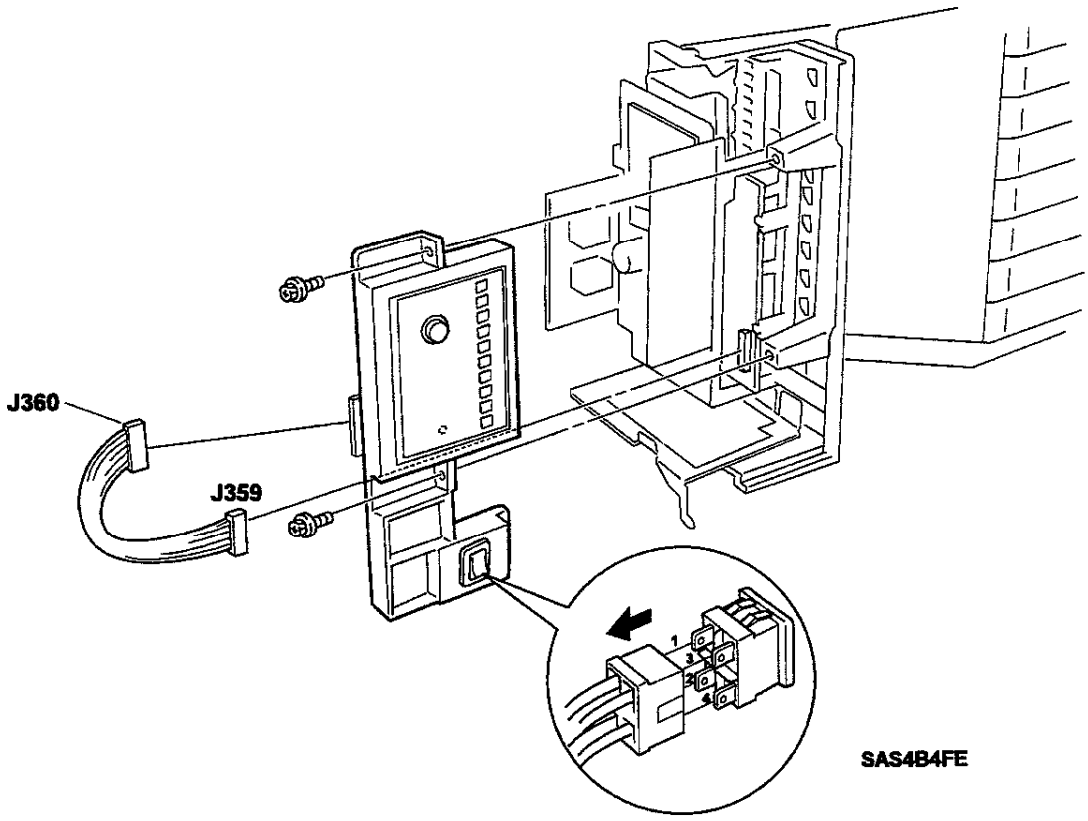


Figure 11.3.7.1 Removing the Indicator Panel Assembly/Main Switch

Replacement

Perform the removal steps in reverse order.

11.3.8 LVPS Frame Assembly

Removal

1 Disconnect the AC power plug.
2 Disconnect the power harness from the Main Switch.
3 Disconnect the connector (J350) from the upper part of the LVPS PWB.
4 Remove the four screws which fasten the LVPS Frame Assembly (1 to 4 in the figure).
5 Remove the grounding wire (T353 terminal) of the Link Solenoid Assembly (S in the figure)
6 Pull the LVPS Frame toward you.

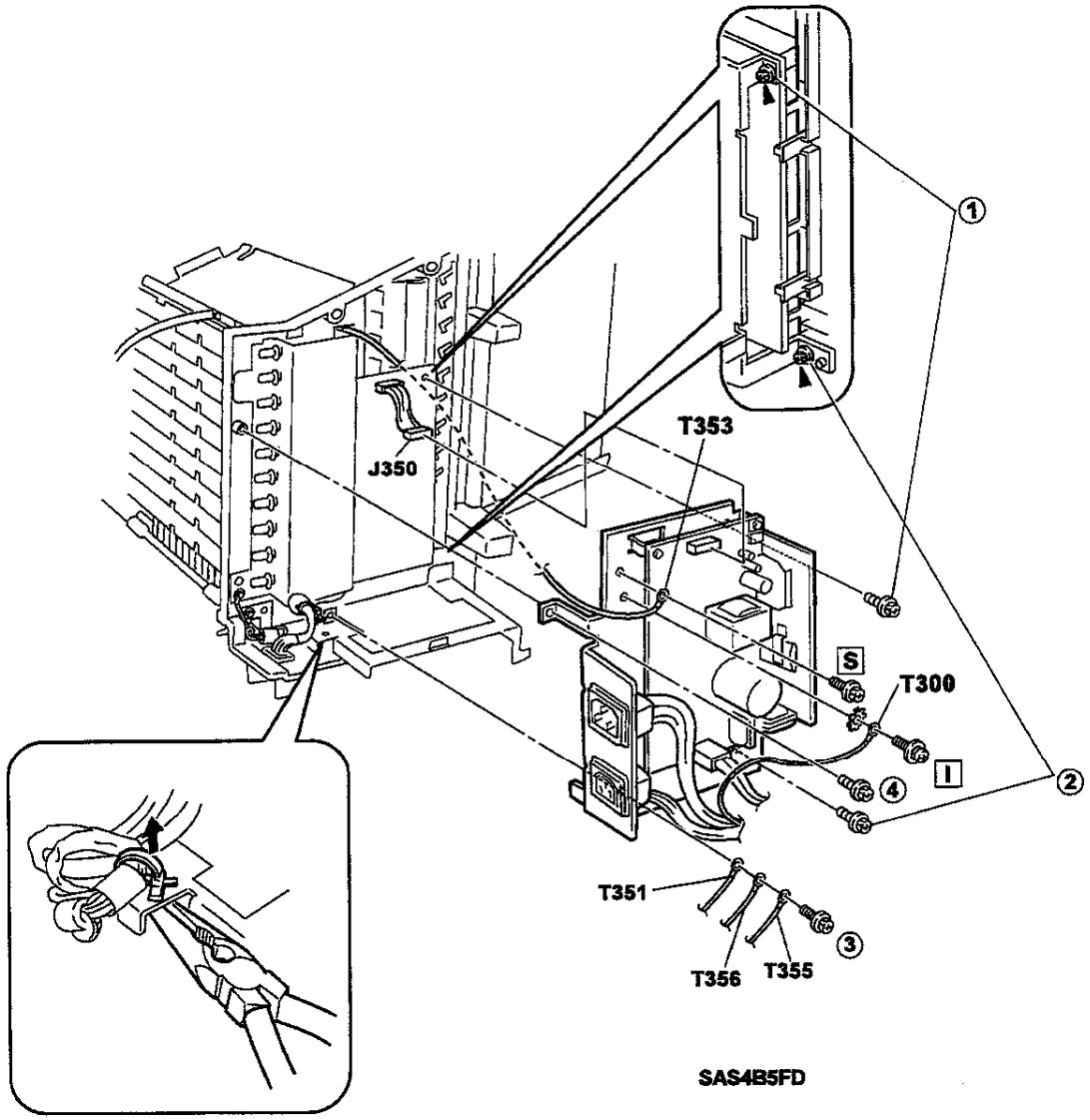


Figure 11.3.8.1 Removing the LVPS Frame Assembly

Replacement

Perform the removal steps in reverse order.

NOTE: Ensure the correct screw is used when replacing screw number 3 in the figure.

11.3.9 Main PWB

Removal

1 Remove the LVPS Frame Assembly (*REP 11.3.8 LVPS Frame Assembly).*

2 Disconnect the nine connectors (J351 to J358) from the Main PWB.

3 Press the two PWB retaining latches to detach the Main PWB from the Left Frame.

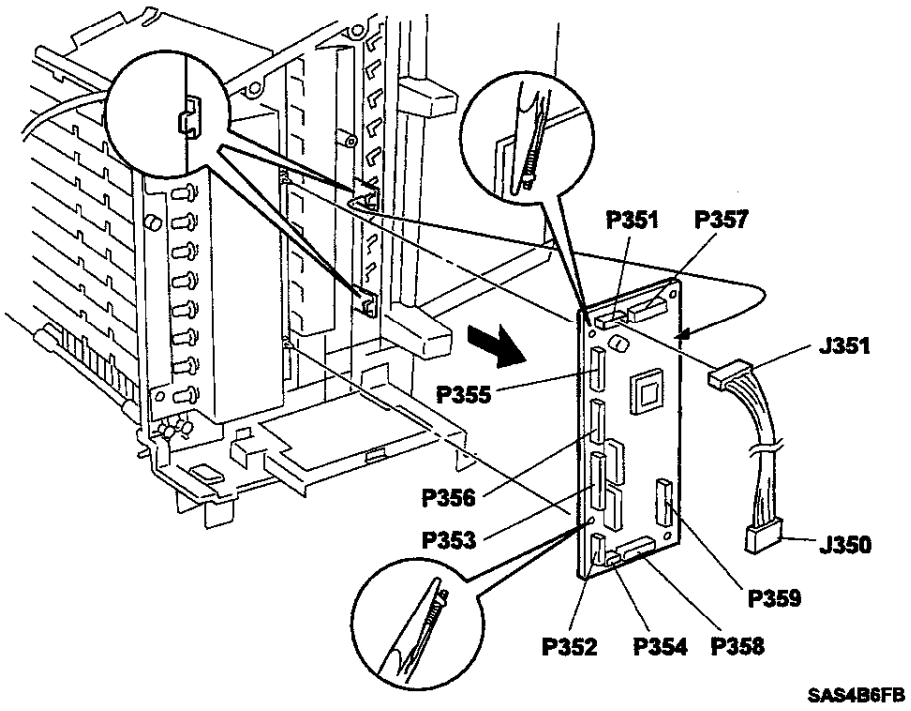


Figure 11.3.9.1 Removing the Main PWB

Replacement

Perform the removal steps in reverse order.

11.3.10 Link Solenoid Assembly

Removal

1 Remove the Main PWB (*REP 11.3.9 Main PWB).*

2 Remove the four screws which fasten the Link Solenoid Assembly.

3 Remove the Link Solenoid Assembly from the Left Frame.

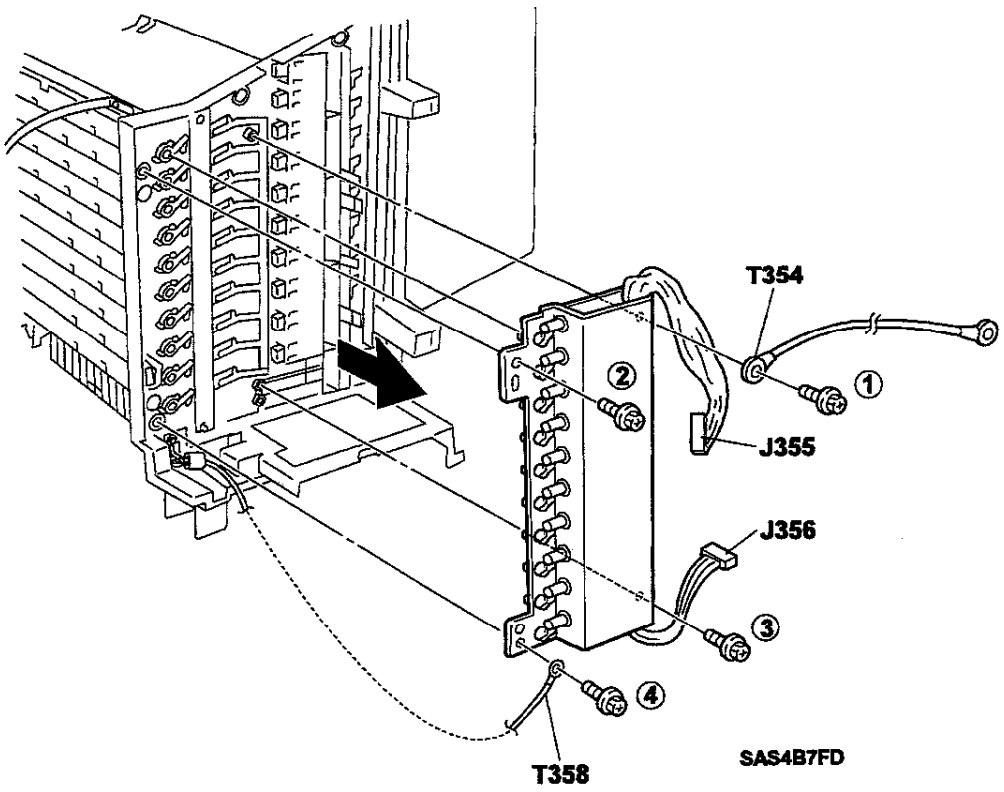


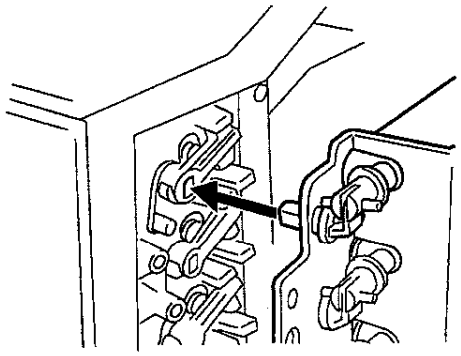
Figure 11.3.10.1 Removing the Link Solenoid Assembly

Replacement

Perform the removal steps in reverse order.

NOTE: Secure the LVPS Grounding Wire terminal T354 to the Link Solenoid Assembly screw (screw 1 in Figure 11.3.10.1). Secure Grounding Wire terminal T358 with the Link Solenoid Assembly screw (screw 4 in Figure 11.3.10.1).

NOTE: Verify proper alignment of the solenoid actuator to the Gate Link (see Figure 11.3.10.2).



SAS4C3FA

Figure 11.3.10.2 Replacement of the Link Solenoid Assembly

11.3.11 Stack Full Sensor

Removal

1 Remove the Top Cover (*REP 11.3.3 Left/Right/Top Cover*).

2 Remove the Link Solenoid Assembly (*REP 11.3.10 Link Solenoid Assembly*).

3 Remove the necessary number of Mailbox Tray Assemblies (*REP 11.3.6 Mailbox Tray Assembly*).

4 Disconnect the connector from the Stack Full Sensor you want to remove.

5 Hold out the plastic Tab Safety Lock then press the two locking tabs of the Stack Full Sensor to detach the sensor from the Left Frame.

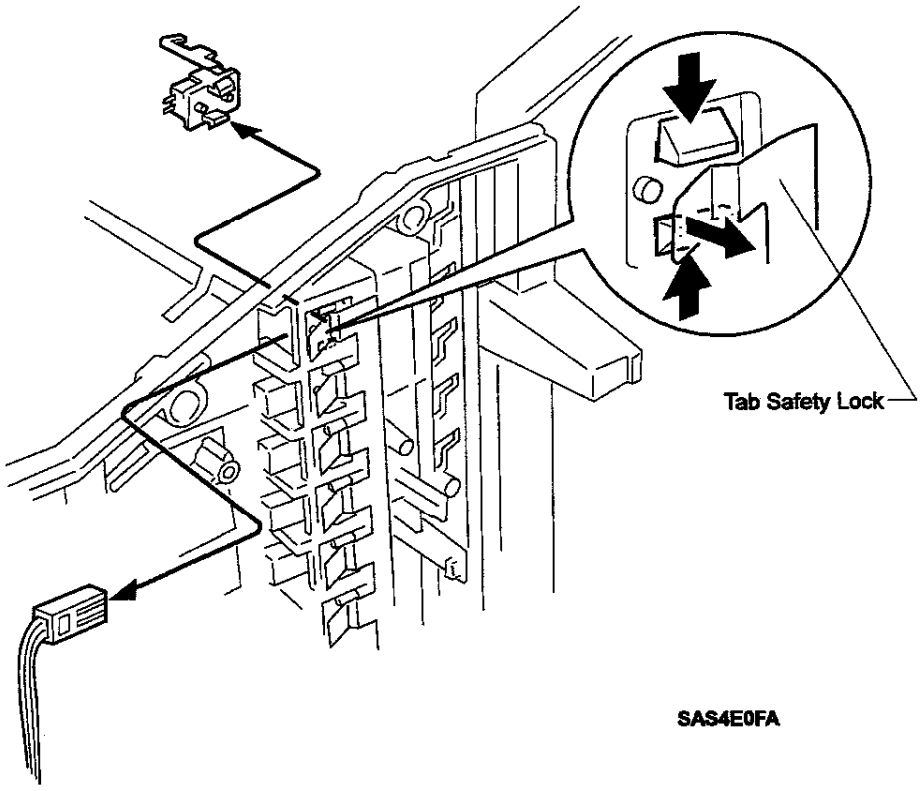


Figure 11.3.11.1 Removing the Stack Full Sensor

Replacement

Perform the removal steps in reverse order.

11.3.12 Left Keylock Stopper

Removal

1 Remove the Top Cover (*REP 11.3.3 Left/Right/Top Cover*).

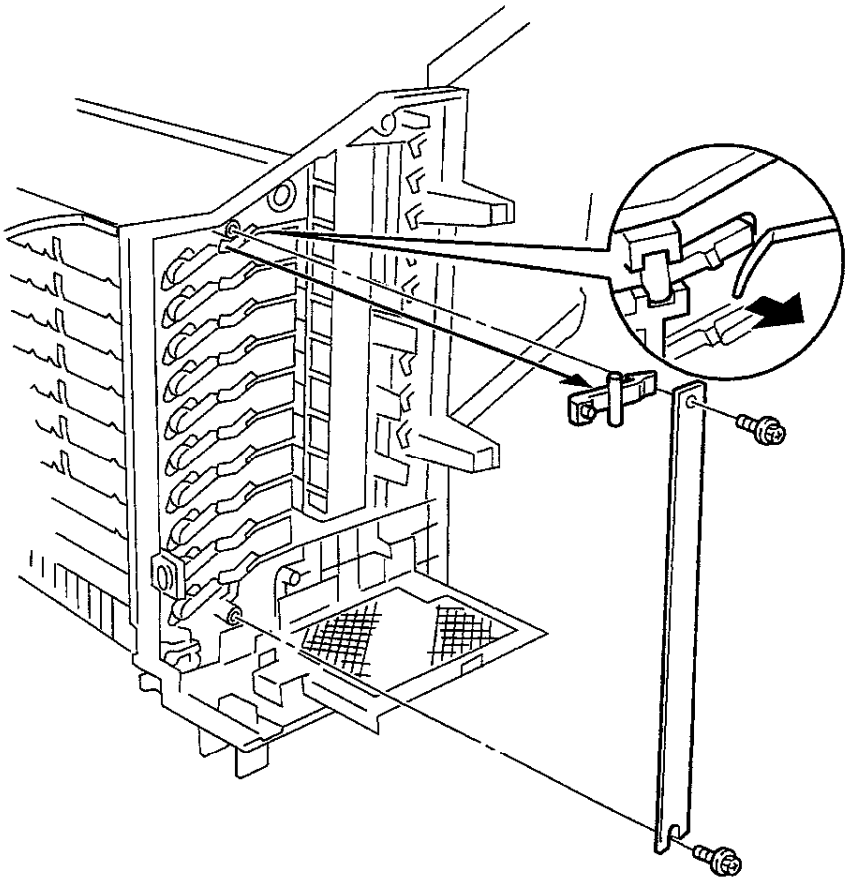
2 Remove the Link Solenoid Assembly (*REP 11.3.10 Link Solenoid Assembly*).

3 Remove the necessary Mailbox Tray Assembly (*REP 11.3.6 Mailbox Tray Assembly*).

4 Remove the Left Keylock Support.

NOTE: The Stack Full Sensor may remain attached.

5 Press the Left Keylock Stopper you want to remove from the bin side to the LVPS side.



SAS4B9FB

Figure 11.3.12.1 Removing the Left Keylock Stopper

Replacement

Perform the removal steps in reverse order.

11.3.13 Gate

Removal

NOTE: Refer to Figure 11.3.13.1 for the Gate Removal procedure.

1 Bow the middle of the gate about 2 cm toward you (arrow 2) while moving the right end (as viewed from the rear of the Mailbox) of the Gate toward the middle to just clear the Gate Link hub, then remove the Gate by pulling the released end toward you (arrow 4) and pull the gate out of the Right Frame.

Replacement

Perform the removal steps in reverse order.

11.3.14 Gate Link

Removal

NOTE: Refer to Figure 11.3.13.1 for the Gate Link Removal procedure.

1 Remove the Left Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the Rear Chute stopper screw from the Mailbox frame and lower the Rear Chute.

3 Remove the Link Solenoid Assembly (*REP 11.3.10 Link Solenoid Assembly).*

NOTE: The Left Keylock Stopper and the Mailbox Tray Assembly must not be removed.

4 Release the Tension Spring from the Gate Link by pushing down on the spring contact (5) to the Gate Link to unlatch the spring from the arm of the Gate Link.

5 Depress the latches (3 in figure 11.3.13.1) of the Gate Link and pull the Gate Link toward the LVPS side.

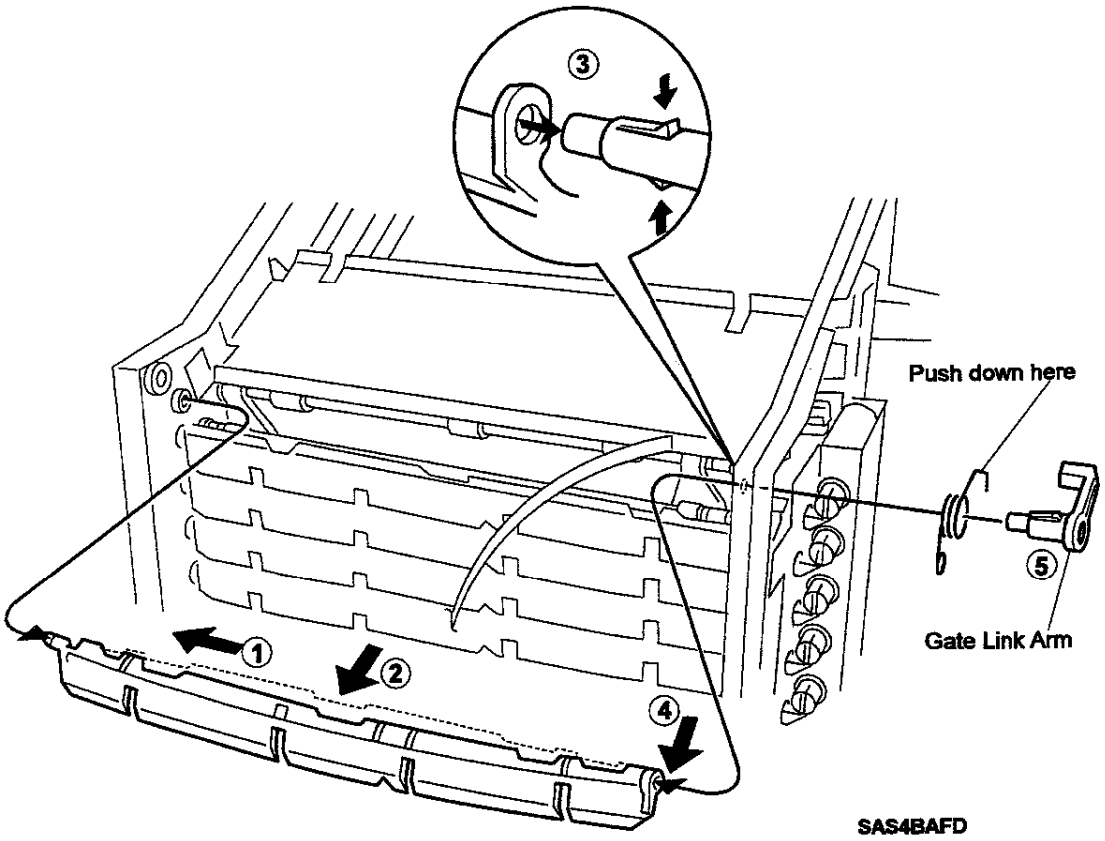


Figure 11.3.14.1 Removing the Gate/Gate Link

Replacement

Perform the removal steps in reverse order.

NOTE: To facilitate installing the Gate Link, remove the Gate.

11.3.15 Print Engine Controller Harness

Removal

1 Remove the screw that secures terminal T355 to the LVPS Frame Assembly.

2 Remove the LVPS Frame Assembly (*REP 11.3.8 LVPS Frame Assembly).*

3 Disconnect the P352 connector from the Main PWB.

4 Squeeze the cable tie latches to release the Print Engine Controller Harness from the Mailbox Frame (R).

5 Use a screwdriver to remove the two Print Engine Controller Harness connector retainers from the connector side (J202).

6 Remove the Print Engine Controller Harness (including toroid) from the Left Frame through the connector cutout.

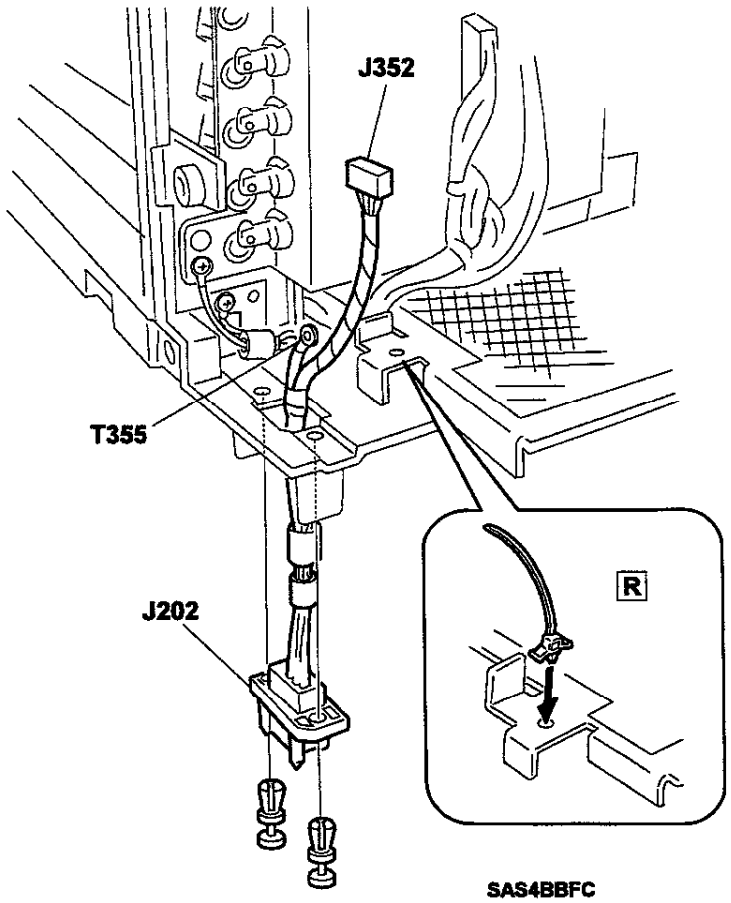


Figure 11.3.15.1 Removing the Print Engine Controller Harness

Replacement

Perform the removal steps in reverse order.

11.3.16 Motor Bracket Assembly

Removal

NOTE: Refer to Figure 11.3.16.1 when performing this procedure.

1 Remove the Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Disconnect the two connectors (J372 and J373) from the Motors.

3 Cut the Right Solenoid Assembly harness tie wrap (Q), then disconnect the Right Solenoid Assembly connector (P/J374) and release the harness from the Motor Bracket Assembly.

4 Remove the four black flange screws which fasten the Motor Bracket Assembly.

5 Remove the black flange screw which fastens the grounding wire (T352).

6 Move the Motor Bracket Assembly to the right (about 5 mm) to loosen the belts and pull off the Motor Bracket Assembly toward you.

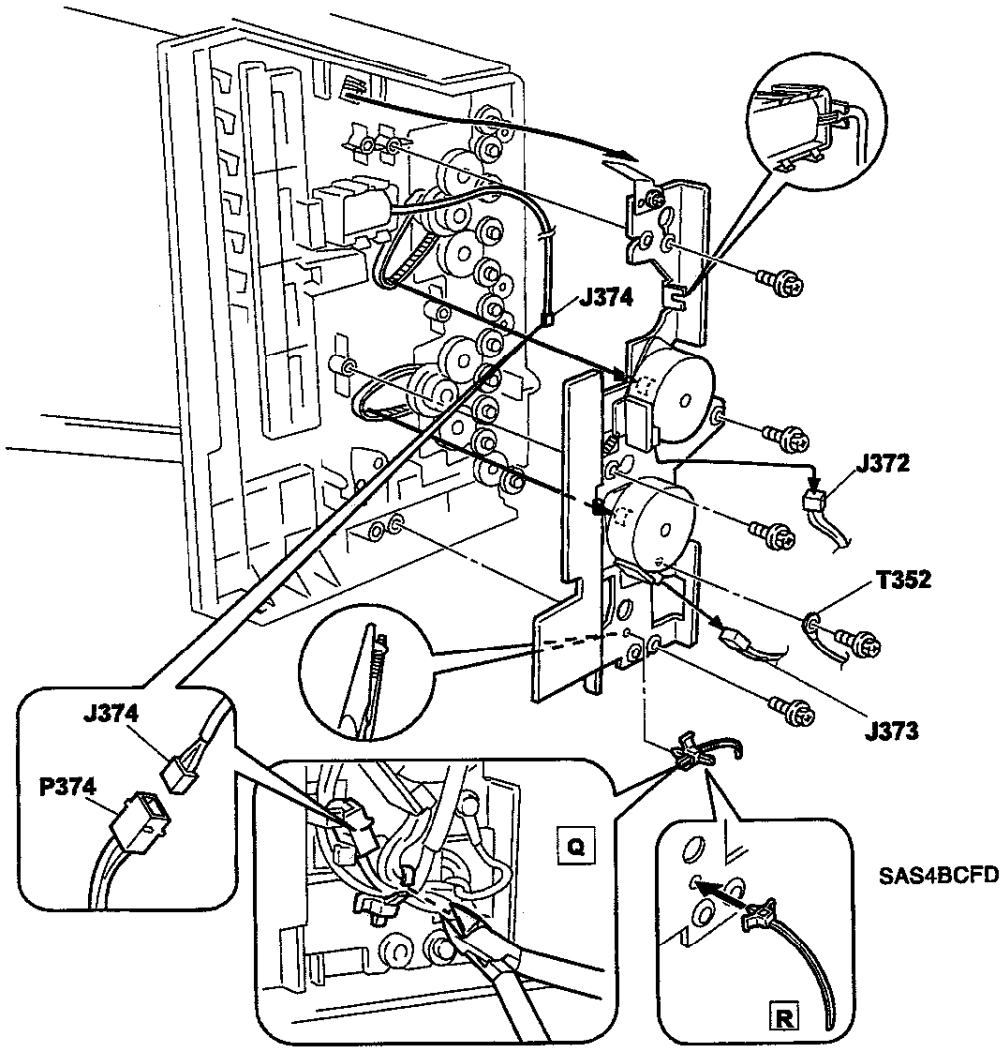


Figure 11.3.16.1 Removing the Motor Bracket Assembly

Replacement

Perform the removal steps in reverse order.

NOTE: Replace the tie wrap for the Right Solenoid Assembly harness (see detail R in Figure 11.3.16.1).

NOTE: Perform the belt tension adjustment by slightly loosening (just enough to allow freedom of movement) the Motor 1 and Motor 2 Plate assembly screws allowing the Tension Springs to apply tension to tighten the belts, then tighten the Motor 1 and Motor 2 Plate assembly screws.

11.3.17 Right Solenoid Assembly

Removal

1 Remove the Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the Motor Bracket Assembly (REP 11.3.16 Motor Bracket Assembly).

NOTE: Harness J374 is disconnected from the Inline Connector in REP 11.3.16, Motor Bracket Assembly.

3 Press the latches outward and remove the Right Solenoid Assembly.

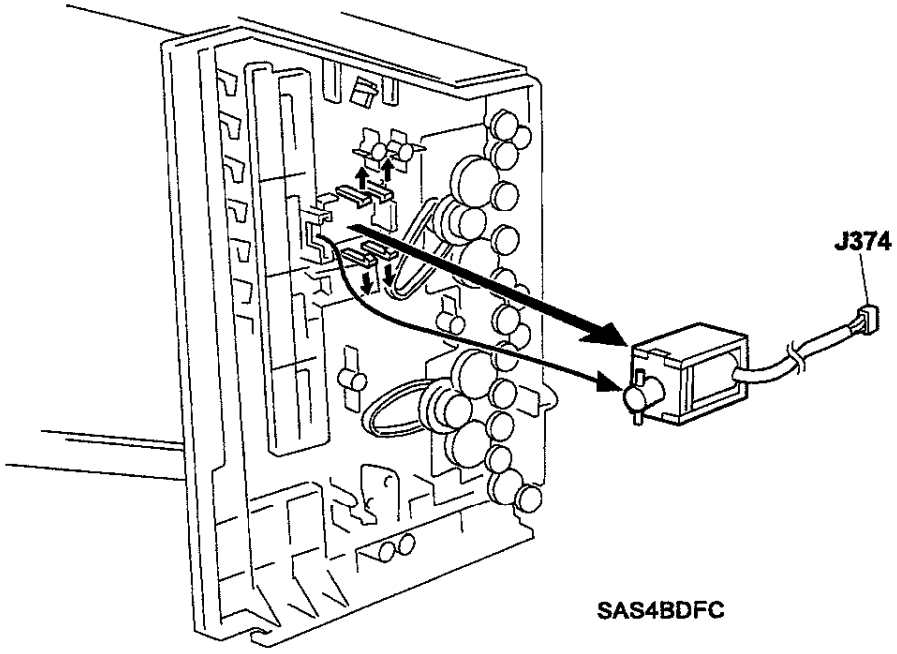


Figure 11.3.17.1 Removing the Right Solenoid Assembly

Replacement

Perform the removal steps in reverse order.

11.3.18 Motor Belt

Removal

1 Remove the Motor Bracket Assembly (REP 11.3.16 Motor Bracket Assembly).

2 Slide off the four Drive Gears one at a time by: lift the tab away from the shaft (1), simultaneously pulling the Drive Gear out (2).

3 Slide off the two Idler Gears (3).

4 Slide off the Pulley Gear (4).

5 Remove the Belt.

NOTE: The upper and lower belts can be removed by the same procedure.

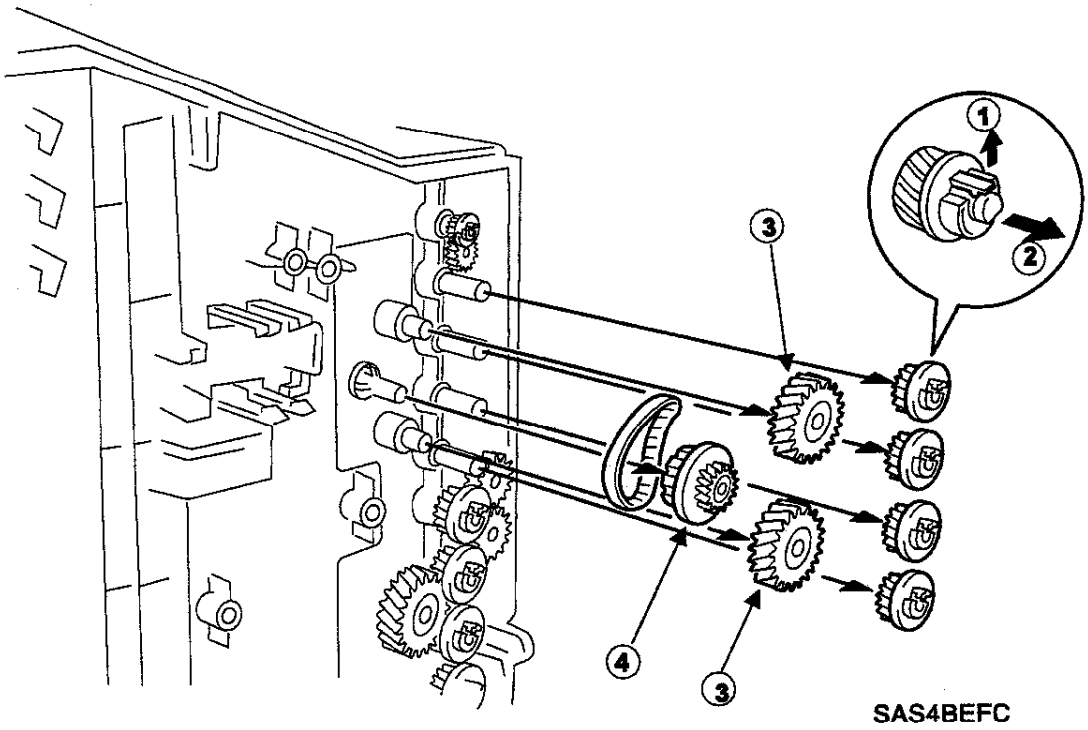


Figure 11.3.18.1 Removing the Motor Belt

Replacement

Perform the removal steps in reverse order.

NOTE: Perform the belt tension adjustment by slightly loosening (just enough to allow freedom of movement) the Motor 1 and Motor 2 Plate assembly screws allowing the Tension Springs to apply tension to tighten the belts, then tighten the Motor 1 and Motor 2 Plate assembly screws.

11.3.19 Right Keylock Stopper

Removal

1 Remove the Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the two screws which fasten the Right Tray Stopper and detach the Tray Stopper from the Right Frame.

3 Remove the Right Solenoid Assembly, (Rep 11.3.17, Right Solenoid Assembly).

4 Remove the Right Keylock Stopper from the supports.

NOTE: Press the top end (1) of the Right Keylock Stopper downward while pulling the middle part (2) causing the Right Keylock Stopper to bend about 2 mm, disengaging the pivot projection from its support.

5 Remove the Spring from the Right Keylock Stopper to prevent it from becoming lost.

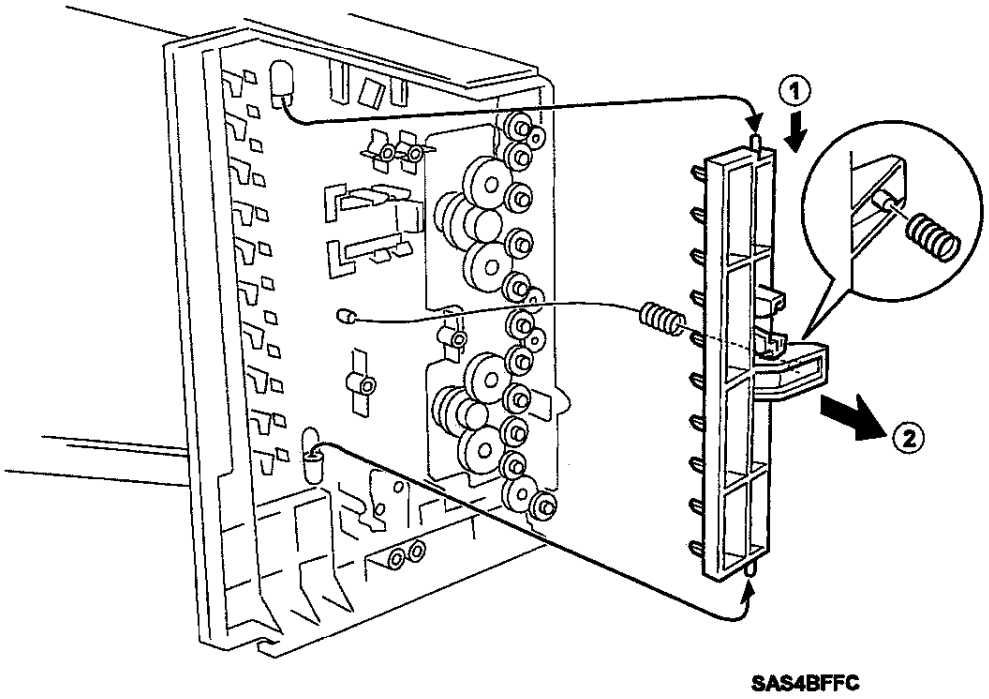


Figure 11.3.19.1 Removing the Right Keylock Stopper

Replacement

Perform the removal steps in reverse order.

11.3.20 Transport Roll

Removal

1 Remove the Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the Rear Chute/Lower Chute Assembly (*REP 11.3.4 Rear Chute/Lower Chute Assembly).*

3 Remove the lowest Drive Gear (1 in Figure 11.3.20.1) on the Transport Roll by lifting the tab away from the shaft while pulling the Drive Gear out.

NOTE: The following steps view the Mailbox from the rear.

4 Use a screwdriver to pry off the E ring (2 in Figure 11.3.20.1) on the left end of the Transport Roll.

5 Slide the left bearing (3 in Figure 11.3.20.1) to the right on the shaft.

6 Shift the entire Transport Roll to the left about 3 cm (4 in Figure 11.3.20.1) and pull the right end out of the right bearing and move the right end portion toward you.

CAUTION **Since the right bearing may slide off the shaft, be careful not to lose it. Be careful not to lose the left bearing as well.**

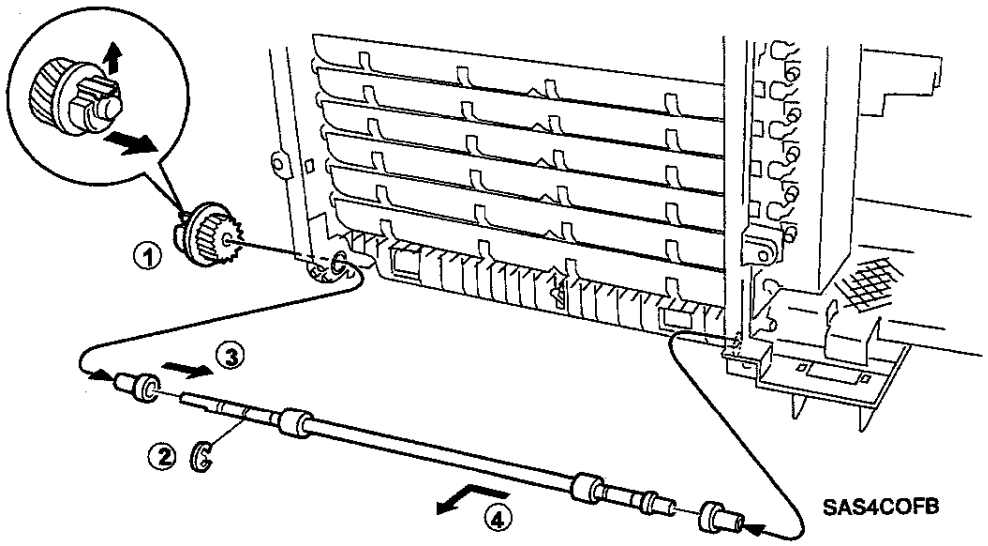


Figure 11.3.20.1 Removing the Transport Roll

Replacement

Perform the removal steps in reverse order.

11.3.21 Exit Roll

Removal

NOTE: The following procedure is for removing one of the ten Exit Rolls.

1 Remove the Right Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove the Gate from the bin for which you want to remove the Exit Roll and from the bin just above it (REP 11.3.13, Gate).

3 Remove the Mailbox Tray Assemblies from the top tray down to the Exit Roll that you want to remove (*REP 11.3.6 Mailbox Tray Assembly).*

4 Remove the Drive Gear (1 in Figure 11.3.21.1) from the Exit Roll by lifting the tab away from the shaft.

5 Remove the Left Paper Link Assembly (2 in Figure 11.3.21.1) and the Right Paper Link Assembly from the shaft of the Exit Roll.

6 Remove the E ring (3 in Figure 11.3.21.1) on the end of the left side (as viewed from the rear) of the Exit Roll.

7 Shift the entire Exit Roll to the left about 3 cm (4 in Figure 11.3.21.1) and pull the right end from the Right Frame.

8 Move the right end portion toward you about 2 cm (5 in Figure 11.3.21.1) and remove the entire Exit Roll to the right (6 in Figure 11.3.21.1).

NOTE: The bearing at the right side comes off of the frame when the Exit Roll is shifted to the left. The bearing at the left is removed together with the Exit Roll.

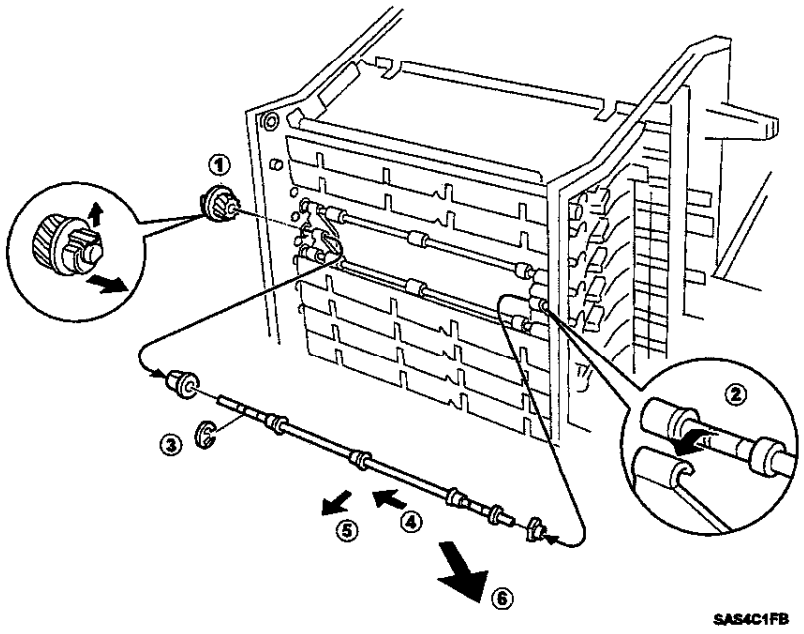


Figure 11.3.21.1 Removing the Exit Roll

Replacement

Perform the removal steps in reverse order.

11.3.22 Direction Solenoid

Removal

1 Remove the Top Cover (*REP 11.3.3 Left/Right/Top Cover).*

2 Remove all of the ten Mailbox Tray Assemblies (*REP 11.3.6 Mailbox Tray Assembly).*

3 From the Motor Assembly side of the Right Frame, remove the two screws that fasten the Direction Solenoid.

4 Slide the operating end of the Direction Solenoid from the Direction Solenoid Link.

5 Disconnect P371 of the harness from J371.

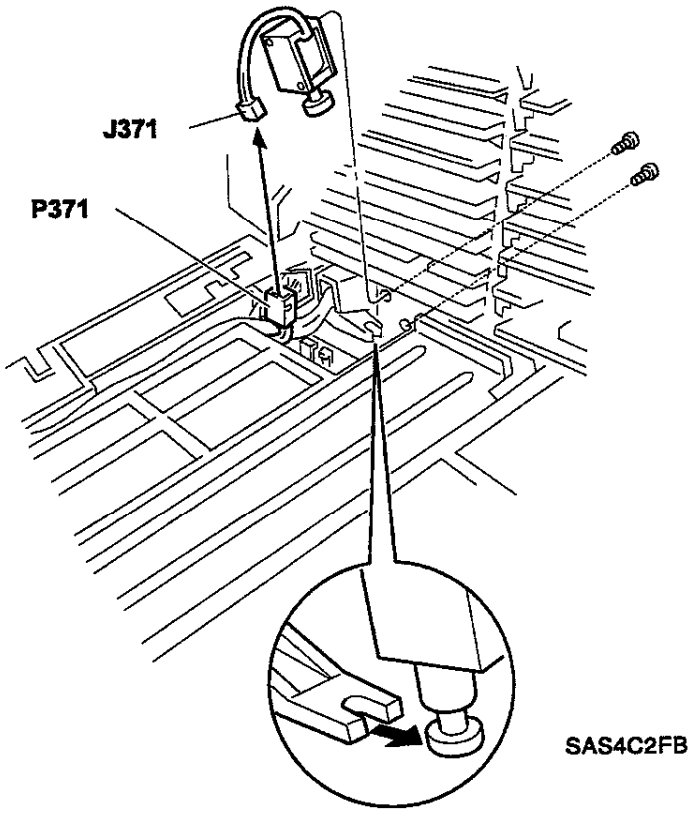


Figure 11.3.22.1 Removing the Direction Solenoid

Replacement

Perform the removal steps in reverse order.

11.4 Diagnostics

11.4.1 Mailbox Stand-Alone Diagnostic Mode

The Mailbox has the two stand-alone diagnostic modes described below. These diagnostic modes can be executed at the Mailbox without operation from the Control Panel.

11.4.1.1 Tray Unlock Test

This function allows you to test the operation of the Left Solenoid Assembly (Bin 1 to 10 Solenoids) and the Right Solenoid Assembly (Key Lock Solenoid) on the Mailbox.

To enter the Tray Unlock Test mode:

1 Open the Rear Chute to actuate the Pass Interlock Sensor.

2 Turn on the Mailbox Main Switch while holding down the Unlock Switch (Button).

The Mailbox repeats the following operation:

1 Holds all the bins in the unlocked state for 30 seconds.

The bins are unlocked by the actuation of the Left Solenoid Assembly (Bin 1 to 10 Solenoids) and the Right Solenoid Assembly (Key Lock Solenoid).

2 Locks the bins.

The Bin 1 to 10 Solenoids of the Left Solenoid Assembly are deactuated in turn at time intervals of 0.1 second and the Right Solenoid Assembly deactuates.

3 Holds the Left Solenoid Assembly and the Right Solenoid Assembly in the deactuated state for 10 seconds.

11.4.1.2 Motor Test

This function allows you to test the operation of Motors 1 and 2.

To enter the Motor Test mode:

1 Close the Rear Chute to deactuate the Pass Interlock Sensor.

2 Turn on the Mailbox Main Switch while holding down the Unlock Switch (Button).

The Mailbox turns on Motors 1 and 2. To exit the Motor Test, power OFF the Mailbox Main Switch.

11.4.1.3 Exiting the Stand-Alone Diagnostic Mode

Turn off the Mailbox Main Switch to exit the Stand-Alone Diagnostic Mode.

11.4.2 Mailbox Diagnostic Mode

The Mailbox Diagnostic Mode allows you to use the control panel to test various switches and sensors, turn on various output devices, and display the Mailbox ROM checksum.

To enter Mailbox Diagnostic Mode:

1 Switch OFF the power to the printer and Mailbox.
2 Switch ON the Mailbox power.
3 Press and hold the **Escape** key while switching ON the printer power.
4 Release the key when the following message is displayed.

SENSOR CHECK
SELECTING DG 100

This message indicates that the printer is in the Mailbox Diagnostic Mode. The number after *DG* is the diagnostic test currently selected; DG 100 is the default test.

NOTE: You cannot enter a Mailbox Diagnostic Mode if Stand-Alone Diagnostic Mode finds an error in ROM/RAM Check.

*NOTE: When running any diagnostic test, press the **Enter** key to get to the beginning of the test and then press the **Up** or **Down** arrow key to exit the test and enter another DG code.*

11.4.2.1 DG 100 Sensor Check

This diagnostic test allows you to check the function of the Mailbox sensors and switches. In this mode, the state of the logic level being controlled by the sensor or switch under test is displayed in the lower right hand corner of the control panel. A high logic level is represented by a (**H**), a low logic level is represented by a (**L**).

The sensors and switches that can be checked by this input test are:

- Bins 1-10 Stack Full Sensors
- Pass Interlock Sensor
- Bin Unlock Button

Running DG 100:

1 Select DG 100 by pressing the **Up** or **Down** arrow key in the Mailbox Diagnostic Mode until DG 100 appears on the LCD.

SENSOR CHECK
SELECTING DG 100

2 Press **Enter** to run the input test. The **EXECUTING** message is displayed on the LCD, at which time you can check the sensors and switches. Press **Enter** again to stop the input test and return to the state in which DG 100 is selected.

SENSOR CHECK
EXECUTING H

3 Check the function of the sensors and switches by manually actuating with your finger or a screwdriver. If the sensor or switch is functioning correctly, the logic state of the input signal will change from **H** (high) to **L** (low) level each time you actuate the sensor or switch. If the logic state does not change, the sensor or switch may be faulty.

SENSOR CHECK
EXECUTING H

SENSOR CHECK
EXECUTING L

4 If you wish to exit this test and enter another test, press the **Escape** key until the LCD displays **SENSOR CHECK/DG 100**, then press the **Up** or **Down** arrow key.

5 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.4.2.2 DG 101 Gate/Keylock Solenoids

This diagnostic code tests the Gate and Keylock Solenoids.

1 Enter Mailbox Diagnostic Mode.

The LCD displays the **SENSOR CHECK/SELECTING DG 100** message, indicating the printer is in Mailbox Diagnostic Mode.

SENSOR CHECK
SELECTING DG 100

2 Press the **Up** or **Down** arrow key until the LCD displays the **GATE/KEYLOCK SOL DG 101** message.

GATE/KEYLOCK SOL
SELECTING DG 101

3 Press the **Enter** key to start the test.

The LCD displays the **GATE/KEYLOCK SOL/EXECUTING DG 101** message.

GATE/KEYLOCK SOL
EXECUTING DG 101

4 Verify that when you press the **Enter** key, the Gate and Keylock Solenoids energize momentarily (about .5 seconds).

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.4.2.3 DG 102 Motor 1 and 2

This diagnostic code tests the Drive Motors 1 and 2.

Running DG 102:

1 Enter Mailbox Diagnostic Mode.

The LCD displays the **SENSOR CHECK/SELECTING DG 100** message, indicating the printer is in Mailbox Diagnostic Mode.

SENSOR CHECK
SELECTING DG 100

2 Press the **Up** or **Down** arrow key until the LCD displays the **MOTOR 1 & 2 /SELECTING DG 102** message.

MOTOR 1 & 2
SELECTING DG 102

3 Press the **Enter** key to start the test.

The LCD displays the **MOTOR 1 & 2/EXECUTING DG 102** message.

MOTOR 1 & 2
EXECUTING DG 102

4 Verify that when you press the **Enter** key, the Motors 1 & 2 energize momentarily (about .5 seconds).

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.4.2.4 DG 103 Tray LED On

This diagnostic code tests the tray LEDs on the Mailbox control panel.

Running DG 103:

1 Enter Mailbox Diagnostic Mode.

The LCD displays the **SENSOR CHECK/SELECTING DG 100** message, indicating the printer is in Mailbox Diagnostic Mode.

SENSOR CHECK
SELECTING DG 100

2 Press the **Up** or **Down** arrow key until the LCD displays the **TRAY LED ON/SELECTING DG 103** message.

TRAY LED ON
SELECTING DG 103

3 Press the **Enter** key to start the test.

The LCD displays the **TRAY LED ON/EXECUTING DG 103** message.

TRAY LED ON
EXECUTING DG 103

4 Verify that when you press the **Enter** key, the tray LEDs turn on.

5 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

6 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.4.2.5 DG 104 Tray LED Off

This diagnostic code turns off the tray LEDs that were turned on by DG 103.

Running DG 104:

1 Press the **Up** or **Down** arrow key until the LCD displays the **TRAY LED OFF/SELECTING DG 104** message.

TRAY LED OFF	
SELECTING	DG 104

2 Press the **Enter** key.

The LCD displays the **TRAY LED OFF/EXECUTING DG 104** message.

TRAY LED OFF	
EXECUTING	DG 104

3 Verify that when you press the **Enter** key, the tray LEDs turn off.

4 If you wish to exit this test and enter another test, press the **Escape** key, then scroll to another test.

5 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.4.2.6 DG 105 ROM Version

This diagnostic code displays the Mailbox Controller ROM version.

Running DG 105:

1 Enter Mailbox Diagnostic Mode.

The LCD displays the **SENSOR CHECK/SELECTING DG 100** message, indicating the printer is in Mailbox Diagnostic Mode.

SENSOR CHECK
SELECTING DG 100

2 Press the **Up** or **Down** arrow key until the LCD displays **ROM VERSION/SELECTING DG 105** message.

ROM VERSION
SELECTING DG 105

3 Press the **Enter** key.

The LCD displays the **ROM Version** message.

ROM VERSION
EXECUTING ####

NOTE: #### = ROM Version.

4 If you wish to exit this test and enter another test, press the **Escape** key.

5 To exit this test and return to normal operation, switch the printer power OFF then ON.

11.5 Password Override

A password override is necessary to access Mailbox/Collator bins when the customer is unable to provide a password or when it is necessary to change passwords due to personnel changes or other circumstances. The password override is:

1056

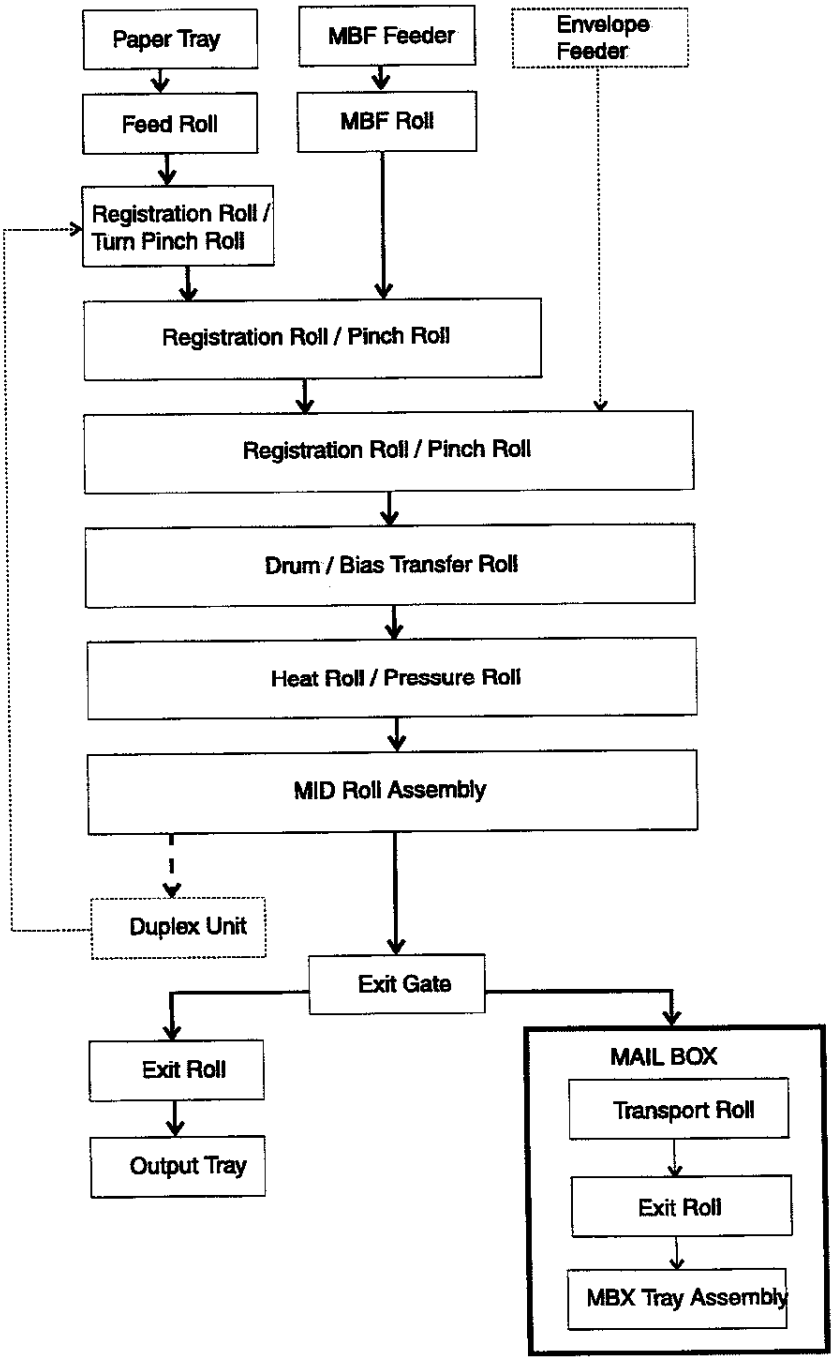
Refer to the *Xerox DocuPrint 4517/4517mp Network Laser Printers User Guide* for instructions on using the Mailbox password.

NOTE: The password override should be provided only to the site system administrator or personnel designated by the customer site manager.

11.6 Paper Transportation

11.6.1 Paper Transport Mechanism

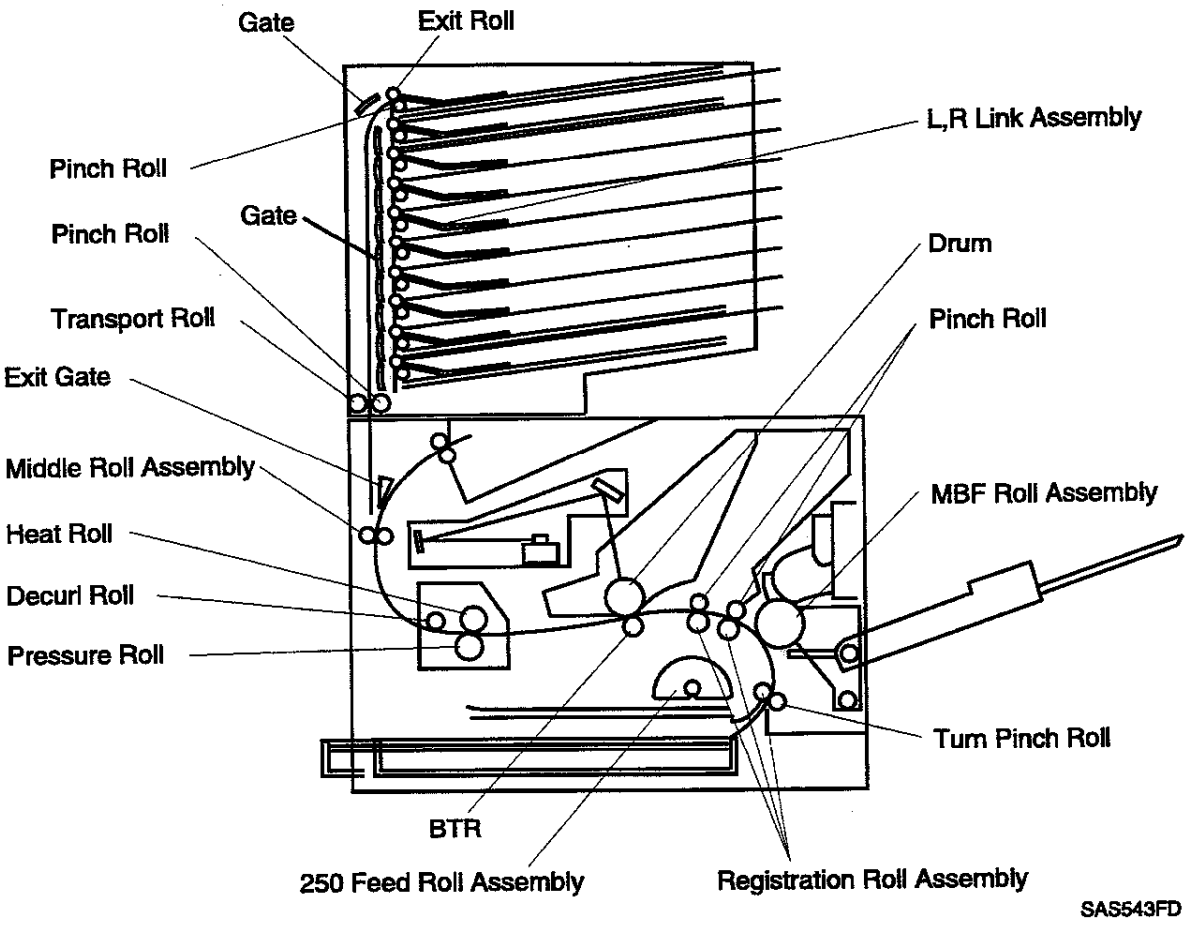
The paper transport mechanism is shown along the path of paper travel. (For the paper transport in other devices, refer to their respective service manuals.)



SAS561FB

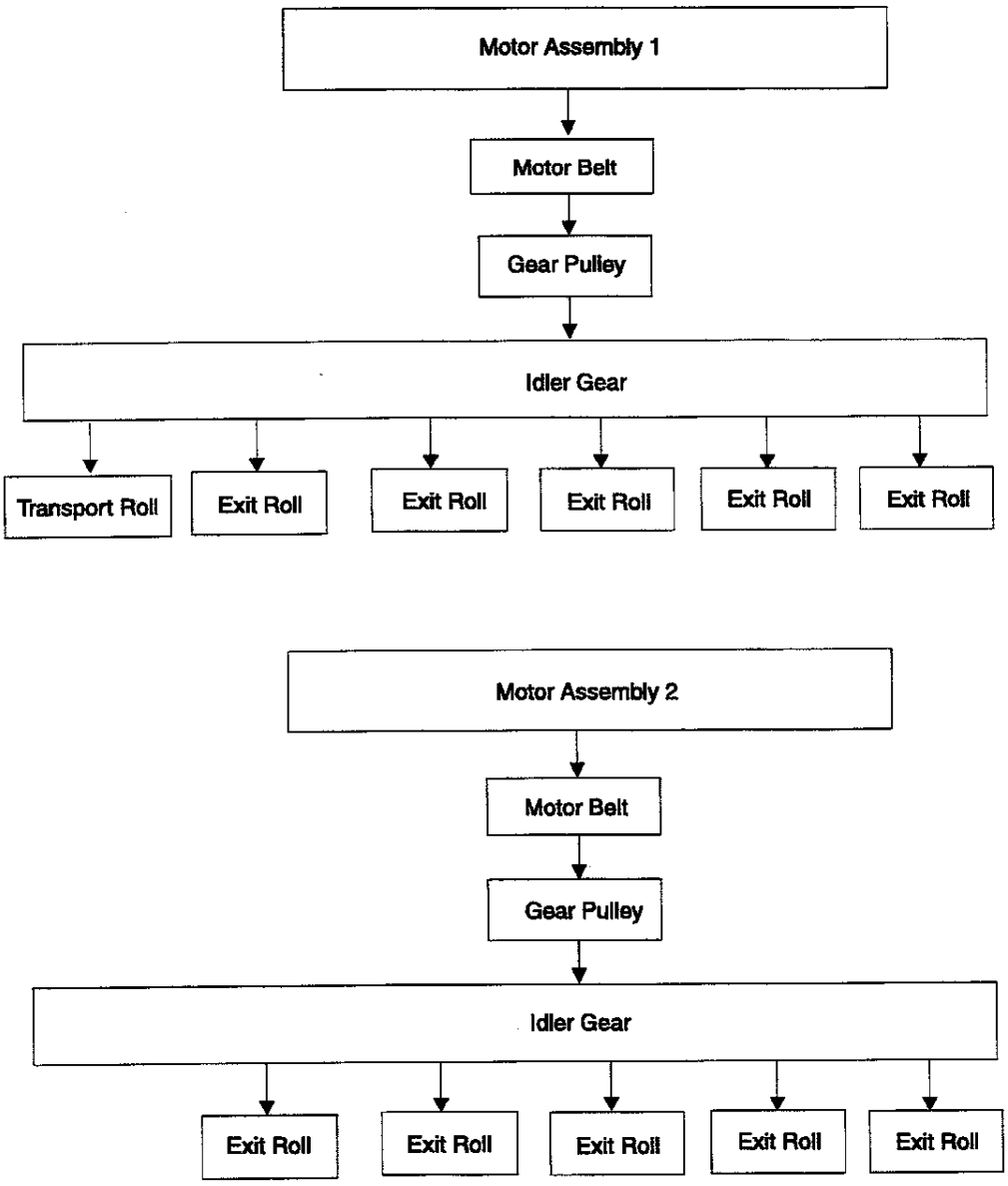
11.6.2 Paper Path

The path of paper travel through the printer with the optional Mailbox/Collator installed is shown in the figure below.



11.6.3 Drive Power Transmission

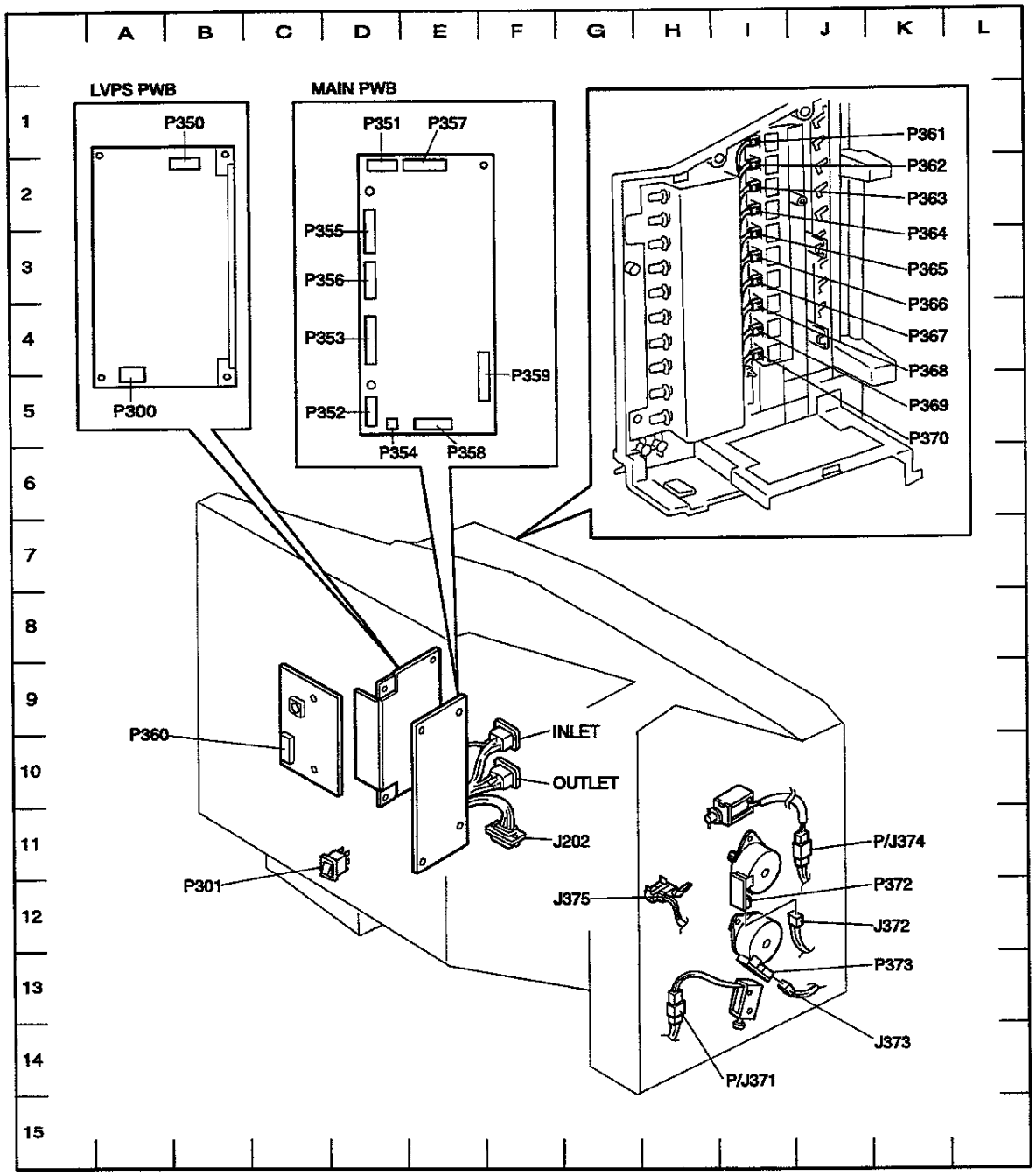
The drive power for the Mailbox/Collator is generated and distributed as shown below. The Motor Assemblies generate the drive power for ejecting paper.



SAS562FB

11.7 Wiring Diagrams

11.7.1 Connector Locator



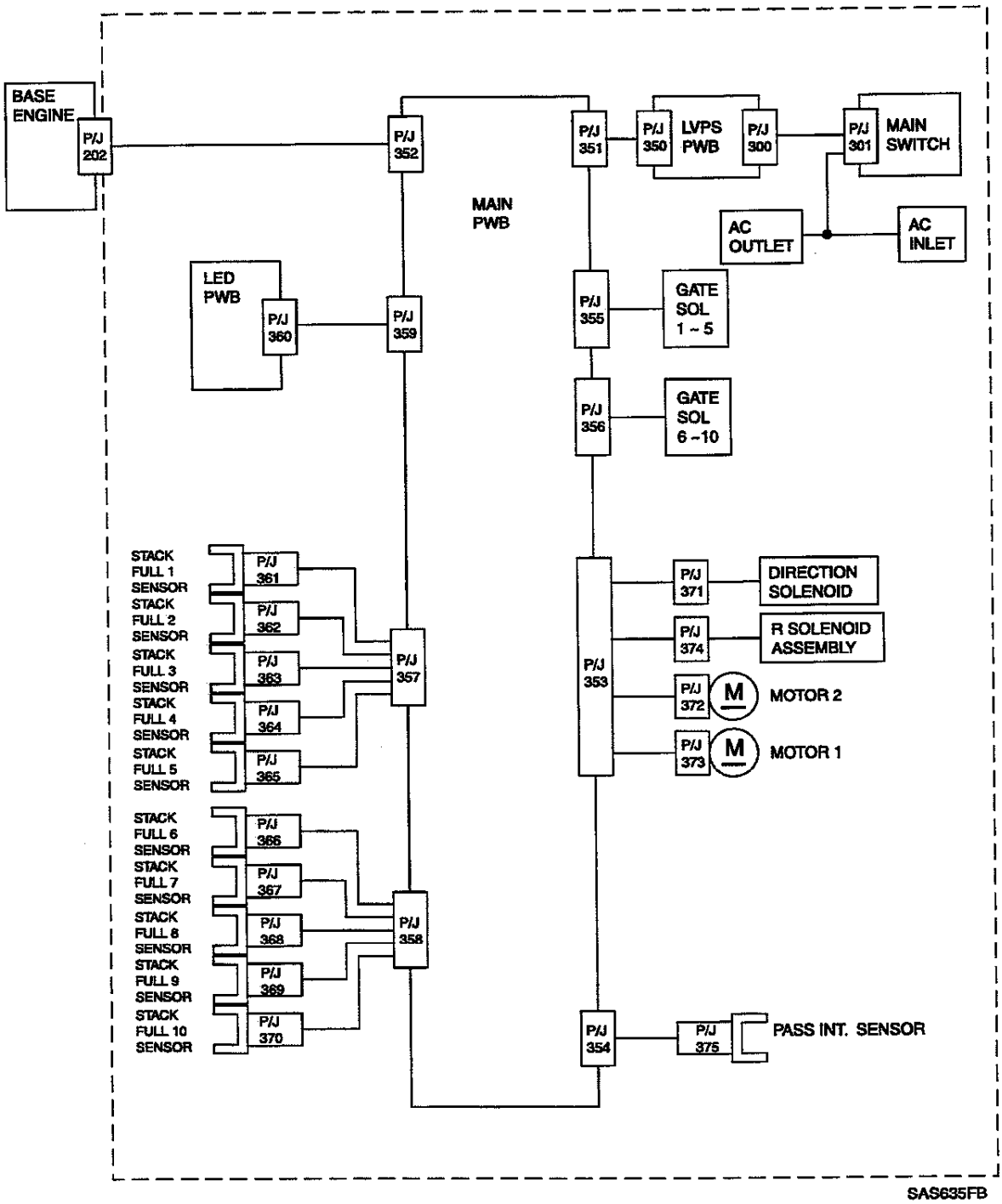
SAS632FB

11.7.2 P/J Table

PJ	Coor-dinate	Mounting		Harness		Description
		Mounted on	PL(1*)	Name (2*)	PL(1*)	
202	F-11	Left Frame	18-12	Print Engine Controller Harness	18-31	Connects Main PWB and Print Engine Controller.
300	A-5	LVPS PWB	18-15	Inlet Harness	18-17	Connects LVPS PWB and Main Switch.
301	C-11	Main Switch	18-3	Inlet Harness	18-17	Connects Main Switch and LVPS PWB, and Main Switch and Inlet.
350	B-2	LVPS PWB	18-15	LVPS Harness	18-18	Connects LVPS PWB and Main PWB
351	D-2	Main PWB	18-20	LVPS Harness	18-18	Connects LVPS PWB and Main PWB.
352	D-5	Main PWB	18-20	Print Engine Controller Harness	18-31	Connects Main PWB and Print Engine Controller.
353	D-4	Main PWB	18-20	Main Harness	18-33	Connects Main PWB and Direction Solenoid, Right Solenoid Assembly, Motor 2, and Motor 1.
354	D-5	Main PWB	18-20	Main Harness	18-33	Connects Main PWB and Pass Interlock Sensor
355	D-3	Main PWB	18-20	@Left Solenoid Assembly	18-23	Connects Main PWB and Gate Solenoids 1 to 5.
356	D-3	Main PWB	18-20	@Left Solenoid Assembly	18-23	Connects Main PWB and Gate Solenoids 6 to 10.
357	E-2	Main PWB	18-20	Harness S-SNR 1	18-29	Connects Main PWB and Stack Full Sensors 1 to 5.
358	E-5	Main PWB	18-20	Harness S-SNR 2	18-30	Connects Main PWB and Stack Full Sensors 6 to 10.
359	E-5	Main PWB	18-20	LED Harness	18-6	Connects Main PWB and LED PWB.
360	C-10	LED PWB	18-7	LED Harness	18-6	Connects Main PWB and LED PWB.
361 I 370	I-1 I I-4	Stack Full Sensor-Link	18-13	Harness S-SNR 1 Harness S-SNR 2	18-29 18-30	Connects Main PWB and Stack Full Sensors 1 to 10. S-SNR 1 Harness: 1-5 S-SNR 2 Harness: 6-10
371	H-13	Bottom Frame	17-13	Main Harness	18-33	Connects Main PWB and Direction Solenoid.
372	I-12	Motor Assembly	19-23	Main Harness	18-33	Connects Main PWB and Motor 2.
373	I-13	Motor Assembly	19-24	Main Harness	18-33	Connects Main PWB and Motor 1.
374	I-11	Motor Bracket	19-20	Main Harness	18-33	Connects Main PWB and Right Solenoid Assembly.
375	H-12	Bottom Frame	17-13	Main Harness	18-33	Connects Main PWB and Pass Interlock Sensor

*1: PL indicates the Parts List and item number corresponding to the parts listed.
*2: @ at the beginning of the harness name indicates that the harness is a part of the parts listed.

11.7.3 General Wiring Diagram



11.7.4 Wiring for Connection Between Components

11.7.4.1 Organization

The wiring and signals between the components shown in the General Wiring Diagram are described as follows:

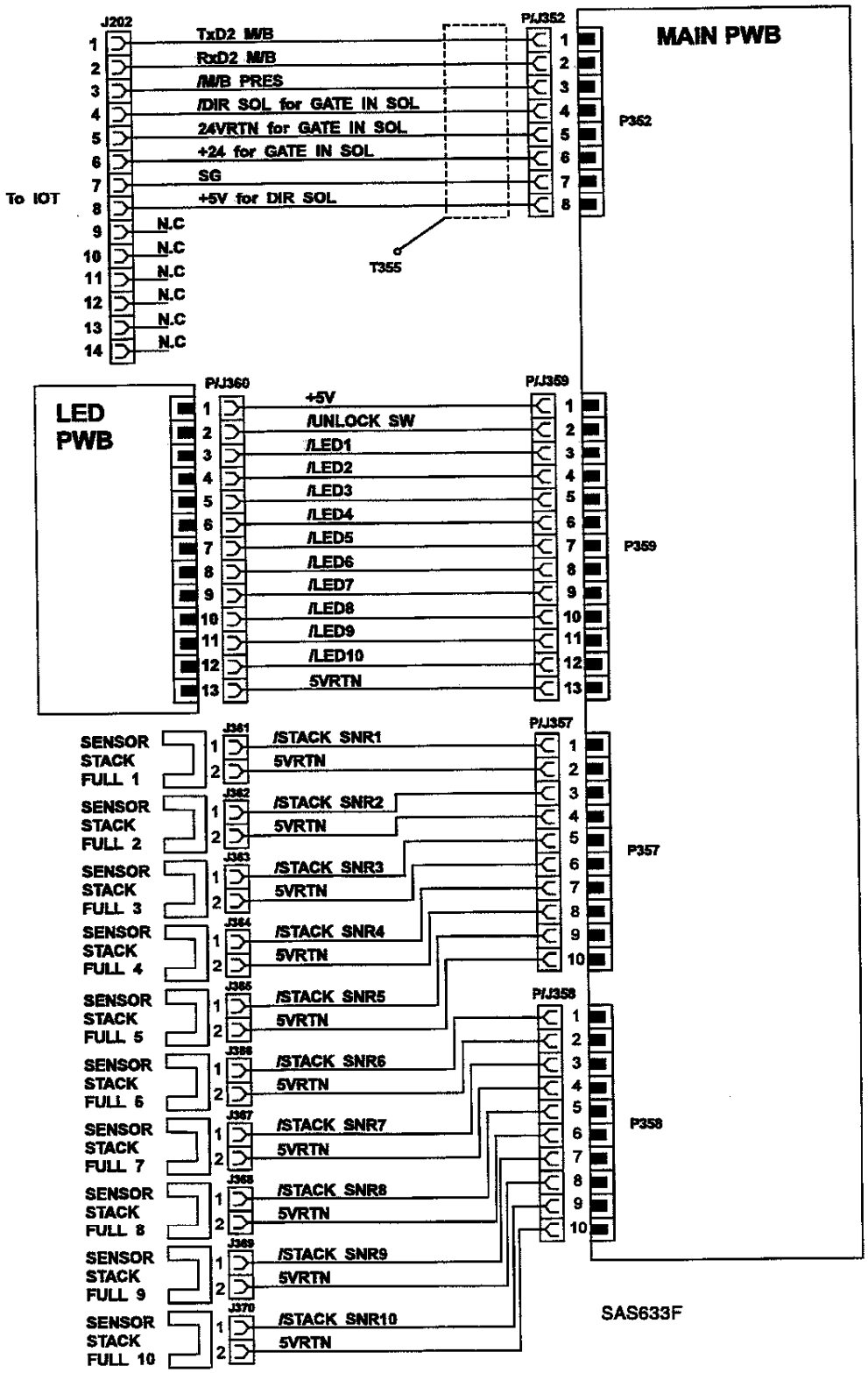
1) Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10
2) Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch

11.7.4.2 Notes on Use of Connection and Wiring Diagrams between Components

See the base engine Service Manual for notational conventions of the connection and wiring diagrams.

11.7.5 Connection and Wiring between Components

1. Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10



1. Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10

Signal Name	Description
TxD2 M/B	Signal from the Mailbox to the Controller in the Printer
RxD2 M/B	Signal from the Controller to the Mailbox
/M/B PRES	Mailbox detection signal (Low level when the Mailbox is installed, and High level when not installed)
/DIR SOL for GATE IN SOL	Signal from the Printer to the Mailbox controlling where the Direction Solenoid switches the paper exit path. Low signal = base engine side, High signal = Mailbox side

J202	P352	Signal Name	Signal Direction P: Printer M: Main PWB	Trigger	High Level	Low Level
1	1	TxD2 M/B	P → M	Level	TTL	TTL
2	2	RxD2 M/B	P ←M	Level	TTL	TTL
3	3	/M/B PRES	P← M	Level	TTL	TTL
4	4	/DIR SOL for GATE IN SOL	P → M	Transition	+5 V	0 V

1. Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10

Signal Name	Description
/UNLOCK SW	Signal from the Button (Unlock) Switch on the LED PWB (Low level when the Switch is on and High level when off)
/LED1	Light-emission drive signal for LED1 (LED1 is On when this signal is at Low level and Off when at High level)
/LED2	Light-emission drive signal for LED2 (LED2 is On when this signal is at Low level and Off when at High level)
/LED3	Light-emission drive signal for LED3 (LED3 is On when this signal is at Low level and Off when at High level)
/LED4	Light-emission drive signal for LED4 (LED4 is On when this signal is at Low level and Off when at High level)
/LED5	Light-emission drive signal for LED5 (LED5 is On when this signal is at Low level and Off when at High level)
/LED6	Light-emission drive signal for LED6 (LED6 is On when this signal is at Low level and Off when at High level)
/LED7	Light-emission drive signal for LED7 (LED7 is On when this signal is at Low level and Off when at High level)
/LED8	Light-emission drive signal for LED8 (LED8 is On when this signal is at Low level and Off when at High level)
/LED9	Light-emission drive signal for LED9 (LED9 is On when this signal is at Low level and Off when at High level)
/LED10	Light-emission drive signal for LED10 (LED10 is On when this signal is at Low level and Off when at High level)

J360	P359	Signal Name	Signal Direction L: LED PWB M: Main PWB	Trigger	High Level	Low Level
2	2	/UNLOCK SW	L → M	Level	TTL	TTL
3	3	/LED1	L ← M	Level	TTL	TTL
4	4	/LED2	L ← M	Level	TTL	TTL
5	5	/LED3	L ←M	Level	TTL	TTL
6	6	/LED4	L ← M	Level	TTL	TTL
7	7	/LED5	L ← M	Level	TTL	TTL
8	8	/LED6	L ← M	Level	TTL	TTL
9	9	/LED7	L ← M	Level	TTL	TTL
10	10	/LED8	L ← M	Level	TTL	TTL
11	11	/LED9	L ← M	Level	TTL	TTL
12	12	/LED10	L ← M	Level	TTL	TTL

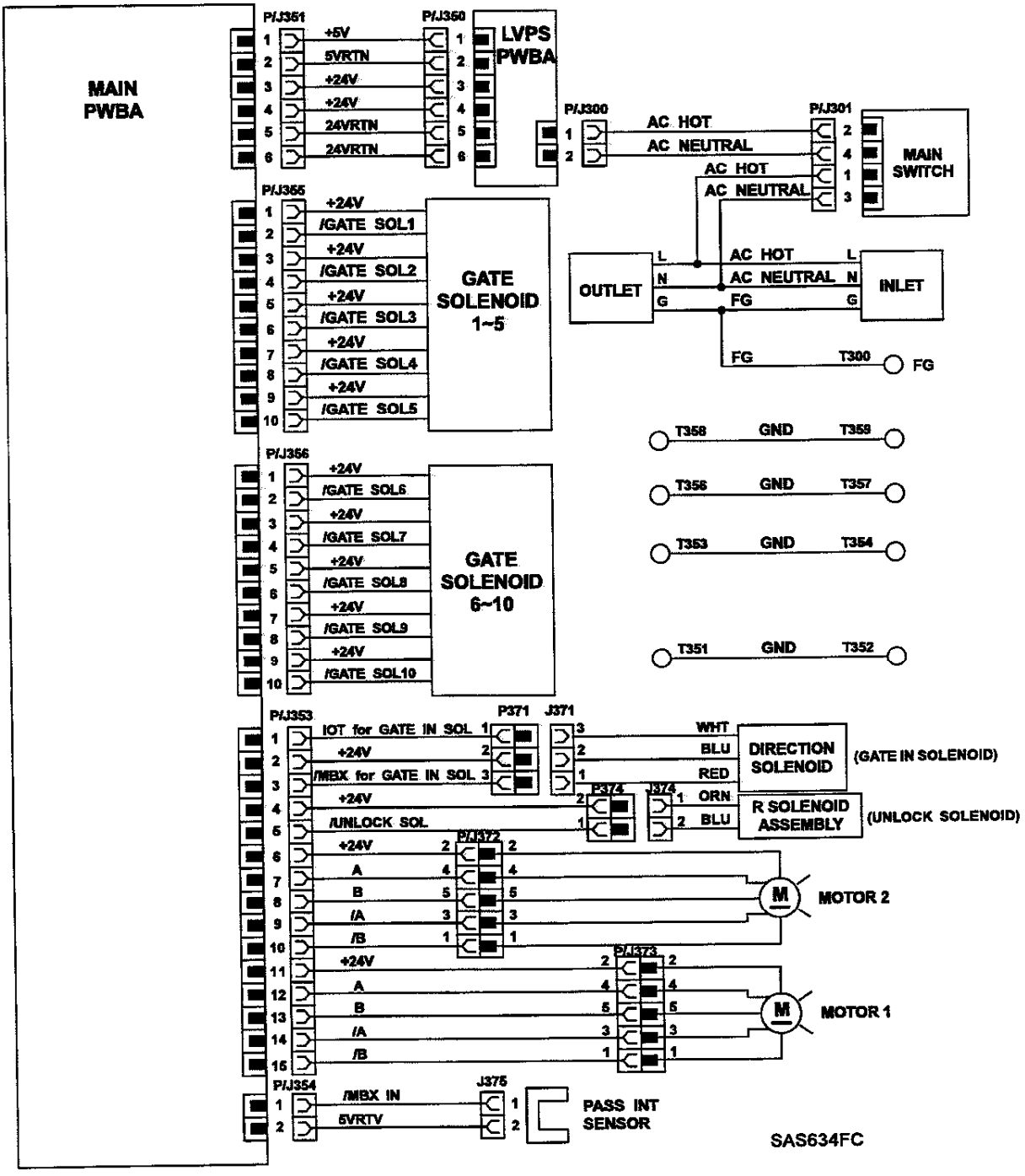
1. Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10

Signal Name	Description
/STACK SNR1	(1) Detection signal of the state of paper in Bin 1 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 1 (Low level when the tray is set and High level when pulled out)
/STACK SNR2	(1) Detection signal of the state of paper in Bin 2 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 2 (Low level when the tray is set and High level when pulled out)
/STACK SNR3	(1) Detection signal of the state of paper in Bin 3 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 3 (Low level when the tray is set and High level when pulled out)
/STACK SNR4	(1) Detection signal of the state of paper in Bin 4 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 4 (Low level when the tray is set and High level when pulled out)
/STACK SNR5	(1) Detection signal of the state of paper in Bin 5 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 5 (Low level when the tray is set and High level when pulled out)
/STACK SNR6	(1) Detection signal of the state of paper in Bin 6 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 6 (Low level when the tray is set and High level when pulled out)
/STACK SNR7	(1) Detection signal of the state of paper in Bin 7 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 7 (Low level when the tray is set and High level when pulled out)
/STACK SNR8	(1) Detection signal of the state of paper in Bin 8 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 8 (Low level when the tray is set and High level when pulled out)
/STACK SNR9	(1) Detection signal of the state of paper in Bin 9 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 9 (Low level when the tray is set and High level when pulled out)
/STACK SNR10	(1) Detection signal of the state of paper in Bin 10 (Low level when the bin is not full and High level when full) (2) Detection signal of the set/open state of the tray of Bin 10 (Low level when the tray is set and High level when pulled out)

1. Main PWB - base engine, LED PWB, and Stack Full Sensors 1 to 10

P3XX	P35X	Signal Name	Signal Direction SN: Sensor M: Main PWB	Trigger	High Level	Low Level
P361-1	P357-1	/STACK SNR1	SN → M	Level	TTL	TTL
P362-1	P357-3	/STACK SNR2	SN → M	Level	TTL	TTL
P363-1	P357-5	/STACK SNR3	SN → M	Level	TTL	TTL
P364-1	P357-7	/STACK SNR4	SN → M	Level	TTL	TTL
P365-1	P357-9	/STACK SNR5	SN → M	Level	TTL	TTL
P366-1	P358-1	/STACK SNR6	SN → M	Level	TTL	TTL
P367-1	P358-3	/STACK SNR7	SN → M	Level	TTL	TTL
P368-1	P358-5	/STACK SNR8	SN → M	Level	TTL	TTL
P369-1	P358-7	/STACK SNR9	SN → M	Level	TTL	TTL
P370-1	P358-9	/STACK SNR10	SN → M	Level	TTL	TTL

2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch



2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch

Signal Name	Description
/GATE SOL1	(1) Drive signal for opening the Gate of Bin 1 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 1 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL2	(1) Drive signal for opening the Gate of Bin 2 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 2 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL3	(1) Drive signal for opening the Gate of Bin 3 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 3 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL4	(1) Drive signal for opening the Gate of Bin 4 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 4 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL5	(1) Drive signal for opening the Gate of Bin 5 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 5 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL6	(1) Drive signal for opening the Gate of Bin 6 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 6 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL7	(1) Drive signal for opening the Gate of Bin 7 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 7 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL8	(1) Drive signal for opening the Gate of Bin 8 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 8 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL9	(1) Drive signal for opening the Gate of Bin 9 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 9 (The tray is unlocked when this signal is at Low level and locked when at High level)
/GATE SOL10	(1) Drive signal for opening the Gate of Bin 10 (The Gate is opened when this signal is at Low level and closed when at High level) (2) Drive signal for unlocking the tray of Bin 10 (The tray is unlocked when this signal is at Low level and locked when at High level)

2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch

P35X	Signal Name	Signal Direction M: Main PWB SO: Gate Sol.	Trigger	High Level	Low Level
P355-2	/GATE SOL1	M →SO	Level	+24 V	0 V
P355-4	/GATE SOL2	M → SO	Level	+24 V	0 V
P355-6	/GATE SOL3	M → SO	Level	+24 V	0 V
P355-8	/GATE SOL4	M → SO	Level	+24 V	0 V
P355-10	/GATE SOL5	M → SO	Level	+24 V	0 V
P356-2	/GATE SOL6	M → SO	Level	+24 V	0 V
P356-4	/GATE SOL7	M → SO	Level	+24 V	0 V
P356-6	/GATE SOL8	M → SO	Level	+24 V	0 V
P356-8	/GATE SOL9	M → SO	Level	+24 V	0 V
P356-10	/GATE SOL10	M → SO	Level	+24 V	0 V

*1: Resistance of the Solenoid

Solenoid	Resistance (Ambient temperature: 20×C)
Gate Solenoids 1 - 10 (Left Solenoid Assembly)	175 Ω ± 10%

2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch

Signal Name	Description
A	Phase A drive signal for Motor 2 (Low level when exciting and High level when not exciting)
B	Phase B drive signal for Motor 2 (Low level when exciting and High level when not exciting)
/A	Phase /A drive signal for Motor 2 (Low level when exciting and High level when not exciting)
/B	Phase /B drive signal for Motor 2 (Low level when exciting and High level when not exciting)

P353	P372	Signal Name	Signal Direction M: Main PWB MT: Motor 2	Trigger	High Level	Low Level
7	4	A	M → MT	Level	+24 V	0 V
8	5	B	M → MT	Level	+24 V	0 V
9	3	/A	M → MT	Level	+24 V	0 V
10	1	/B	M → MT	Level	+24 V	0 V

Signal Name	Description
A	Phase A drive signal for Motor 1 (Low level when exciting and High level when not exciting)
B	Phase B drive signal for Motor 1 (Low level when exciting and High level when not exciting)
/A	Phase /A drive signal for Motor 1 (Low level when exciting and High level when not exciting)
/B	Phase /B drive signal for Motor 1 (Low level when exciting and High level when not exciting)

P353	P373	Signal Name	Signal Direction M: Main PWB MT: Motor 1	Trigger	High Level	Low Level
12	4	A	M → MT	Level	+24 V	0 V
13	5	B	M → MT	Level	+24 V	0 V
14	3	/A	M → MT	Level	+24 V	0 V
15	1	/B	M → MT	Level	+24 V	0 V

2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1, Pass Interlock Sensor, and LVPS PWB - Main Switch

Motor Information

- Motor 1 and Motor 2 are PM (Permanent Magnet) type stepping motors.
- The excitation sequence of Motors 1 and 2 is as follows:

		Step (1-2 phase excitation)							
Phase	Pin Number	1	2	3	4	5	6	7	8
+24 V	2 (Orange)	+	+	+	+	+	+	+	+
A	4 (Blue)	-	-	-					
B	5 (Blue)			-	-	-			
/A	3 (Blue)					-	-	-	
/B	1 (Blue)	-						-	-

- DC resistance of the windings

  48 Ω/ Phase± 10% (Ambient Temperature: 25× C)

  Note: Here, the phase means the winding between +24 V (Pin 2) and A (Pin 4), +24 V (Pin 2) and /A (Pin 3), +24 V (Pin 2) and B (Pin 5), and +24 V (Pin 2) and /B (Pin 1).

- Direction of rotation

  Motors 1 and 2 rotate in the clockwise (CW) direction (normal rotation) when excited in order of steps 1, 2, 3, and 4 shown in the above Table and in the counterclockwise (CCW) direction (reverse rotation) when excited in order of steps 4, 3, 2, and 1. Both Motors are driven in the clockwise direction.

2. Main PWB - LVPS PWB, Gate Solenoids 1 to 5, Gate Solenoids 6 to 10, Direction Solenoid, Right Solenoid Assembly, Motor 2, Motor 1,Pass Interlock Sensor, and LVPS PWB - Main Switch

Signal Name	Description
/MBX for GATE IN SOL	The signal controls the Direction Solenoid, which switches the paper exit between the base engine Exit Tray and the Mailbox. (This is normally High but goes Low for 300 msec. when the Mailbox is selected.
/IOT for GATE IN SOL	The signal controls the Direction Solenoid, which switches the paper exit between the base engine Exit Tray and the Mailbox. (This is normally High but goes Low for 300 msec. when the Exit Tray is selected.
/UNLOCK SOL	The signal controls the Right Solenoid Assembly, which locks and unlocks the 10 bins simultaneously. The bins are locked when this signal is at Low level and unlocked when at the High level.

P353	P37X	J37X	Signal Name	Signal Direction M: Main PWB S: Sol	Trigger	High Level	Low Level
1	P371-3	J371-1	/MBX for GATE IN SOL	M → S	Level	+24 V	0 V
3	P371-1	J371-3	/IOT for GATE IN SOL	M → S	Level	+24 V	0 V
5	P374-1	J374-2	/UNLOCK SOL	M → S	Level	+24 V	0 V

Signal Name	Description
/MBX IN	(1) Indicates detection of paper sheets passing the Lower Chute. This signal is at Low level when paper is being detected and at High level when not detected. (2) Indicates the open or closed state of the Rear Chute. This signal is at Low level when the Rear Chute is open and at High level when closed.

P354	P357	Signal Name	Signal Direction M: Main PWB SN: Sensor	Trigger	High Level	Low Level
2	2	/MBX IN	M ← SN	Level	TTL	TTL

*1: Resistance of the Solenoids

Solenoid	Resistance (Ambient Temperature: 20xC)
Gate In Solenoid (Direction Solenoid)	90 Ω ± 10%
Unlock Solenoid (Right Solenoid Assembly)	128 Ω ± 10%

11.8 Mailbox RAPS

11.8.1 RAPs with Error or Status Messages

The error and status messages are listed in the order of precedence.

Message Displayed on LCD	Description
NONVOLATILE MEMORY FAILURE	Problem in the Nonvolatile Memory. Go to RAP 11.8.1.1
MAILBOX FAILURE/ SERVICE REQUIRED	Mailbox present signal no longer indicates that the Mailbox is installed. Go to RAP 11.8.1.2
CLOSE COVERS/ MAILBOX REAR COVER IS OPEN	The Mailbox rear cover is open. Go to RAP 11.8.1.3
MAILBOX JAM/ OPEN MAILBOX DOOR/ CLEAR PAPER PATH	There is a paper jam in the Mailbox. Go to RAP 11.8.1.4
REMOVE OUTPUT AND CLOSE BIN (*n*)	Bin (*n*) is full. Go to RAP 11.8.1.5

11.8.1.1 Nonvolatile Memory Failure

Procedure

1 The problem occurs when the power is switched on.

Y: Replace the Main PWB.

N: Go to step 3.

2 The problem occurs when the power is switched off and back on again.

Y: Replace the Main PWB.

N: Go to step 4.

3 The problem occurs when the power is switched on and off several times.

Y: Replace the Main PWB.

N: Problem solved. The cause of the problem is considered to be extraneous noise.

NOTE: If this message is still displayed after the Main PWB is replaced, go to RAP 7.4.25 Electrical Noise for verification.

11.8.1.2 Mailbox Failure/Service Required

Initial Action

Ensure that the Mailbox is fully seated and the Rear Chute door is closed.

Procedure

1 Switch off the printer/Mailbox power and check the Print Engine Controller Harness Assembly for continuity between J202 and J352.

Continuity is verified.

Y: Go to Step 2.

N: Replace the Print Engine Controller Harness Assembly.

2 Switch on the printer/Mailbox power and check the Main PWB for Low level voltage between P352-3 and P352-7.

Low level voltage is verified.

Y: Go to Step 3.

N: Go to Step 4.

3 Check the Print Engine Controller for Low level voltage between P/J21-12 and P/J21-8.

Low level voltage is verified.

Y: Replace the Print Engine Controller.

N: Replace the OCT Harness Assembly.

4 Check the Power Supply and verify that there is 5VDC between J350-1 and J350-2.

+5VDC is verified.

Y: Switch off the printer/Mailbox power and verify continuity between P350 and P351. If there is continuity, replace the Main PWB.

N: Go to *RAP 11.8.2.6 LVPS PWB +5VDC Failure.*

11.8.1.3 Close Covers/Mailbox Rear Cover is Open

Procedure

1 Physically verify that the Rear Chute Interlock Link deactuates the Pass Interlock Sensor Actuator when the Rear Chute is closed and actuates it when the Rear Chute is open.

The Interlock Link deactuates and actuates the Pass Interlock Sensor Actuator

Y: Go to Step 2.

N: Look for binding/damage and replace/repair the Lower Chute Assembly and/or the Rear Chute.

2 Execute Diagnostic DG 100 to verify operation of the Pass Interlock Sensor.

The Pass Interlock Sensor functions properly.

Y: Replace the Main PWB.

N: Go to *RAP 11.8.2.7 Pass Interlock Sensor Failure.*

11.8.1.4 Mailbox Jam/Open Mailbox Door/Clear Paper Path

Initial Action

Inspect the paper path for the presence of foreign objects or obstructions, such as torn pieces of paper, or dirty, damaged, or worn paper path components. Clean, repair, or replace as necessary.

Procedure

1 Execute Diagnostic DG 102 and ensure that the Transport Roll and Exit Roll rotate smoothly.

The Transport Roll and Exit Roll rotate smoothly.

Y: Go to Step 2.

N: Go to *RAP 11.8.2.8 Motor Assembly Failure.*

2 Execute Diagnostic DG 101 and verify that the Left Solenoid Assembly and Bin Gates operate properly.

The Left Solenoid Assembly and Bin Gates operate properly.

Y: Go to step 3.

N: Go to *RAP 11.8.2.9 Left Solenoid Assembly Failure.*

3 Execute Diagnostic Code DG 100 to verify that the Pass Interlock Sensor functions properly.

The Pass Interlock Sensor functions properly.

Y: Replace the Main PWB.

N: Go to *RAP 11.8.2.7 Pass Interlock Sensor Failure.*

11.8.1.5 Remove Output and Close Bin (*n*)

Initial Action

Verify that the Stack Full Sensors are properly seated in their mountings.

Procedure

1 Execute Diagnostic Code DG 100 and ensure that the Stack Full Sensor functions properly when actuated (see *REP 11.3.11* to access the Stack Full Sensor).

The Stack Full Sensor functions properly.

Y: Replace the Main PWB.

N: Go to *RAP 11.8.2.10 Stack Full Sensor Failure.*

11.8.2 RAPs without Error or Status Messages

11.8.2.1 Malfunctioning Left Solenoid Assembly

Procedure

1 Execute Diagnostic Code DG 101 and ensure that the Left Solenoid Assembly opens the gates.

The Left Solenoid Assembly opens the gates.

Y: Go to step 2.

N: Go to *RAP 11.8.2.9 Left Solenoid Assembly Failure.*

NOTE: Execute Diagnostic Code DG 100 and check the operation of the Pass Interlock Sensor.

2 Execute Diagnostic Code DG 100 and verify that the Pass Interlock Sensor is operating properly.

The Pass Interlock Sensor is operating properly.

Y: Replace the Main PWB.

N: Go to *RAP 11.8.2.7 Pass Interlock Sensor Failure.*

11.8.2.2 Faulty Power Supply

Procedure

1 Switch off the Mailbox power and verify continuity between P350 and P351.

Continuity is verified between P350 and P351.

Y: Go to Step 2.

N: Replace the LVPS Harness Assembly.

2 Disconnect connector P/J351 on the Main PWB, switch on the power and, within 5 minutes, check the voltage. There is +5VDC between J351-1 and J351-2 and +24VDC between J351-3 and J351-5, and between J351-4 and J351-6.

The voltage is verified.

Y: Go to Step 3.

N: Replace the LVPS PWB.

3 Switch off the Mailbox power and reconnect P/J351. Disconnect connector P/J360 on the LED PWB, and switch on the power. In 2 to 3 minutes, there is +5VDC between P/J351-1 and P/J351-2 and +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The voltage is verified.

Y: Replace the LED PWB.

N: Go to step 4.

4 Switch off the Mailbox power and disconnect connectors P/J355 and P/J356 of the Left Solenoid Assembly, and switch ON the power. There is +5VDC between P/J351-1 and P/J351-2 and +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The voltage is verified.

Y: Replace the Left Solenoid Assembly.

N: Go to step 5.

5 Switch off the Mailbox power and disconnect connector P/J371 of the Direction Solenoid, and switch ON the power. There is +5VDC between P/J351-1 and P/J351-2 and +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The voltage is verified.

Y: Replace the Direction Solenoid.

N: Go to step 6.

6 Switch off the Mailbox power and disconnect connector P/J374 of the Right Solenoid Assembly, and switch ON the power. There is +5VDC between P/J351-1 and P/J351-2 and +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The voltage is verified.

Y: Replace the Right Solenoid Assembly.

N: Go to step 7.

7 Switch off the Mailbox power and disconnect connectors P/J372 and P/J373 of the Motor Assembly, and switch ON the power. There is +5VDC between P/J351-1 and P/J351-2 and +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The voltage is verified.

Y: Replace the Motor Assembly.

N: Replace the Main PWB.

11.8.2.3 Faulty LED Indication

Procedure

1 Execute Diagnostic Code DG 103 to turn the LED's on and Diagnostic Code DG 104 to turn the LED's off.

The LED's turn ON and OFF properly.

Y: Replace the Main PWB.

N: Go to step 2

2 Check the voltage to the LED PWB. There is +5VDC between P/J359-1 and P/J359-13.

Y: Go to Step 3.

N: Go to *RAP 11.8.2.6 LVPS PWB +5VDC Failure.*

3 Switch off the Mailbox power and check the LED Harness. There is continuity between J360 and J359.

Y: Go to *RAP 11.8.2.11 LED PWB Failure.*

N: Replace the LED Harness.

11.8.2.4 Faulty Unlocking

Procedure

1 Execute Diagnostic Code DG 101 and check the operation of the Left Solenoid Assembly.

The Left Solenoid Assembly is operating properly.

Y: Go to Step 2.

N: Go to *RAP 11.8.2.9 Left Solenoid Assembly Failure.*

2 Execute Diagnostic Code DG 101 and check the operation of the Right Solenoid Assembly.

The Right Solenoid Assembly is operating properly.

Y: Go to Step 3.

N: Go to *RAP 11.8.2.12 Right Solenoid Assembly Failure.*

3 Execute Diagnostic Code DG 100 and check the operation of the Bin Unlock Switch.

The Bin Unlock Switch is operating properly.

Y: Replace the Main PWB.

N: Go to Step 4.

4 There is +5VDC between P/J360-1 and P/J360-13.

Y: Go to Step 5.

N: Go to *RAP 11.8.2.2 Faulty Power Supply.*

5 The signal measured at P/J359-2 is logic Low when the Bin Unlock Switch is pressed and logic High when the switch is released.

Y: Replace the Main PWB.

N: Verify continuity of the LED Harness. If the LED Harness has continuity, replace the LED PWB.

11.8.2.5 Faulty Exit Path Switching

The printer Exit Gate does not properly switch between the Standard Output Tray and the Mailbox Bins.

Procedure

NOTE: OPERATION OF EXIT GATE WITH AND WITHOUT MAILBOX:
With the Mailbox not installed, the Printer Exit Gate will be open (output will be directed to the Printer Exit tray).
When the Mailbox Option is installed, the Direction Solenoid Link Assembly will close the Exit Gate (output will be directed to the Mailbox Bins).
If a print job is sent to the printer identifying the Printer Exit Tray as the output location, the Direction Solenoid will energize and open the Exit Gate directing the prints to the Printer Exit Tray.

1 Enter the Printer Diagnostic Mode and execute Diagnostic Code DG 86

The actuation of the Direction Solenoid is audible.

Y: Go to step 2

N: Go to *RAP 11.8.2.13 Direction Solenoid Failure.*

2 Switch off the Printer and Mailbox power, remove the Mailbox from the printer, open the Printer Rear Cover and visually observe the Exit Gate.

The Exit Gate is open and can be manually swung closed, and opens freely when released.

Y: Go to step 3

N: Check the printer Exit Gate area for binding/damage or broken Exit Gate spring.

3 Mount the Mailbox on top of the printer while observing the Exit Gate.

The Exit Gate closes (output directed to the Mailbox Bins) as the Mailbox is lowered onto the printer.

Y: Go to step 4.

N: Check the Direction Solenoid Link Assembly for binding/damage.

4 Open the printer Rear Cover, if the Exit Gate is open, manually push the Exit Gate closed (output directed to the Mailbox) and enter the printer Diagnostic Mode to observe the Exit Gate when Diagnostic Code DG86 is executed.

The Exit Gate opens (output directed to the Standard Output Tray) when DG86 is executed.

Y: Check the PCL Menu for selection of the correct "Output Bin".

N: Check the Direction Solenoid Link Assembly for binding/damage.

11.8.2.6 LVPS PWB +5VDC Failure

Procedure

1 Switch off the Mailbox/printer power and disconnect P/J350.

2 Switch On the Mailbox/printer power and check for +5VDC between P/J350-1 and P/J 350-2.

There is +5VDC between P350-1 and P-350-2.

Y: Verify continuity of the LVPS Harness. If the LVPS Harness has continuity, replace the Main PWB.

N: Replace the LVPS PWB.

11.8.2.7 Pass Interlock Sensor Failure

Procedure

NOTE: The Pass Interlock Sensor is a dual purpose sensor:

1. To detect the opening and closing of the Rear Chute
2. To detect when paper is passing through the Rear Chute.

Opening and closing the Rear Chute checks this sensor

NOTE: Execute Diagnostic Code DG 100 to check the operation of the Pass Interlock Sensor.

1 Open the Rear Chute to verify that the Pass Interlock Sensor voltage between P/J354-1 and P/J354-2 is at the Low level when paper is detected (Rear Chute open) and at the High level when paper is not detected (Rear Chute closed).

The Pass Interlock Sensor operates correctly.

Y: Replace the Main PWB.

N: Go to step 2.

2 Switch off the printer power and check the Main Harness for continuity between J354 and J375.

There is continuity between J354 and J375.

Y: Replace the Pass Interlock Sensor.

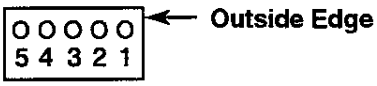
N: Replace the Main Harness.

11.8.2.8 Motor Assembly Failure

Procedure

1 Switch on the printer/Mailbox power and check the power supply to the Motor Assembly. Verify that there is +24VDC between the following pins:

- J372-2 - P/J350-5
- J372-4 - P/J350-5
- J372-5 - P/J350-5
- J372-3 - P/J350-5
- J372-1 - P/J350-5
- J373-2 - P/J350-5
- J373-4 - P/J350-5
- J373-5 - P/J350-5
- J373-3 - P/J350-5
- J373-1 - P/J350-5



P/J 372 & 373

+24VDC is verified between the above pins.

Y: Go to step 5.

N: Go to step 2.

2 Switch off the printer/Mailbox power and check the Main Harness. Verify that there is continuity between J353 and J372 and between J353 and J373.

Continuity is verified.

Y: Go to step 3.

N: Replace the Main Harness.

3 Switch on the printer/Mailbox power and check the power supply. Verify that there is +24VDC between P/J351-3 and P/J351-5 and between P/J351-4 and P/J351-6.

The +24VDC is verified.

Y: Replace the Main PWB.

N: Go to step 4.

4 Switch off the printer/Mailbox power and check the LVPS Harness. Verify that there is continuity between J351 and J350.

Continuity of the LVPS Harness is verified.

Y: Replace the LVPS PWB.

N: Replace the LVPS Harness.

5 Check the resistance of the windings of the Motor Assembly. The resistance between the following pins is about 48 Ohms.

- P372-2 - P372-4
- P372-2 - P372-3
- P372-2 - P372-5
- P372-2 - P372-1
- P373-2 - P373-4
- P373-2 - P373-3
- P373-2 - P373-5
- P373-2 - P373-1

The resistance between the above pins is about 48 Ohms.

Y: Replace the Main PWB.

N: Replace the Motor Assembly.

11.8.2.9 Left Solenoid Assembly Failure

Procedure

1 Switch on the printer and Mailbox power and check the power supply to the Left Solenoid Assembly. Verify that there is +24VDC between the following pins:

- P355-1 - P/J350-5
- P355-2 - P/J350-5
- P355-3 - P/J350-5
- P355-4 - P/J350-5
- P355-5 - P/J350-5
- P355-6 - P/J350-5
- P355-7 - P/J350-5
- P355-8 - P/J350-5
- P355-9 - P/J350-5
- P355-10 - P/J350-5
- P356-1 - P/J350-6
- P356-2 - P/J350-6
- P356-3 - P/J350-6
- P356-4 - P/J350-6
- P356-5 - P/J350-6
- P356-6 - P/J350-6
- P356-7 - P/J350-6
- P356-8 - P/J350-6
- P356-9 - P/J350-6
- P356-10 - P/J350-6

+24VDC between the above pins was verified.

Y: Go to step 4.

N: Go to step 2.

2 Switch off the printer/Mailbox power and disconnect P/J351. Switch on the printer/Mailbox power and Verify that there is +24VDC between J351-3 and J351-5 and between J351-4 and J351-6.

+24VDC is at the correct pins.

Y: Replace the Main PWB.

N: Go to step 3.

3 Switch off the printer/Mailbox power and check the LVPS Harness for continuity.

There is continuity between J351 and J350.

Y: Replace the LVPS PWB.

N: Replace the LVPS Harness.

4 Disconnect P/J355 and P/J 356 and check the resistance of the windings of the Left Solenoid Assembly. The resistance between the following pins is about 175 Ohms.

- J355-1 - J355-2
- J355-3 - J355-4
- J355-5 - J355-6
- J355-7 - J355-8
- J355-9 - J355-10
- J356-1 - J356-2
- J356-3 - J356-4
- J356-5 - J356-6

- J356-7 - J356-8
- J356-9 - J356-10

The resistance is correct between the above pins.

Y: Go to step 5.

N: Replace the Left Solenoid Assembly.

NOTE: Execute Diagnostic Code DG 101 to actuate the Gate Solenoids.

5 Switch on the printer/Mailbox power and check the signals of the Left Solenoid Assembly.

Verify that the voltage between the following pins is at the Low level when the corresponding Gate Solenoid is actuated.

- P355-2 - P/J351-5, Gate Sol 1
- P355-4 - P/J351-5, Gate Sol 2
- P355-6 - P/J351-5, Gate Sol 3
- P355-8 - P/J351-5, Gate Sol 4
- P355-10 - P/J351-5, Gate Sol 5
- P356-2 - P/J351-5, Gate Sol 6
- P356-4 - P/J351-5, Gate Sol 7
- P356-6 - P/J351-5, Gate Sol 8
- P356-8 - P/J351-5, Gate Sol 9
- P356-10 - P/J351-5, Gate Sol 10

The voltage between the above pins is verified.

Y: Replace the Left Solenoid Assembly.

N: Replace the Main PWB.

11.8.2.10 Stack Full Sensor Failure

Procedure

1 Switch on the printer/Mailbox power and check the signal of each Stack Full Sensor. The voltage between the following pins is at the High level when the bins are full and at the Low level when not full.

NOTE: Execute Diagnostic Code DG 100 to check the Stack Full Sensors.

- P/J357-1 - P/J357-2
- P/J357-3 - P/J357-4
- P/J357-5 - P/J357-6
- P/J357-7 - P/J357-8
- P/J357-9 - P/J357-10
- P/J358-1 - P/J358-2
- P/J358-3 - P/J358-4
- P/J358-5 - P/J358-6
- P/J358-7 - P/J358-8
- P/J358-9 - P/J358-10

The voltage at the above pins are verified.

Y: Replace the Main PWB.

N: Go to step 2.

2 Switch off the printer/Mailbox power and check the S-SNR 1 and 2 Harnesses for continuity. There is continuity between J357 and J361 through J365 and between J358 and J366 through J370.

Continuity is verified.

Y: Replace the Stack Full Sensor with the incorrect signal.

N: Replace the S-SNR 1 or S-SNR 2 Harness.

11.8.2.11 LED PWB Failure

Procedure

1 The Unlock Switch is faulty.

Y: Go to step 3.

N: Go to step 2.

2 Execute Diagnostic Code DG 103 to turn the LED's ON and Diagnostic Code DG 104 to turn the LED's OFF. Check that the voltage between the following pins are at the Low level when the corresponding LED is turned ON.

- P359-3 - P359-13, LED 1
- P359-4 - P359-13, LED 2
- P359-5 - P359-13, LED 3
- P359-6 - P359-13, LED 4
- P359-7 - P359-13, LED 5
- P359-8 - P359-13, LED 6
- P359-9 - P359-13, LED 7
- P359-10 - P359-13, LED 8
- P359-11 - P359-13, LED 9
- P359-12 - P359-13, LED 10

The voltage is at the low level when the corresponding LED is turned on.

Y: Replace the LED PWB.

N: Replace the Main PWB.

3 Check the Unlock signal. The voltage between P/J360-2 and P/J360-13 is at the Low level when the Unlock Switch is pressed and at the High level when the Unlock Switch is released.

Y: Replace the Main PWB.

N: Replace the LED PWB.

11.8.2.12 Right Solenoid Assembly Failure

Procedure

1 Switch on the printer/Mailbox power and check the power supply to the Right Solenoid Assembly. There is +24VDC between the following pins:

- P374-2 - P/J350-5

Y: Go to step 5.

N: Go to step 2.

2 Switch off the printer/Mailbox power and check the Main Harness. There is continuity between J353 and J374.

Y: Go to step 3.

N: Replace the Main Harness.

3 Switch on the printer power and check the power supply. There is +24VDC between the following pins:

- P/J351-3 - P/J351-5
- P/J351-4 - P/J351-6

Y: Replace the Main PWB.

N: Go to step 4.

4 Switch off the printer/Mailbox power and check the LVPS Harness. There is continuity between J351 and J350.

Y: Replace the LVPS PWB.

N: Replace the LVPS Harness.

5 Check the resistance of the winding of the Right Solenoid Assembly. The resistance between J374-1 and J374-2 is about 128 Ohms.

Y: Go to step 6.

N: Replace the Right Solenoid Assembly.

6 Execute Diagnostic Code DG 101 to power ON the Right Solenoid Assembly and check that the voltage between P353-5 and P/J351-5 is at the Low level when the Key Lock Solenoid is on.

The voltage is at the low level.

Y: Replace the Right Solenoid Assembly.

N: Replace the Main PWB.

11.8.2.13 Direction Solenoid Failure

Procedure

NOTE: Execute Diagnostic Code DG 86 to verify the operation of the Direction Solenoid.

1 Check the Direction Solenoid signal. The voltage between P202-4 and P202-7 is at the Low level for approximately 300 ms when switching the exit path to the base engine and at the High level when switching it to the Mailbox.

The voltages are at the correct levels.

Y: Go to step 2.

N: Switch off the printer/Mailbox power and verify the continuity of the OCT Harness between P202 and P21 on the printer. If there is continuity, replace the Print Engine Controller.

2 Switch on the printer/Mailbox power and check the power to the Direction Solenoid for +24VDC between P353-2 and P/J352-5.

The correct voltage is present.

Y: Go to step 3.

N: Go to step 5.

3 Switch off the printer/Mailbox power and check the Print Engine Controller Harness for continuity between J352 and J202.

There is continuity.

Y: Go to step 4.

N: Replace the Print Engine Controller Harness.

4 Check the resistance of the winding of the Direction Solenoid. The resistance between the following pins is about 90 Ohms. Disconnect P/J353 before measuring the resistance.

- J353-1 and J353-2
- J353-3 and J353-2

The resistance is correct.

Y: Replace the Main PWB.

N: Check the Main Harness for continuity between J353 and J371. If there is continuity, replace the Direction Solenoid.

5 Switch on the printer/Mailbox power and check the power supply to the Direction Solenoid for +24VDC between P/J352-6 and P/J352-5.

+24VDC is present.

Y: Replace the Main PWB.

N: Go to step 6.

6 Switch on the printer/Mailbox power and check between P202-6 and P202-5 for +24VDC.

+24VDC is present.

Y: Replace the Print Engine Controller Harness (J352 to J202).

N: Verify the continuity of the OCT Harness in the printer. If there is continuity, go to *RAP 7.4.7 Low Voltage Power Supply (LVPS) Assembly Failure (+24VDC).*

11.9 Installation and Removal

For the installation and removal of the Mailbox/Collator, see the 4517/4517mp User Guide.

This Page Is Intentionally Blank

Section 12

Envelope Feeder Option

Specifications **12-3**
Configuration 12-3
Basic Configuration 12-3
Installation on the base engine 12-3
Electrical Specifications 12-3
Power Supply 12-3
Power Consumption 12-3
Mechanical Specifications 12-3
Dimensions and Weight 12-3
Supported Envelope Types and Size 12-4

Envelope Feeder Parts List **12-5**
PL20 Envelope Feeder 12-6
PL20 Envelope Feeder 12-7

Envelope Feeder REPS **12-8**
Before You Start Any REP 12-8
Weight Assembly/Weight Holder/Weight Arm 12-9
Bottom Cover/Tray Extension 12-10
Side Cover 12-11
One Way Clutch Assemblies A & B (26T)/Envelope Feeder Solenoid (29T)/Transfer Clutch Assembly (25T)/ Torque Clutch Assembly 12-12
No Paper Sensor 12-14
Top Cover 12-15
Bottom Shaft Assembly/Transfer Roll Assembly 12-18
Feed Roll Assembly-1 and -2/Feed Belt 12-19

No Paper Actuator 12-21
Retard Holder/Retard Main Spring/Retard Roll Assembly 12-22
Pinch Roll/Feed Bearing/Pinch Spring 12-24
Envelope Harness Assembly 12-26

Paper Transport 12-27
Paper Transport Mechanism 12-27
Paper Path 12-28

Drive Power Transportation 12-29

Function of Major Components 12-30
Envelope Feeder 12-30
Function 12-30
Envelope Feeder Major Components 12-31
Envelope Feeder Control 12-33
Paper Transportation Control (Paper Jam Detection) .. 12-33
No Paper Detection 12-33

Wiring Diagrams 12-34
Connector Locator 12-34
P/J Table 12-35

Envelope Feeder RAPS 12-36
"Env. Feeder Fail/Service Required" Message (E8) 12-36
"Env. Feeder Empty" Message (C5) 12-37
"EnvelFeeder Jam/Remove All Envel" alternating with
"Remove EnvFeeder/Open Front Cover" and
"Remove Jam Envel" Message (E2) 12-38

Installation and Removal 12-40

12.1 Specifications

12.1.1 Configuration

12.1.1.1 Basic Configuration

The Envelope Feeder option is mounted on the Front Cover Assembly of the Xerox 4517/4517mp Network Laser Printer and has the capacity of up to 75 envelopes of five different types.

12.1.2 Installation on the Base Engine

See the 4517/4517mp User Guide for the detailed procedure.

12.1.3 Electrical Specifications

12.1.3.1 Power Supply

+24VDC and +5VDC are supplied from the 4517 Base Printer
(+24V is for Envelope Feeder Solenoid and +5V is for the No Paper Sensor).

12.1.3.2 Power Consumption

Voltage	Maximum Current (Feeding)
5 VDC	0.02 A
24 VDC	0.02 A

12.1.4 Mechanical Specifications

12.1.4.1 Dimensions and Weight

Unit	Width	Depth	Height	Weight
Metric	255 mm	260 mm	130 mm	1.56 Kg
SAE	10.0 in.	19.2 in.	5.1 in.	3.43 lbs.

12.1.5 Supported Envelope Types and Size

Envelope Type	Envelope Size
Com-10	4.125 in. x 9.5 in.
C5	162mm x 229mm
DL	110mm x 220mm
Monarch	3.875 in. x 7.5 in.
C6	114mm x 162mm

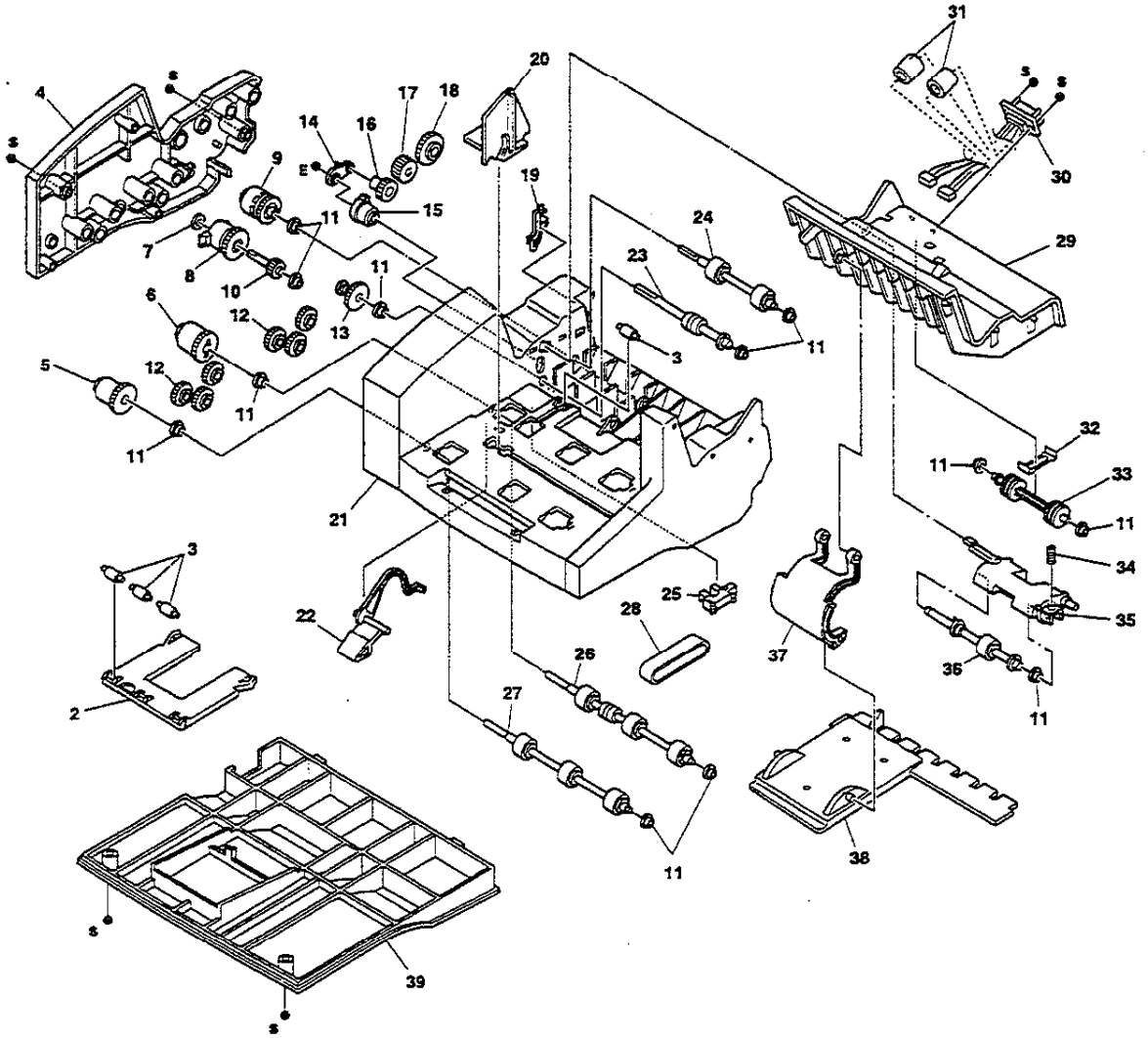
12.2 Envelope Feeder Parts List

The parts list identifies the parts constituting the Envelope Feeder option and is shown in one exploded drawing:

- PL20 Envelope Feeder

For the locations of the connectors (P/J), see *Section 12.7 Wiring Diagrams*.

12.2.1 PL20 Envelope Feeder



12.2.2 PL20 Envelope Feeder

Item	Part	Description
1.	--	Envelope Feeder Assembly
2.	50E83050	Tray Extension
3.	59E91910	Envelope Pinch Roll
4.	48E11270	Side Cover
5.	121K87220	One Way Clutch Assembly B (26T) {2 piece Gear & Clutch}
6.	121K87210	One Way Clutch Assembly A (26T) {2 piece Gear & Clutch}
7.	--	Envelope Feeder Solenoid Bearing
8.	121K87190	Envelope Feeder Solenoid (29T)
9.	121K87180	Transfer Clutch Assembly (25T)
10.	6E47120	Electric Clutch Shaft (17T)
11.	13E82680	Feeder Bearing
12.	7E28780	Idler Gear (21T))
13.	121K87201	One Way Clutch Assembly (26T)
14.	--	Retard Link
15.	121K87170	Torque Clutch Assembly
16.	7E36080	Gear (23T)
17.	7E27430	Drive Gear (21T)
18.	7E27420	Printer Engagement Gear (29T)
19.	--	Harness Cover
20.	32E98770	Envelope Side Guide
21.	101E94231	Main Chassis
22.	120E98480	No Paper Actuator
23.	59K00631	Bottom Shaft Assembly
24.	59K00610	Transfer Roll Assembly
25.	107E94941	No Paper Sensor
26.	59K04320	Feed Roll Assembly-1
27.	59K00640	Feed Roll Assembly-2
28.	23E12500	Feed Belt
29.	--	Top Cover
30.	152K74870	Envelope Harness Assembly
31.	--	Ferrite Core
32.	--	Pinch Spring
33.	59E90750	Pinch Roll
34.	--	Retard Main Spring
35.	--	Retard Holder
36.	59K00621	Retard Roll Assembly
37.	36K91240	Weight Arm (includes item 38)
38.	--	Weight Holder
39.	--	Bottom Cover

12.3 Envelope Feeder REPS

This section explains the removal and replacement procedures (REPS) for the Envelope Feeder parts which are listed in *Section 12.2 Envelope Feeder Parts List.*

NOTE: Parts listed on the parts list that do not have a REP can be easily removed and replaced without a procedure. However, carefully look at how they are installed before removing them.

12.3.1 Before You Start Any REP

There are a number of steps you should follow **before** you begin any procedure:

1. If applicable, cancel pending jobs and take the printer offline.
2. Switch OFF the printer main power and disconnect the power cord from the wall outlet.
3. Do not use force to remove or install printer or Envelope Feeder components.
4. Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.
5. Wear a wrist strap to dissipate static electricity which may damage sensitive electronic parts.
6. See *Section 6, Wiring Diagrams,* for detailed wiring diagrams.

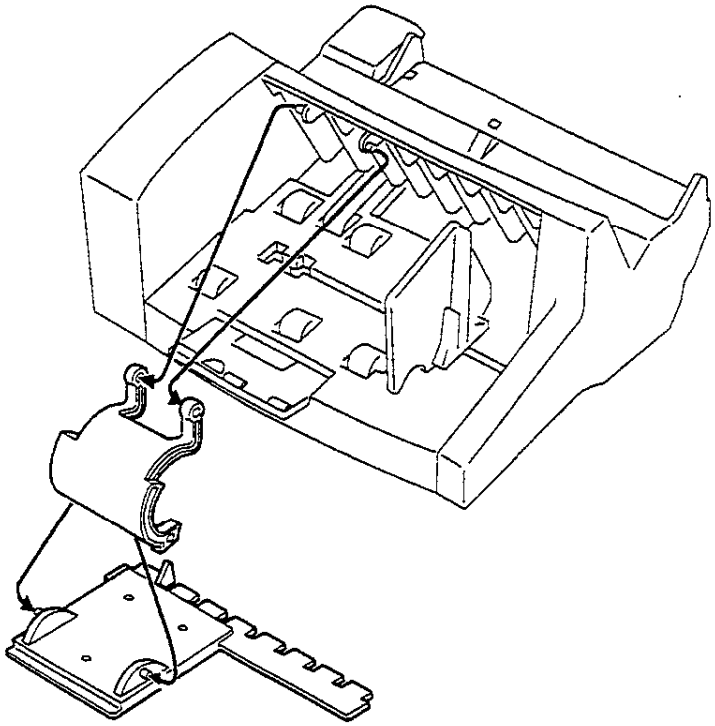
12.3.2 Weight Assembly/Weight Holder/Weight Arm

Removal

1. Detach the Weight Assembly from the Top Cover.
2. Detach the Weight Arm from the Weight Holder.

NOTE: The Weight Holder is spared as part of the Weight Arm.

Figure 12.3.2.1 Weight Assembly, Weight Holder, and Weight Arm Removal



Replacement

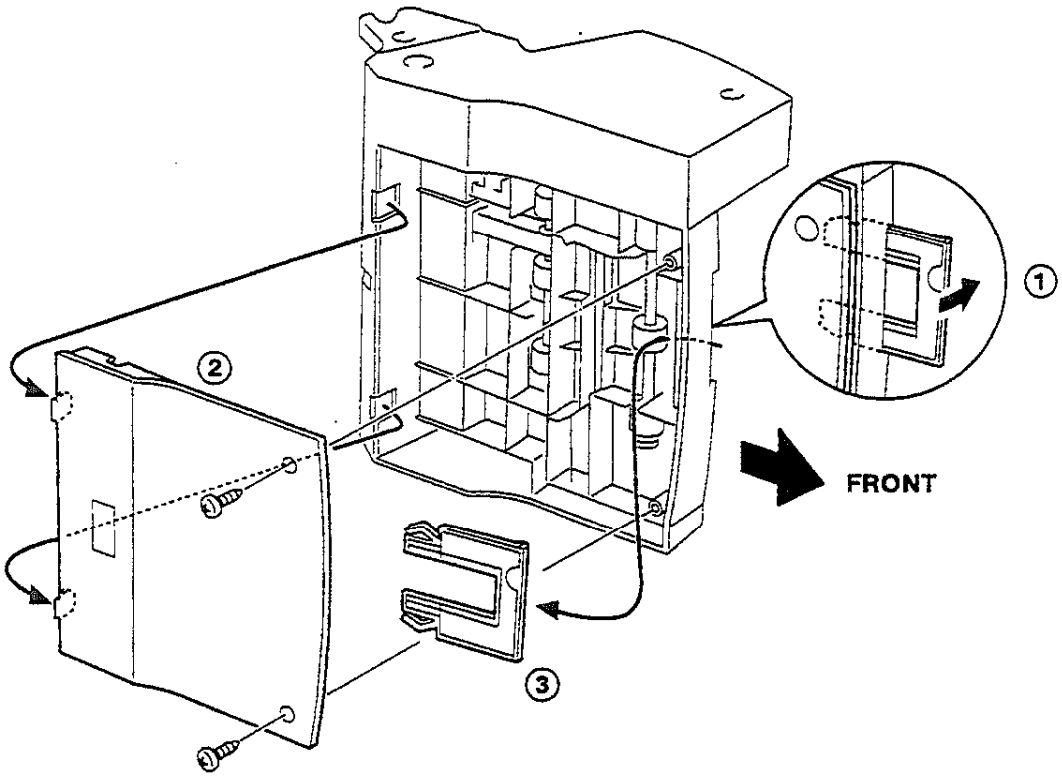
Perform the removal steps in reverse order

12.3.3 Bottom Cover/Tray Extension

Removal

1. Place the Envelope Feeder on its right Side.
2. Remove the two screws which secure the Bottom Cover.
3. Pull out the Tray Extension completely and move it upward (to the right in Figure 12.3.3.1) about 5cm (See (1) in Figure 12.3.3.1) and remove the Bottom Cover from the Main Chassis (See (2) in Figure 12.3.3.1).
4. Remove the Tray Extension from the bottom of the Envelope Feeder (See (3) in Figure 12.3.3.1)

Figure 12.3.3.1 Bottom Cover and Tray Extension Removal



Replacement

Perform the removal steps in reverse order.

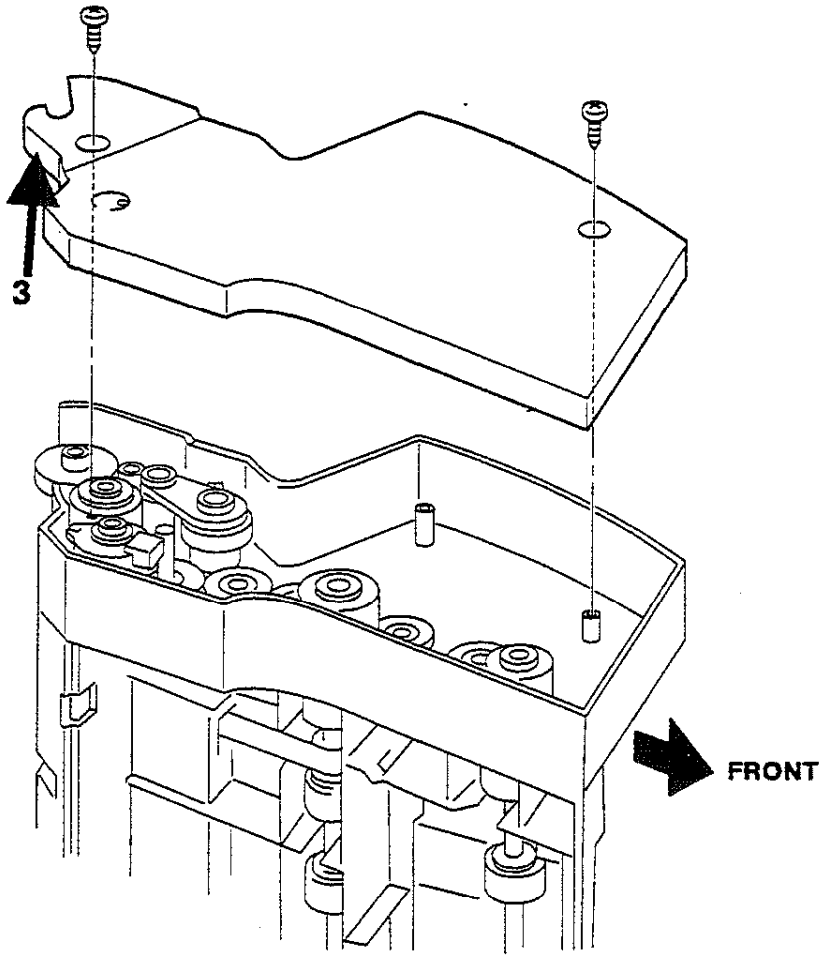
NOTE: First reinstall the Tray Extension and then the Bottom Cover.

12.3.4 Side Cover

Removal

1. Place the Envelope Feeder on its right side.
2. Remove the two screws which secure the Side Cover.
3. Grasp the Side Cover at the location indicated (See 3 in Figure 12.3.4.1) and lift it off.

Figure 12.3.4.1 Side Cover Removal



Replacement

Perform the removal steps in reverse order.

12.3.5 One Way Clutch Assemblies A & B (26T)/Envelope Feeder Solenoid(29T)/Transfer Clutch Assembly (25T)/Torque Clutch Assembly

Removal

NOTE: Since the gears are greased, take care that the grease does not stick to your hands. If grease sticks to your hands, wipe it off completely with a paper towel to prevent grease contamination of other parts.

1. Remove the Bottom Cover (REP 12.3.3)
2. Remove the Side Cover (REP 12.3.4).
3. Lift off the One Way Clutch Assembly A (26T) {Clutch and Gear} while holding the roll on the Feeder Roll Assembly (See (1) in Figure 12.3.5.1).
4. Lift off the One Way Clutch Assembly B (26T) {Clutch and Gear} while holding the roll on the Feeder Roll Assembly (See (2) in Figure 12.3.5.1).
5. Lift off the Transfer Clutch Assembly (25T) (See (3) in Figure 12.3.5.1).
6. Remove the Envelope Feeder Solenoid Bearing on the Envelope Feeder Solenoid (29T) (See (4) in Figure 12.3.5.1).

NOTE: Be Careful not to forget to reinstall the Envelope Feeder Solenoid Bearing when reinstalling the Envelope Feeder Solenoid.

7. Disconnect J230 of the Envelope Harness Assembly from the Envelope Feeder Solenoid (29T) (See (5) in Figure 12.3.5.1).
8. Lift off the Envelope Feeder Solenoid (29T) together with the Envelope Feeder Solenoid Shaft (See (6) in Figure 12.3.5.1).

NOTE: The Feeder Bearing can sometimes come off along with the Envelope Feeder Solenoid Shaft. Take care not to loose the Feeder Bearing (See (7) in Figure 12.3.5.1).

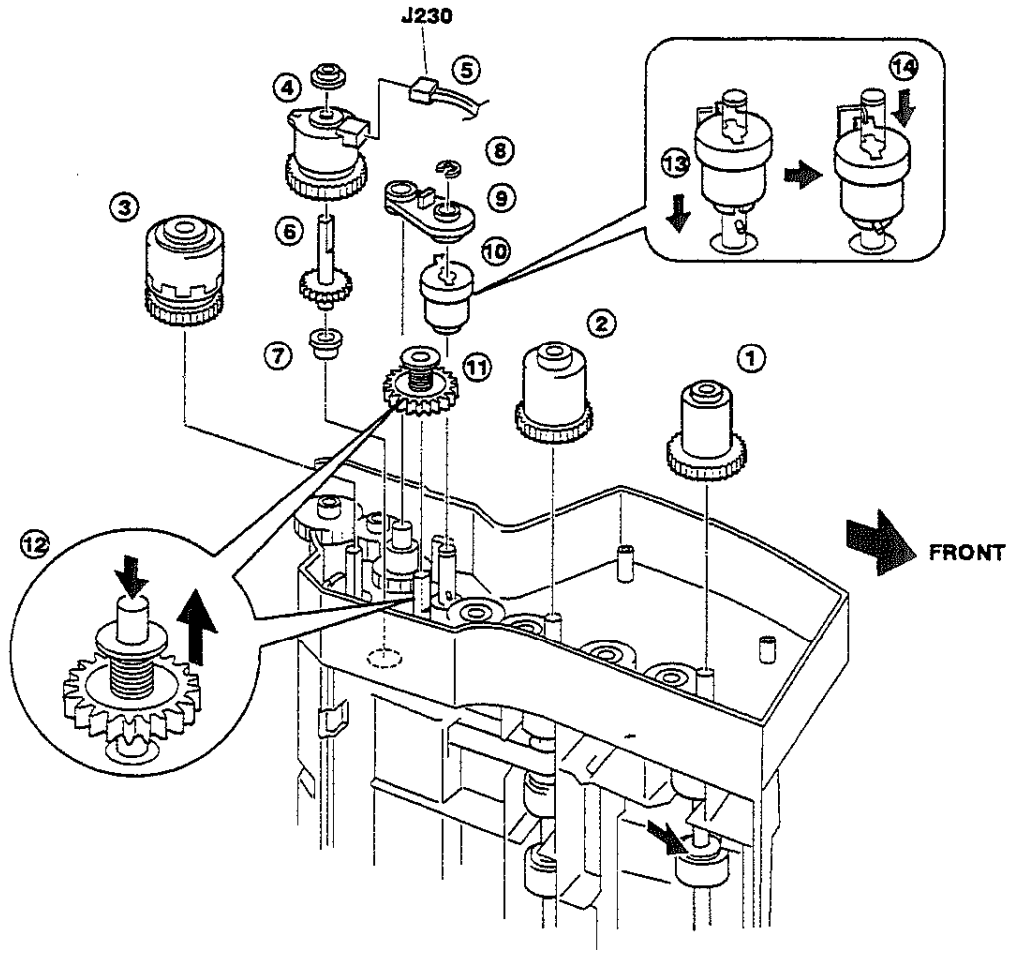
9. Separate the Torque Clutch Assembly Shaft (17T) from the Torque Clutch Assembly (See (6) in Figure 12.3.5.1).
10. Remove the KL Ring (See (8) in Figure 12.3.5.1).
11. Lift off the Retard Link (See (9) in Figure 12.3.5.1).

NOTE: Be careful when replacing the Retard Link, it must be installed with the top side up. Install the Retard Link with the locating tab facing upward.

12. Lift off the Torque Clutch Assembly (See (10) in Figure 12.3.5.1).
13. Lift off the One Way Clutch Assembly (26T) (See (11) in Figure 12.3.5.1) while holding the Retard Roll Assembly Shaft (See (12) in Figure 12.3.5.1)

NOTE: Be careful when reinstalling the One Way Clutch Assembly insure that the gear is oriented on the bottom.

Figure 12.3.5.1 One Way Clutch Assemblies Removal



Replacement

Perform the removal steps in reverse order.

NOTE: Align the lower half of the Torque Clutch Assembly with the pin on the shaft (See (13) in Figure 12.3.5.1).

NOTE: Position the Torque Clutch Assembly Stop to align with the Rotation-Prevention Bracket, and slide the upper half onto the lower half (See (14) in Figure 12.3.5.1).

NOTE: If the Envelope Feeder Solenoid Bearing is not installed, the body of the Envelope Feeder Solenoid is visible through the peephole beside the bearing hole in the outside surface of the Side Cover.

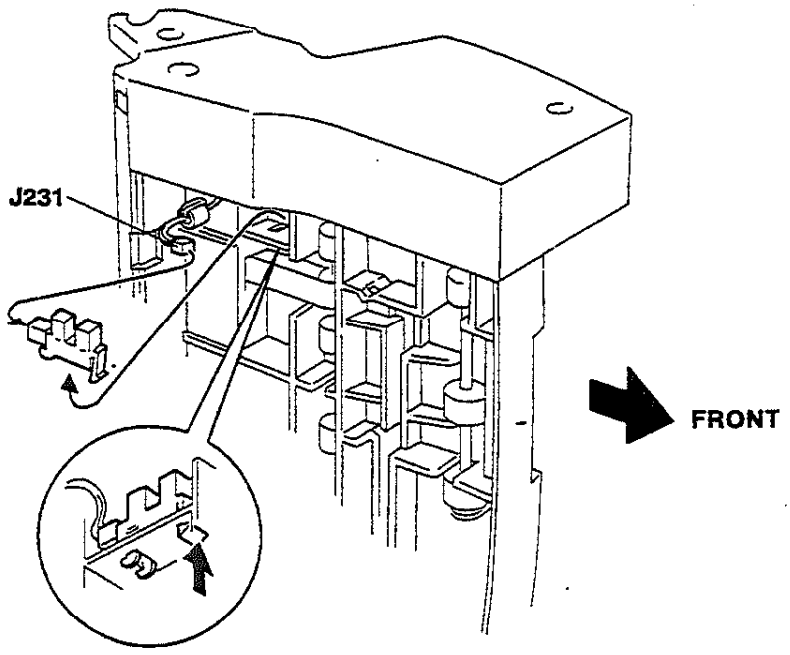
NOTE: Verify proper alignment of One Way Clutches to their respective gears (See (1) & (2) in Figure 12.3.5.1).

12.3.6 No Paper Sensor

Removal

1. Remove Bottom Cover (REP 12.3.3).
2. Press the retaining tabs with a screwdriver to detach the No Paper Sensor from the Main Chassis.
3. Disconnect the No Paper Sensor from J231 of the Envelope Harness Assembly.

Figure 12.3.6.1 No Paper Sensor Removal



Replacement

Perform the removal steps in reverse order.

12.3.7 Top Cover

Removal

NOTE: Since the gears are greased, take care that the grease does not stick to your hands. If grease sticks to your hands, wipe it off completely with a paper towel to prevent grease contamination of other parts.

1. Remove the Envelope Feeder Solenoid (29T) / Transfer Clutch Assembly (25T) / One Way Clutch Assembly (26T) / Torque Clutch Assembly (REP 12.3.5).
2. Remove the Harness Cover (See (1) in Figure 12.3.7.1).
3. Remove the No Paper Sensor. (REP 12.3.6).
4. Slide off the ferrite core on which the wire is wound once from the wire end with J230 (See (2) in Figure 12.3.7.1).
5. Slide off the ferrite core on which the wire is wound once from the wire end with J231 (See (3) in Figure 12.3.7.1).
6. Release the Envelope Harness from the wiring loom (See (4) in Figure 12.3.7.1).
7. Raise the Top Cover and widen the gap (See (5) in Figure 12.3.7.2) between the bottom end (right side) of the Top Cover and the bottom part (right-side part) of the Main Chassis. Push in the three pins of the Top Cover from the holes in the Main Chassis (See (6) in Figure 12.3.7.2), then move the bottom part of the Top Cover away from the surface on which envelopes are stacked (See (8) in Figure 12.3.7.2).
8. Pull down the Top Cover to detach it from the Main Chassis (See (8) in Figure 12.3.7.2).

NOTE: Pull out the Harness carefully from the hole at the gear side of the Main Chassis along with the Top Cover

****Continued on Next Page****

Figure 12.3.7.1 Top Cover Removal

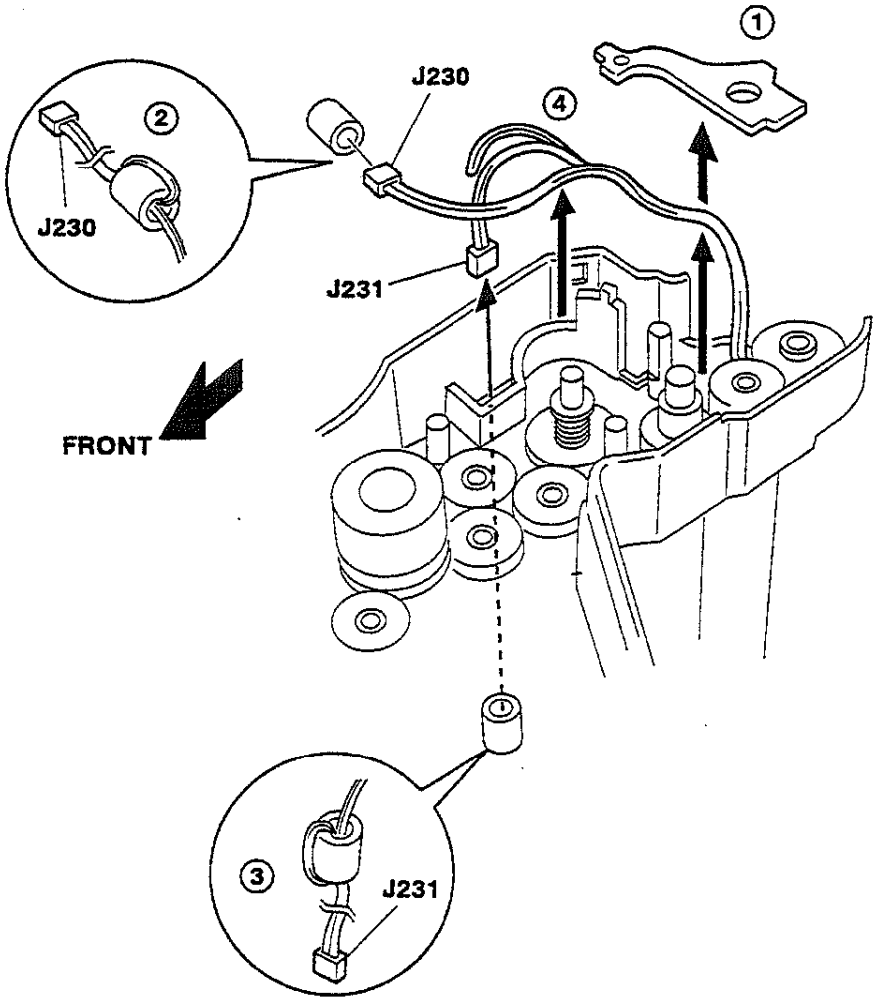
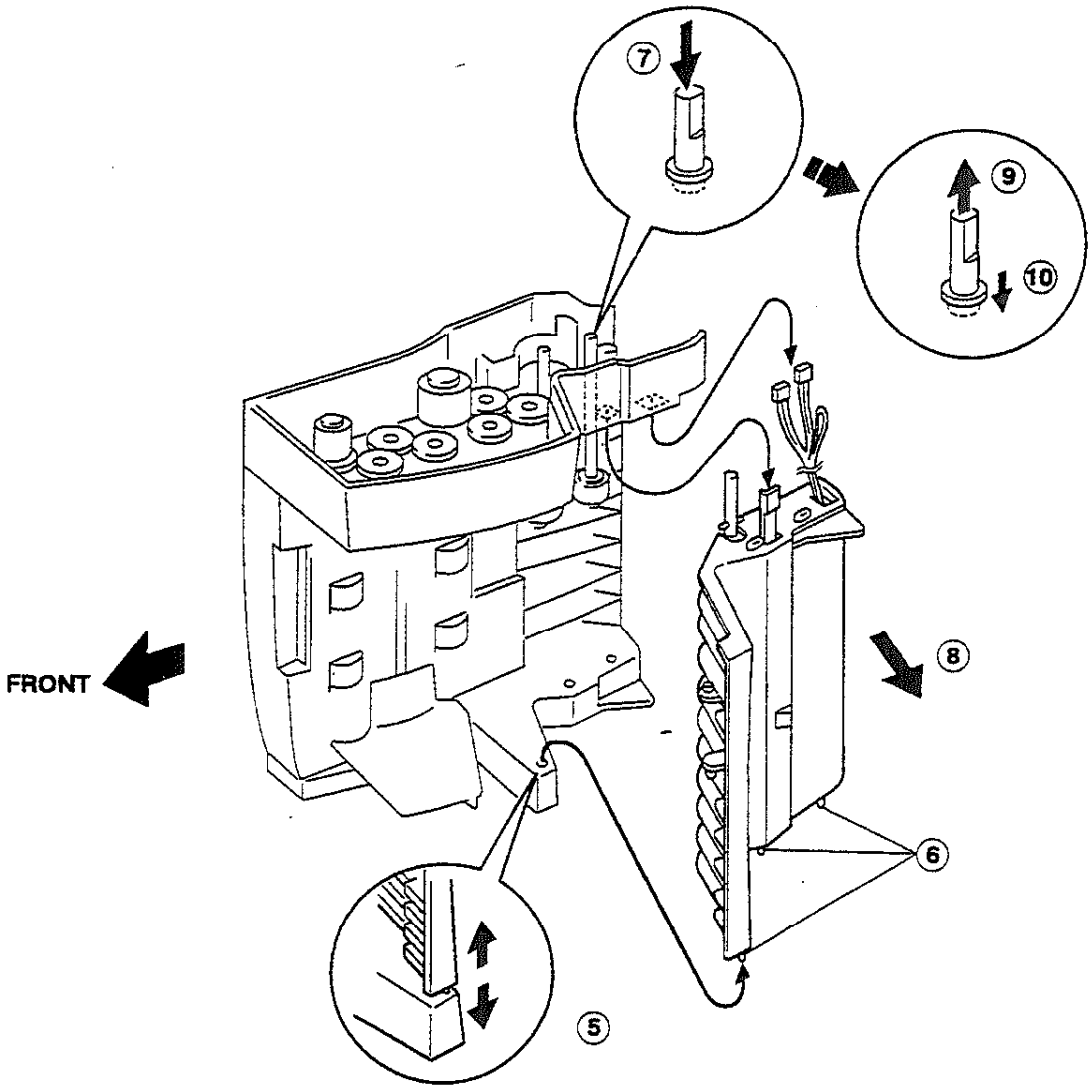


Figure 12.3.7.2 Top Cover Removal



Replacement

Perform the removal steps in reverse order.

NOTE: Press the Feeder Bearing onto the Transfer Roll Assembly and into place so that Transfer Roll Assembly is pushed up when the Top Cover is replaced (See (9) & (10) in Figure 12.3.7.2).

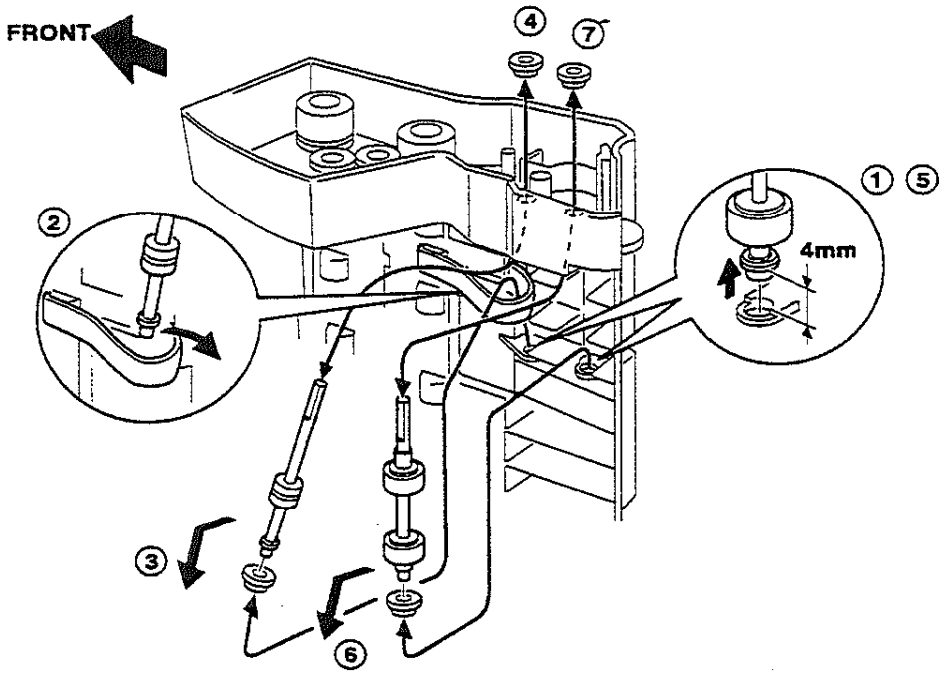
NOTE: Verify proper alignment of Feed Belt to the Retard Roll.

12.3.8 Bottom Shaft Assembly/Transfer Roll Assembly

Removal

1. Remove the Top Cover (REP 12.3.7).
2. Raise the lower Feeder Bearing and the Bottom Shaft Assembly together about 4 mm off the Bearing Support of the Main Chassis (See (1) in Figure 12.3.8.1).
3. Remove the Feed Belt from the Bottom Shaft Assembly passing it under the bottom end of the Retard Roll Assembly (See (2) in Figure 12.3.8.1).
4. Move the bottom portion of the Retard Roll Assembly about 3 cm toward you while holding the Roll Assembly in the state of step 2, then remove the whole assembly downward (See (3) in Figure 12.3.8.1).
5. Slide the upper Feeder Bearing from the Bearing Hole in the Main Chassis (See (4) in Figure 12.3.8.1).
6. Raise the Feeder Bearing and the Transfer Roll Assembly together about 4 mm off the Bearing Support of the Main Chassis (See (5) in Figure 12.3.8.1).
7. Move the bottom portion of the Transfer Roll Assembly about 3 cm toward you while holding the Roll Assembly in the state of step 6, then remove the whole assembly downward (See (6) in Figure 12.3.8.1).
8. Slide the upper Feeder Bearing from the Bearing Hole in the Main Chassis (See (7) in Figure 12.3.8.1).

Figure 12.3.8.1 Bottom Shaft Assembly/Transfer Roll Assembly Removal



Replacement

Perform the removal steps in reverse order.

12.3.9 Feed Roll Assembly-1 and -2/Feed Belt

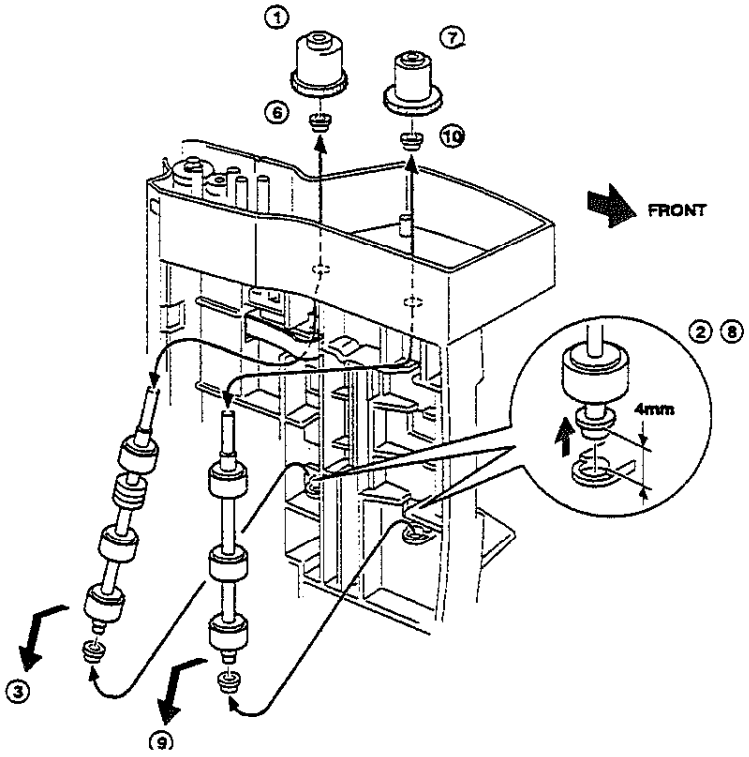
Removal

1. Remove the Bottom Shaft Assembly (REP 12.3.8).

NOTE: The Transfer Roll Assembly does not need to be removed.

2. Raise the lower Feeder Bearing and the Feed Roll Assembly-1 together about 4 mm off the Support Bearing of the Main Chassis (See (2) in Figure 12.3.9.1).
3. Move the bottom portion of the Feed Roll Assembly-1 (shaft & bearing) about 6 cm toward while holding the Roll Assembly toward the drive side and remove the bearing. Then remove the whole assembly downward (See (3) in Figure 12.3.9.1).
4. Slide off the Feed Belt along the slot on the bottom side of the chassis (See (4) & (5) in Figure 12.3.9.2).
5. Remove the upper Feeder Bearing from the Bearing Hole in the Main Chassis (See (6) in Figure 12.3.9.1).
6. Remove the Envelope Pinch Roll and lift out the Feed Belt.
7. Remove the One Way Clutch Assembly (26T) B (REP 12.3.6) (See (7) in Figure 12.3.9.1).
8. Raise the lower Feeder Bearing and the Feed Roll Assembly-2 together about 4 mm off the Support Bearing of the Main Chassis (See (8) in Figure 12.3.9.1).

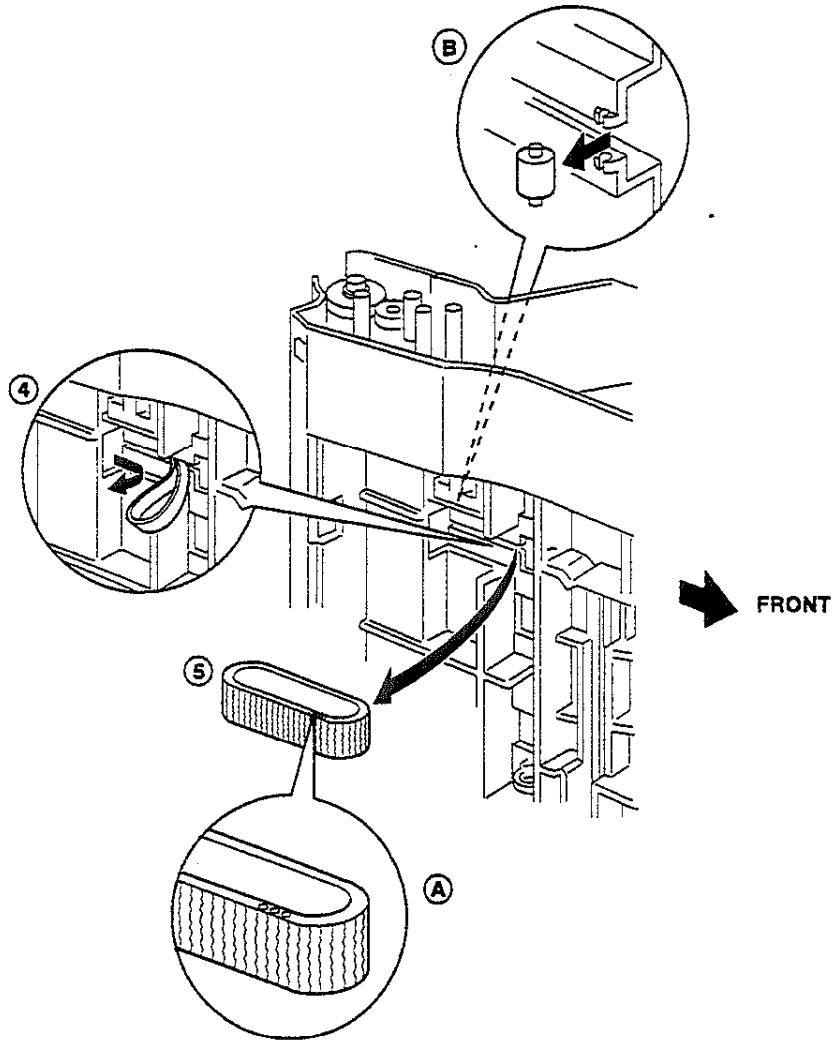
Figure 12.3.9.1 Feed Roll Assembly-1 and -2 Removal



****Continued on Next Page****

9. Move the bottom portion of the Feed Roll Assembly-2 about 6 cm toward you while holding the Roll Assembly in the state of step 8, then remove the whole assembly downward (See (9) in Figure 12.3.9.1).t out
10. Remove the upper Feeder Bearing from the Bearing Hole in the Main Chassis (See (10) in Figure 12.3.9.1).

Figure 12.3.9.2 Feed Belt Removal



Replacement

Perform the removal steps in reverse order.

NOTE: Install the Feed Belt with the mark facing up. (A in the Figure 12.3.9.2). If installed with the mark down, misfeeds can occur.
*Also, **Never** install the Feed Belt inside out.*

12.3.10 No Paper Actuator

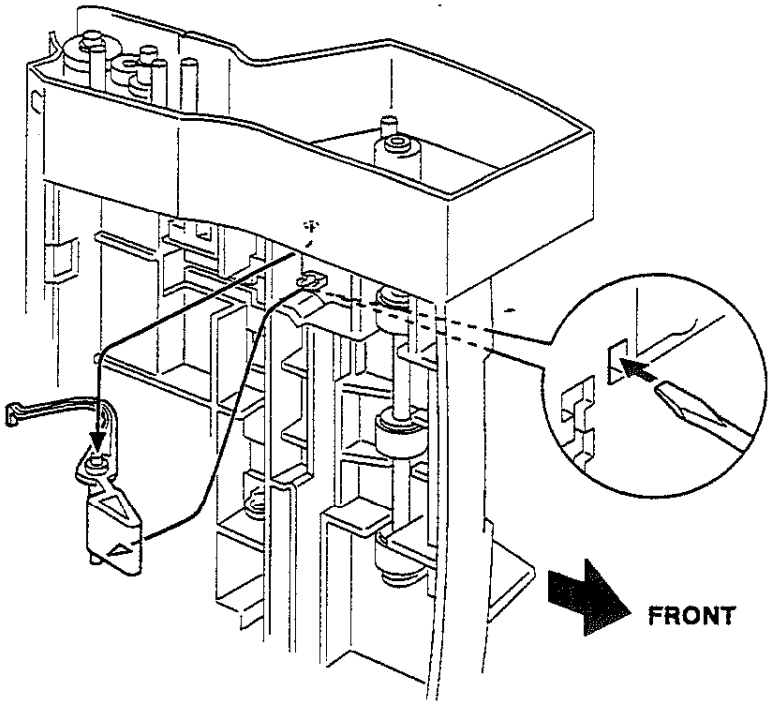
Removal

1. Remove the Feed Roll Assembly-1 (REP 12.3.9).

NOTE: It is not necessary to remove the Feed Roll Assembly-2. or Feed Belt.

2. Press the No Paper Actuator from the side of the surface on which envelopes are stacked toward the bottom. This will remove the No Paper Actuator from the retaining tabs of the lower Bearing.
3. Slide the No Paper Actuator off the upper bearing hole.

Figure 12.3.10.1 No Paper Actuator Removal



Replacement

Perform the removal steps in reverse order.

12.3.11 Retard Holder/Retard Main Spring/Retard Roll Assembly

Removal

1. Remove the Top Cover (REP 12.3.7).
2. Set the Top Cover upside down.
3. Hold and depress the gear-side portion of the Retard Roll Assembly (See (1) in Figure 12.3.11.1) to allow its opposite portion to disengage from the hooks on the Top Cover (See (2) in Figure 12.3.11.1), while holding the opposite side and raise it about 3 cm, then remove the whole assembly in an angularly upward motion (See (3) in Figure 12.3.11.1).
4. Slide the Feeder Bearings and the Retard Roll Assembly together about 4 mm to the gear side to let the Bearings come off the bearing holes at the Retard Gear Holder side (See (4) in Figure 12.3.11.2), and lift up the Feed Bearings and the Retard Roll Assembly toward the gear side (See (5) in Figure 12.3.11.2) from the Retard Holder (See (6) in Figure 12.3.11.2).
5. Separate the Feeder Bearings from the Transfer Roll Assembly (See (7) in Figure 12.3.11.2).
6. Remove the Retard Main Spring from the Retard Holder (See (8) in Figure 12.3.11.2).

Figure 12.3.11.1 Retard Holder & Retard Roll Assembly Removal

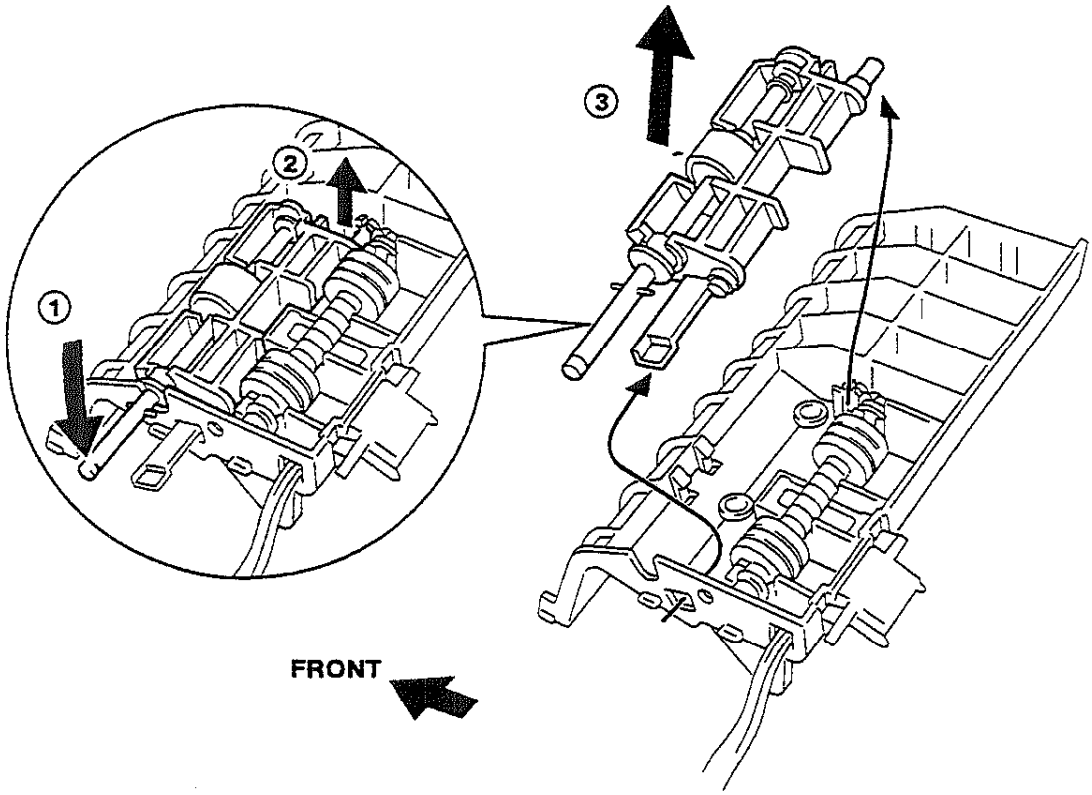
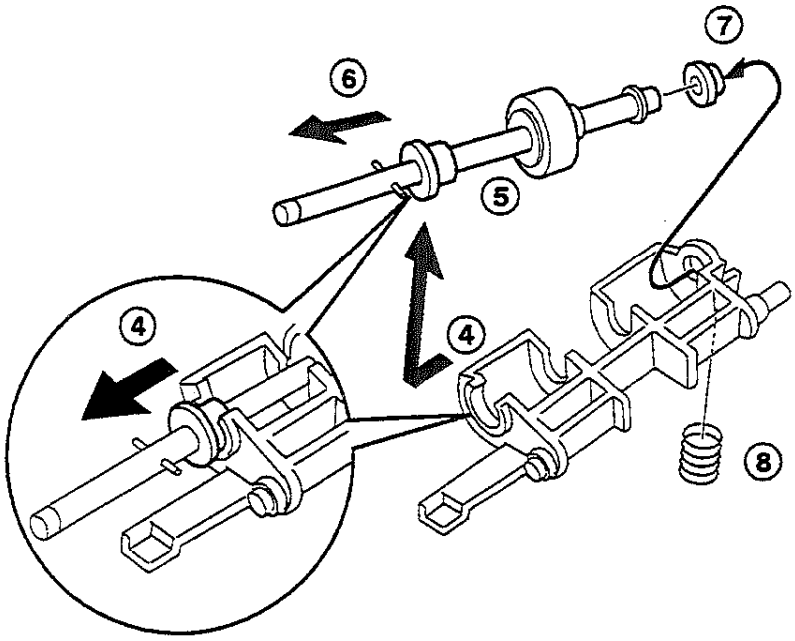


Figure 12.3.11.2 Retard Roll Assembly and Retard Main Spring Removal



Replacement

Perform the removal steps in reverse order.

12.3.12 Pinch Roll/Feed Bearing/Pinch Spring

Removal

1. Remove the Top Cover (REP 12.3.7).
2. Grasp the Pinch Roll and remove it from the Top Cover (See Figure 12.3.12.1).

NOTE: The Feed Bearings come off along with the Pinch Roll.

3. Remove the two Feed Bearings from the Pinch Roll (See Figure 12.3.12.1).
4. Lift off the Spring from the Top Cover (See Figure 12.3.12.1).

Figure 12.3.12.1 Pinch Roll/Feed Bearing/Pinch Spring Removal

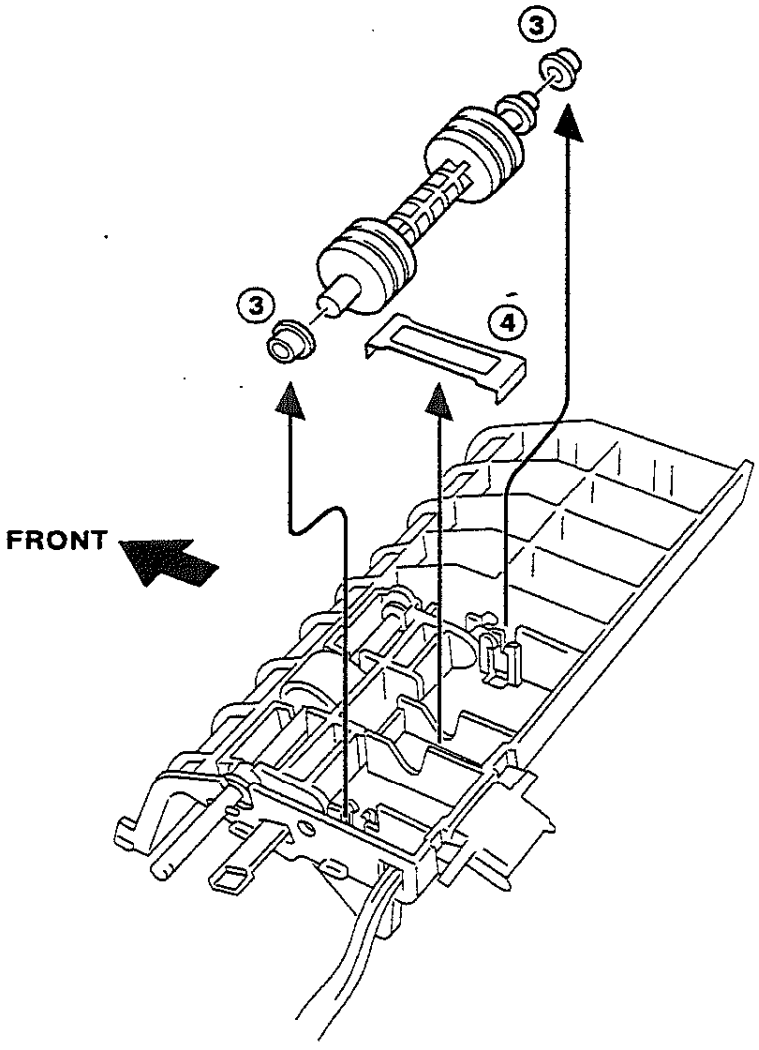
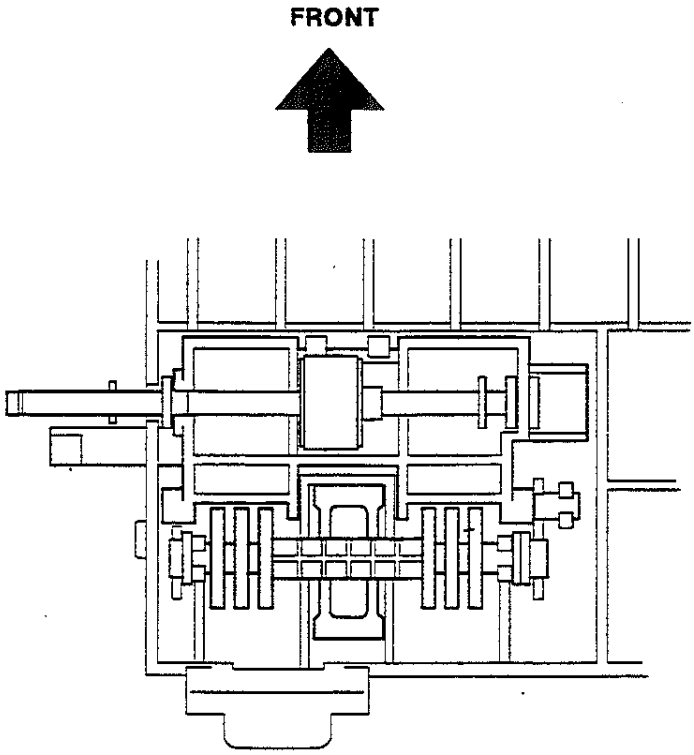


Figure 12.3.12.2 Pinch Roll/Feed Bearing/Pinch Spring Reinstalled



Replacement

Perform the removal steps in reverse order.

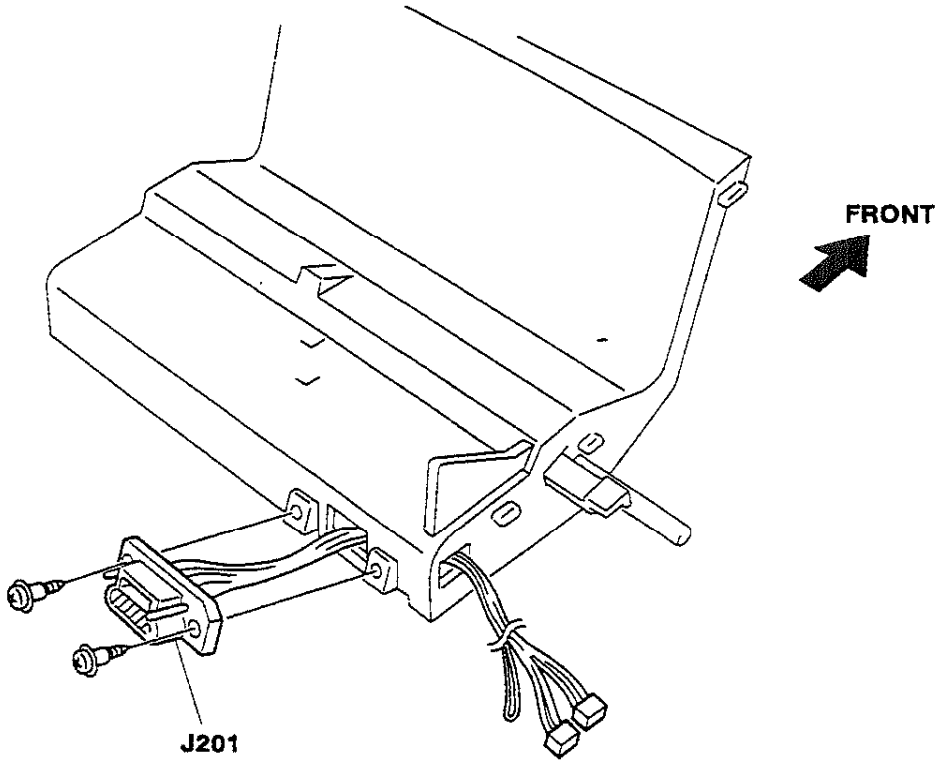
NOTE: Use Figure 12.3.12.2 to verify proper reinstallation.

12.3.13 Envelope Harness Assembly

Removal

1. Remove the Top Cover (REP 12.3.7).
2. Orient the Top Cover so that J201 can be easily accessed.
3. Remove the two screws which fasten J201.
4. Pull out the Envelope Harness Assembly through the Top Cover.

Figure 12.3.13.1 Envelope Harness Assembly Removal



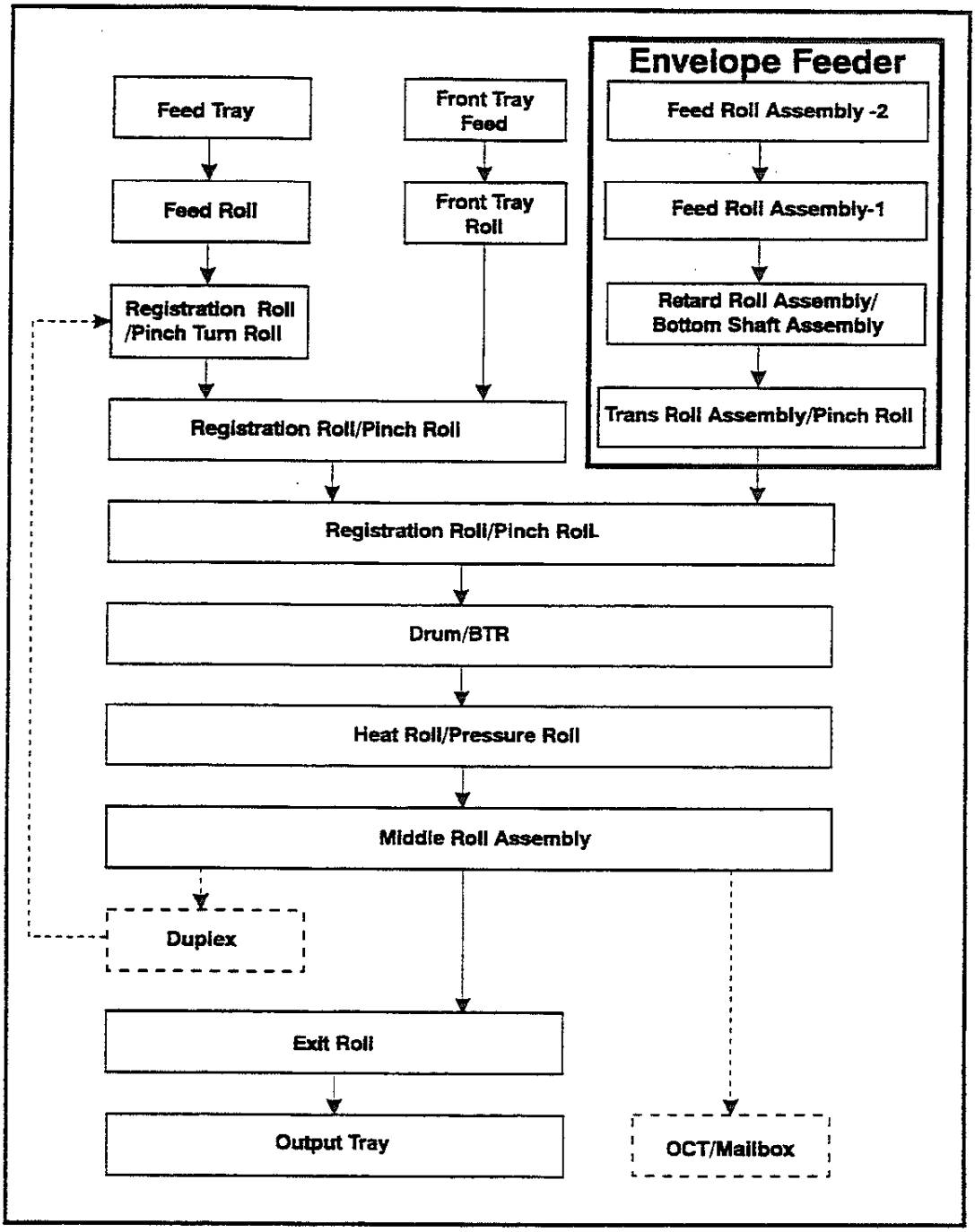
Replacement

Perform the removal steps in reverse order.

12.4 Paper Transport

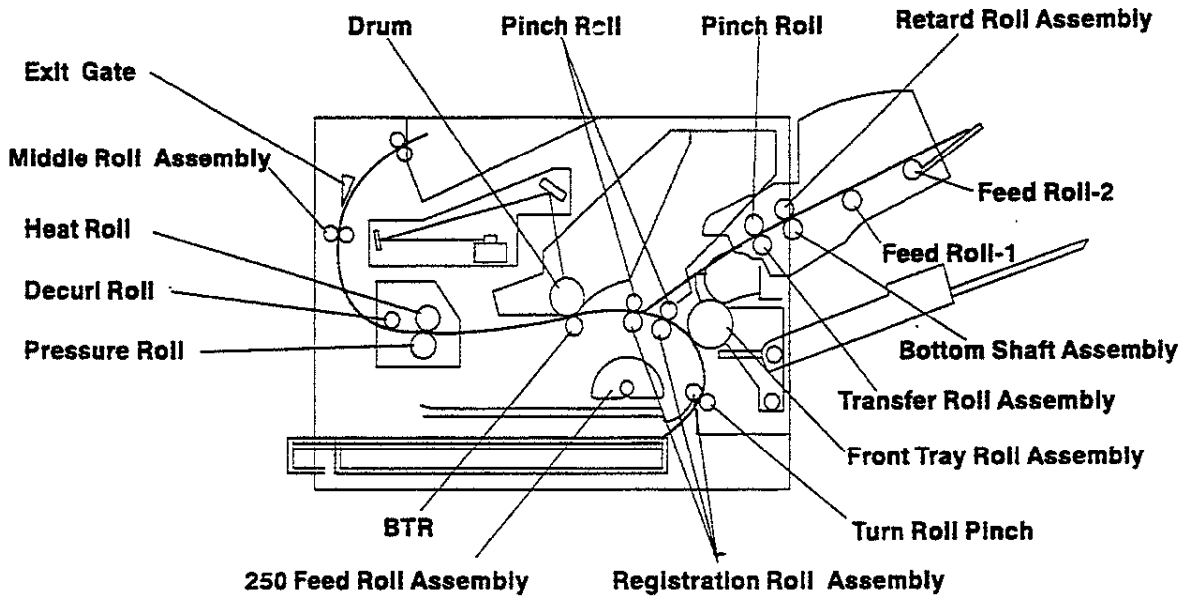
12.4.1 Paper Transport Mechanism

The paper transport mechanism of the printer with the Envelope Feeder installed is shown below along the path of paper travel.



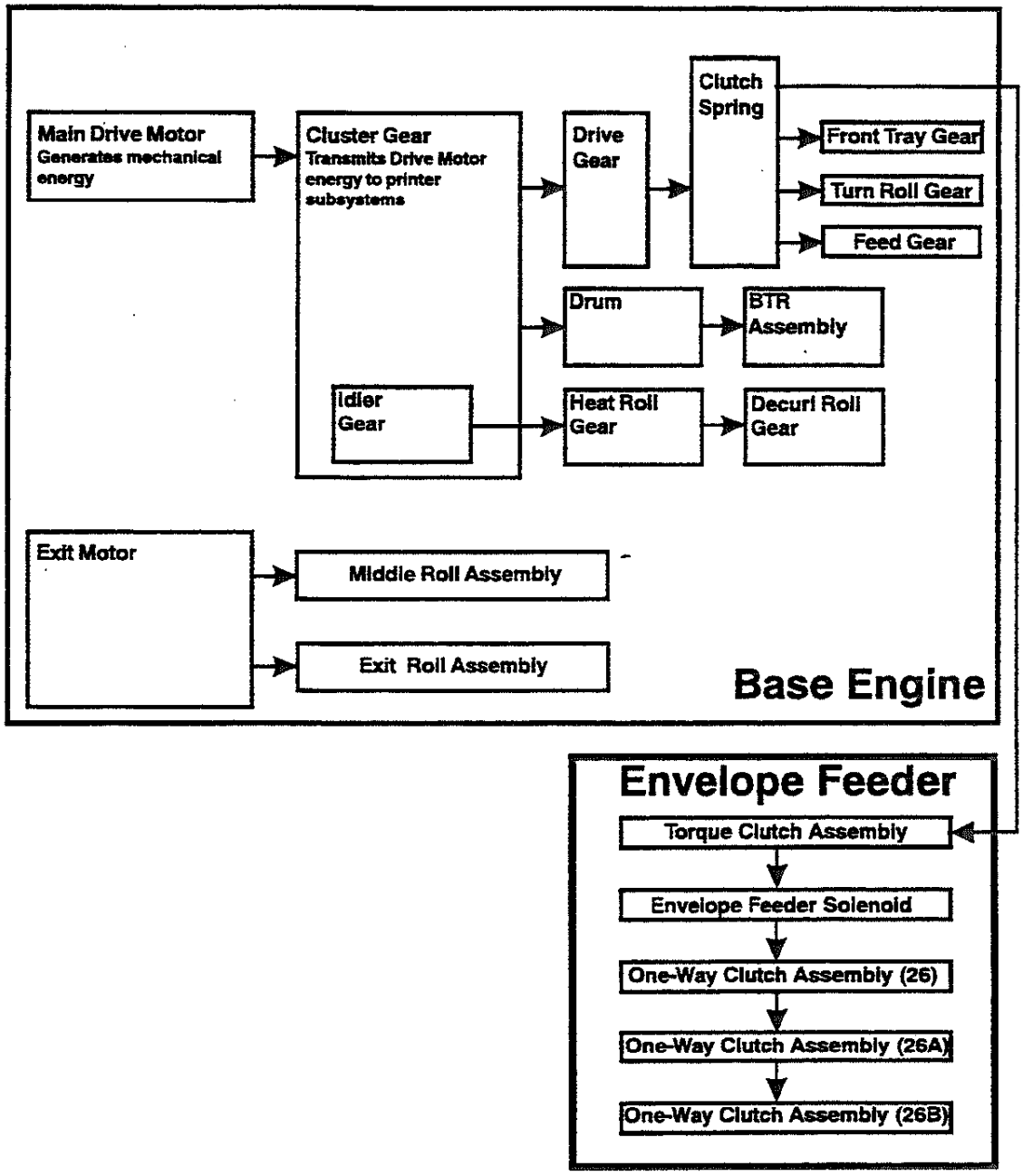
12.4.2 Paper Path

The path of paper travel through the printer with the Envelope Feeder installed is shown in the figure below.



12.5 Drive Power Transportation

The drive power is transmitted to the Envelope Feeder from the Base Engine Drive Assembly by the transmission path as shown below.



12.6 Function of Major Components

The function of the major components constituting the Envelope Feeder is described below with reference to the drawings.

12.6.1 Envelope Feeder

12.6.1.1 Function

- **Feed Roll Assembly-1 & Feed Roll Assembly-2 (See Figure 12.6.2a)**
  - — Drive envelopes stacked in the Envelope Feeder to the nip of the Retard Roll.
- **Retard Roll Assembly & Bottom Shaft Assembly (See Figure 12.6.2a)**
  - — Permits only one envelope at a time to be transported to the Transfer Roll.
- **Transfer Roll Assembly & Pinch Roll (See Figure 12.6.2a)**
  - — Feeds one envelope to the Registration Roll Assembly in the printer at the same drive speed as in the printer.
- **One Way Clutch Assembly (26T)-A (See Figure 12.6.2b)**
  - — Functions as a protective part that prevents the Registration Clutch Assembly (Spring Clutch) in the P/H Unit of the Printer from breaking if the rotation of the Feed Roll Assembly-1 is prevented during the feeding operation of an envelope.
- **One Way Clutch Assembly (26T)-B (See Figure 12.6.2b)**
  - — Functions as a protective part that prevents the Registration Clutch Assembly (Spring Clutch) in the P/H Unit of the Printer from breaking when the rotation of the Feed Roll Assembly-2 is prevented during the feeding operation of an envelope. It also prevents a multiple feed of Monarch-size envelopes. Since the value of the torque of the One Way Clutch Assembly (26T)-B is different from that of the One Way Clutch Assembly (26T)-A, these Clutch Assemblies cannot be interchanged
- **Envelope Feeder Solenoid (See Figure 12.6.2b)**
  - — Receives a Low signal (Signal Name: ENV FEED SOL) from the Print Engine Controller to provide, along with the Mechanical Drive supplied by the printer drives, rotational movement of Feed Roll Assemblies-1 and 2 for 1.7 seconds.
- **Transfer Clutch Assembly (25T) (See Figure 12.6.2b)**
  - — Functions as a protective part that prevents the Registration Clutch Assembly (Spring Clutch) in the P/H Unit of the Printer from breaking when a jam stop occurs with an envelope under the Transfer Clutch Assembly nip.
- **Torque Clutch Assembly (See Figure 12.6.2b)**
  - — Provides the Retard Torque that permits only one envelope to be sent to the Retard & Transfer roll Assemblies.
- **One Way Clutch Assembly (26T) (See Figure 12.6.2b)**
  - — Allows the Retard Roll Assembly to rotate freely after 1.7 seconds of feeding operation. This clutch drives only the Retard Roll Assembly and does not drive the gears following it while the trail end portion of the envelope being transferred is under the Retard Roll Assembly.

12.6.2 Envelope Feeder Major Components

Figure 12.6.2a Major Components of the Envelope Feeder

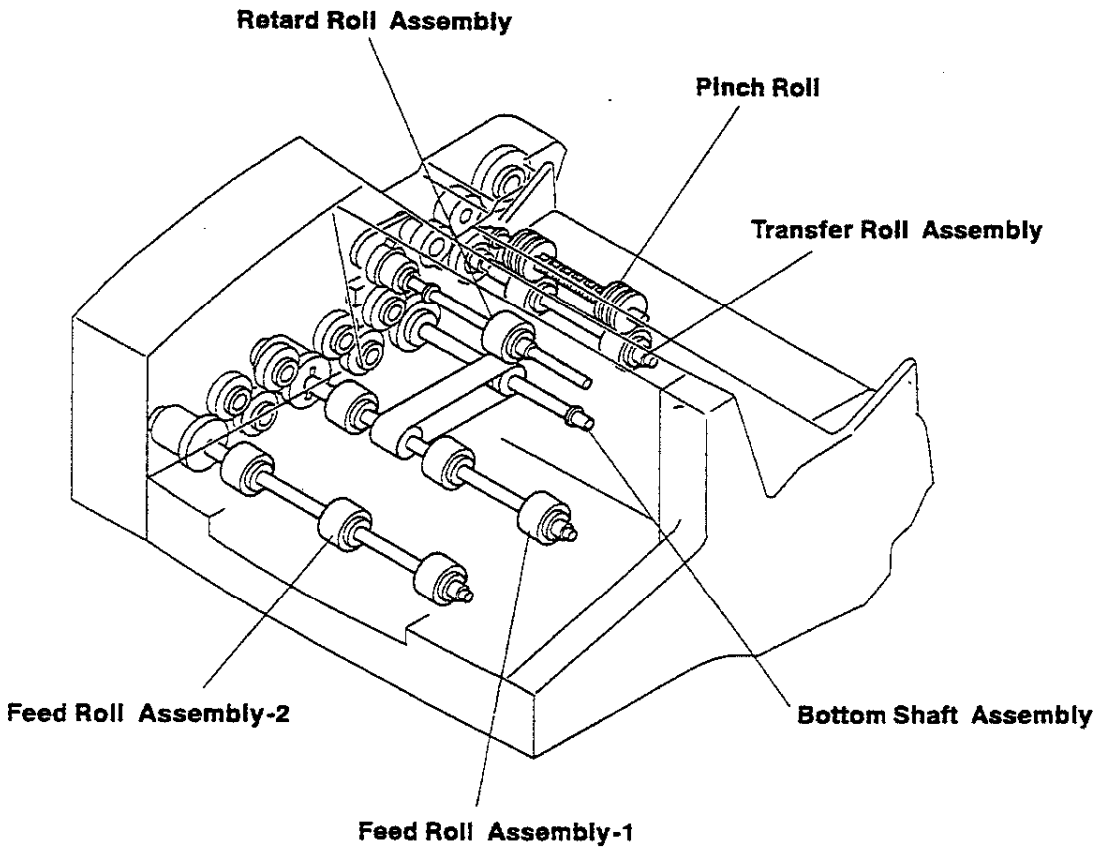
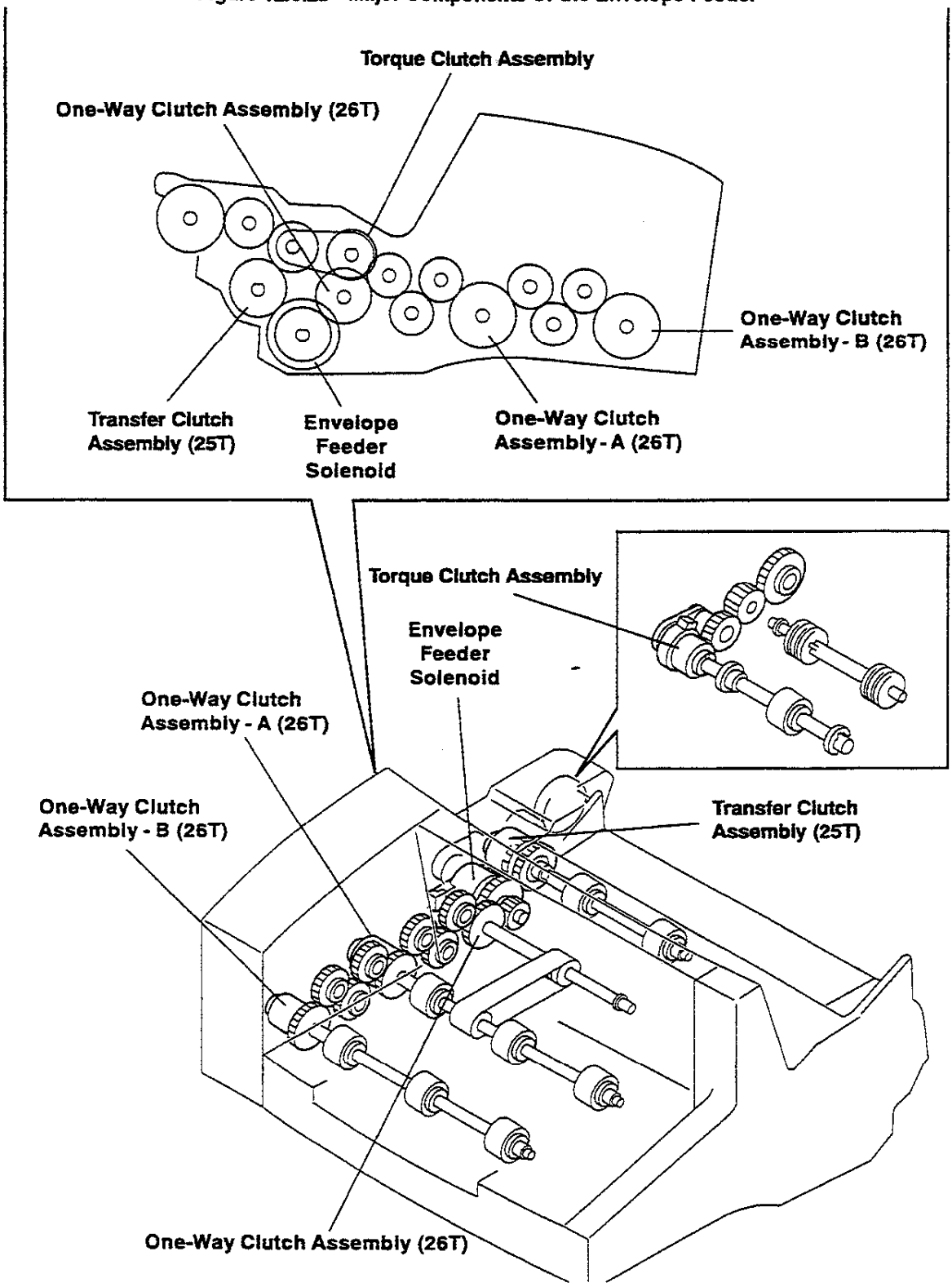


Figure 12.6.2b Major Components of the Envelope Feeder



12.6.3 Envelope Feeder Control

12.6.3.1 Paper Transportation Control (Paper Jam Detection)

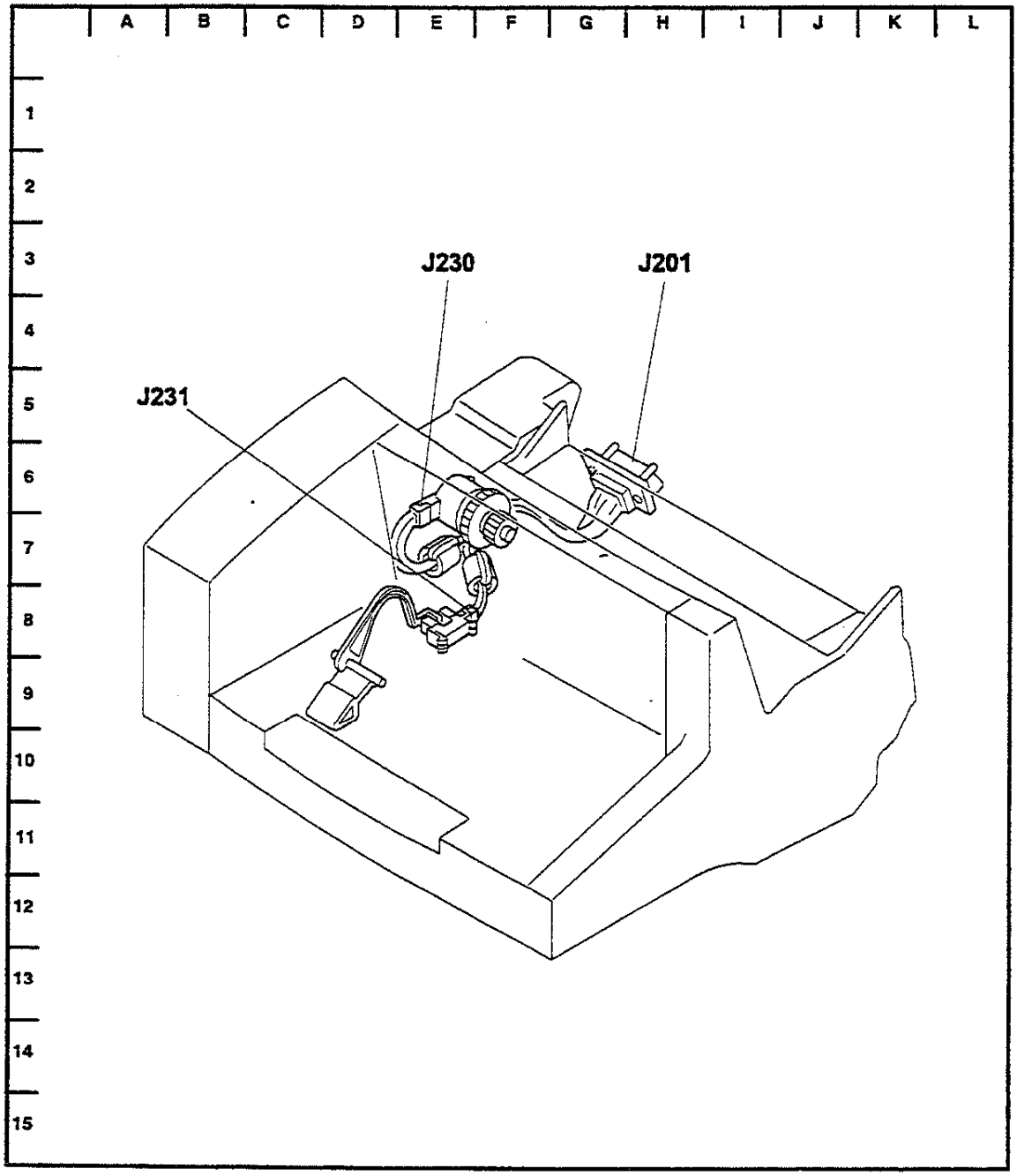
(1) E2 Specified Time
Regarding the E2 Specified Time when sheets of paper are fed from the Envelope Feeder, refer to the Section 6 "Paper Transport Control (Paper Jam Detection)" in this 4517 Service Manual.

12.6.3.2 No Paper Detection

Print Engine Controller checks the high/low level of the No Paper signal at a 10msec, interval so that a No Paper condition may be detected.
When the No Paper signal is received three times, the Print Engine Controller assumes that the Envelope Feeder is out of envelopes, and changes the corresponding Status bit to a high level.

12.7 Wiring Diagrams

12.7.1 Connector Locator



12.7.2 P/J Table

PJ	Coor-dinate	Mounting		Harness		Description
		Mounted on (*)	PL	Name (*)	PL	
201	H6	Top Cover	20-29	Envelope Harness Assembly	20-30	Connects the Envelope Feeder and LVPS of the Base Engine.
230	E6	Main Chassis	20-21	Envelope Harness Assembly	20-30	Connects the Envelope Feeder Solenoid and LVPS of the Base Engine.
231	E8	Main Chassis	20-21	Envelope Harness Assembly	20-30	Connects the No Paper Sensor and LVPS of the Base Engine.

* PL indicates the Parts List and item number corresponding to the parts listed.

12.8 Envelope Feeder RAPS

12.8.1 "Env. Feeder Fail" Message (E8)

Procedure

1. Verify the Envelope Feeder is properly connects to the Base Printer at P/J201. The Feeder is properly installed.

   Y: Go to step 2.

   N: Reinstall and verify proper operation.

2. With the printer powered on and the Envelope Feeder connected, verify the voltage between P/J201 Pins 6 and 7 is less than 1.0 VDC. The voltage is less than 1.0 VDC.

   Y: Go to step 3.

   N: Replace the Envelope Harness Assembly.

3. Verify the voltage between P/J16-1 and P/J16-2 is less than 1.0 VDC. The voltage is less than 1.0 VDC.

   Y: Go to step 4.

   N: Replace the Front Envelope Harness Assembly.

4. Verify the voltage between P/J13-9 and P/J25-5 is less than 1.0 VDC. The voltage is less than 1.0 VDC.

   Y: Replace the Print Engine Controller.

   N: Replace the LVPS.

12.8.2 "Env. Feeder Empty" Message (C5)

Procedure

1. Verify the No Paper Actuator moves freely. The Actuator moves freely.
   - Y: Go to step 2.
   - N: Replace the No Paper Actuator.
2. Enter DG 02 and verify the operation of the No Paper Sensor. The No Paper Sensor operates properly.
   - Y: Replace the Print Engine Controller.
   - N: Go to step 3.
3. Remove Envelope Feeder and verify continuity of the Envelope Feeder Harness. The continuity of the Harness is good.
   - Y: Go to step 4.
   - N: Replace Envelope Harness Assembly.
4. Enter the printer in DG02 and momentarily ground P201-4 (Bottom Portion of Connector, Center Pin) twice. The UI indicates sensor actuation.
   - Y: Replace the Low Paper Sensor.
   - N: Troubleshoot the electrical wiring from the Print Engine Controller (P/J13) to P201 using Wiring Data in Section 6.2.3 (4. LVPS to ENVELOPE FEEDER UNIT). Repair or replace faulty component(s).

12.8.3 "EnvelFeeder Jam/Remove All Envel" alternating with "Remove EnvFeeder/Open Front Cover" and "Remove Jam Envel" Message (E2)

Initial Actions

- Verify envelopes are correct size (type) for Envelope Feeder (See table 12.1.5).
- Verify the Envelope Feeder is properly installed in printer.
- Inspect Envelope Feeder for foreign material in feed path.

Procedure

1. Remove Envelope Feeder from Printer. Print a Configuration Sheet from the Front Tray.The UI displays the message "Front Tray Jam/Remove Jam Sheet".
   - Y: Go to RAP 7.3.9.
   - N: Go to step 2.
2. Visually inspect the Envelope Feeder's Feed Roll Assemblies, Transfer Roll Assemblies, and Feed Belt for damage or wear. Damage and/or wear is found.
   - Y: Replace faulty component(s).
   - N: Go to step 3.
3. Reinstall the Envelope Feeder. Enter Diagnostic Mode 2 and generate a Test Pattern from the Envelope Feeder. The Envelope Feeder Feed Roll Assemblies 1 & 2 rotate.
   - Y: Go to step 4.
   - N: Go to step 7.
4. The Test Pattern produced in step 3 misfeeds before it reaches the Pinch Roll.
   - Y: Clean/replace Feed Roll Assemblies 1 & 2, the Feed Belt, and the Retard Roll Assembly.
   - N: Go to step 5.
5. The Pinch Roll and Transfer Roll Assemblies Rotate when the envelope is fed into the Pinch Roll nip.
   - Y: Go to step 6.
   - N: Remove Envelope Feeder and inspect the operation of the Transfer Clutch Assembly, Transfer Roll Assembly, the Pinch Roll Assembly and associated driver gears.
6. The Pinch Roll & Transfer Roll Assemblies fed the Test Pattern, produced in step 3, into the nip of the Registration Roll in the Printer.
   - Y: Go to RAP 7.3.9 and troubleshoot E2 Printer Jam.
   - N: Remove Envelope Feeder and inspect the Pinch Roll, Transfer Roll, and associated Drive Gears.
7. Enter Diagnostic Mode 1 and run DG85. The Envelope Feeder Solenoid energizes and de-energizes.
   - Y: Remove the Envelope Feeder and Side Cover (REP 12.3.4). Visually inspect the gears and one way clutches for proper operation. Replace any faulty/damaged component.
   - N: Go to step 8.

8. Remove Envelope Feeder from the 4517 printer. Enter DG85 and measure the voltage across P201-1 & P201-2 (Bottom Portion of Connector, Right Two Pins). The voltage should go from 0VDC in idle state to 24VDC when test is executed. The voltage changes from 0VDC to 24VDC when executing DG85.

   Y: Go to step 9.

   N: Troubleshoot the electrical wiring from the Print Engine Controller (P/J13) to P201 using Wiring Data in Section 6.2.3 (4. LVPS to ENVELOPE FEEDER UNIT). Repair or replace faulty component(s).

9. Verify the continuity of the Envelope Feeder Harness. The continuity of the Harness is good.

   Y: Replace the Envelope Feeder Solenoid.

   N: Replace the Envelope Harness Assembly.

12.9 Installation and Removal

For the installation and removal of the Envelope Feeder, see the 4517/4517mp User Guide.

Section 13

High Capacity Feeder Option

Specifications **13-3**
Configuration 13-3
Basic Configuration 13-3
Electrical Specifications 13-3
Power Supply 13-3
Power Consumption 13-3
Mechanical Specifications 13-4
Dimensions and Weight 13-4
Paper Specifications 13-4
Environment 13-4

High Capacity Feeder Parts List **13-5**
PL21 Cabinet 13-5
PL22 Input Power 13-6
PL23 Elevator Drive Assembly 13-7
PL24 Elevator Assembly 13-8

High Capacity Feeder REPS **13-10**
Power Supply 13-11
Deck One Switch Assembly 13-12
Transport Assembly 13-13
Paper Feed Motor Assembly 13-14
Controller PWB 13-15
Elevator Motor Assembly 13-16
Elevator Belt (Rear) 13-17
Elevator Belt (Front) 13-18
Feed Roll Assembly 13-19
Elevator Belt Adjustment 13-20
Feed Roller Spring Adjustment 13-22

Function of Major Components **13-23**

Wiring Diagrams **13-25**
Block Schematic Diagram 13-25
Control PWB 13-26
Connectors 13-27

High Capacity Feeder RAPS **13-29**
Initial Actions 13-29
Elevator Motor Assembly 13-31
Paper Feed Motor Assembly 13-32
Paper Size Switches 13-33
Elevator Up Switch 13-34
Tray Empty Sensor 13-35
Printer Interface Cable 13-36
Tray Ready Switch 13-37

Installation and Removal **13-38**

13.1 Specifications

13.1.1 Configuration

13.1.1.1 Basic Configuration

The High Capacity Feeder is designed to fit under the exiting 4517 Printer with a standard 250 sheet tray or as a third tray under the optional 500 sheet feeder. The High Capacity Feeder is integrated into a base cabinet as a drawer that slides out the front.

13.1.2 Electrical Specifications

13.1.2.1 Power Supply

A Universal Power Supply, equipped with AC auto-sense, is used to supply +24 VDC to the High Capacity Feeder. The +5 VDC is supplied to the feeder by the base printer.

13.1.2.2 Power Consumption

Voltage	Maximum Current (Feeding)
5 VDC	0.15 A
24 VDC	0.3 A

13.1.3 Mechanical Specifications

13.1.3.1 Dimensions and Weight

Unit	Width	Depth	Height	Weight
Metric	698.5 mm	584.2 mm	679.45 mm	43 Kg
SAE	27.5 in.	23.0 in.	26.75 in.	95 lbs.

13.1.3.2 Paper Specifications

Capacity

2000 sheet capacity of 8.5" x 11" 20 lb (A4 size 80 GSM) Paper in normal ambient conditions. Capacity for other sizes/weights variable based on the maximum stack height limitation established by the A4-80GSM requirement

Weight Range

18 lb to 24 lb.
70 GSM to 90 GSM
16 lb. and 28 lb. (60 GSM and 100 GSM) supported but at reduced performance levels.

Size Range

Adjustable paper settings for the following sizes: Letter, A4, Legal, and Folio.

Substrate Orientation

Short Edge Feed (SEF)

Size Sensing

Automatic size sensing for Letter, A4, Legal, and Folio.

Tray Empty Sensing

When a tray empty condition is sensed, an error signal is sent to the printer.

13.1.3.3 Environment

Noise

Audible Noise less than 45 dBA

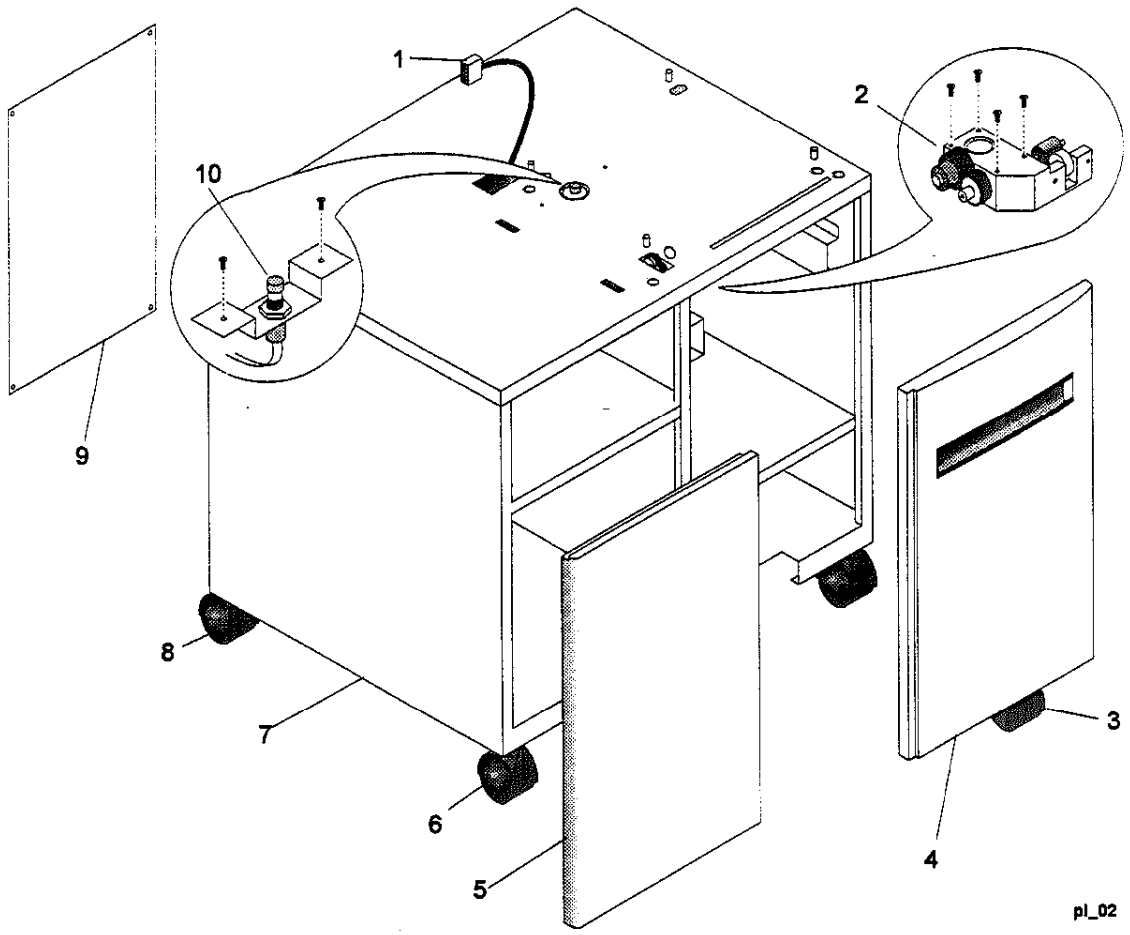
Environment

Operating: 10 to 32 degrees C (50 to 90 degrees F), 15% to 85% RH
Non Operating: 5 to 35 degrees C (41 to 95 degrees F), 15% to 85% RH
Non Operating Critical: -20 to 40 degrees C (4 to 104 degrees F), 5% to 95% RH (non condensing) for 1 week maximum time.
Altitude: 0 to 3,000 Meters (0 to 10,000 Feet).

13.2 High Capacity Feeder Parts List

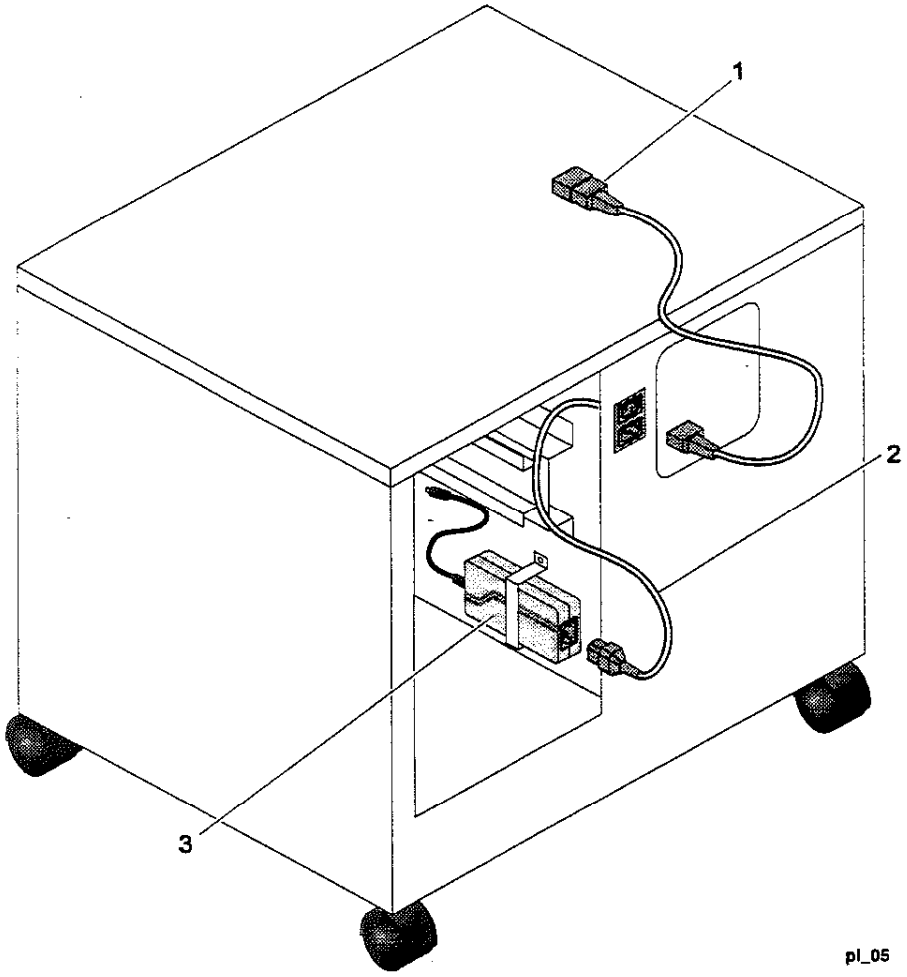
The parts list identifies the parts constituting the High Capacity Feeder option and is shown in the following exploded drawings. For the locations of the connectors (P/J), see *Section 13.5 Wiring Diagrams.*

13.2.1 PL21 Cabinet



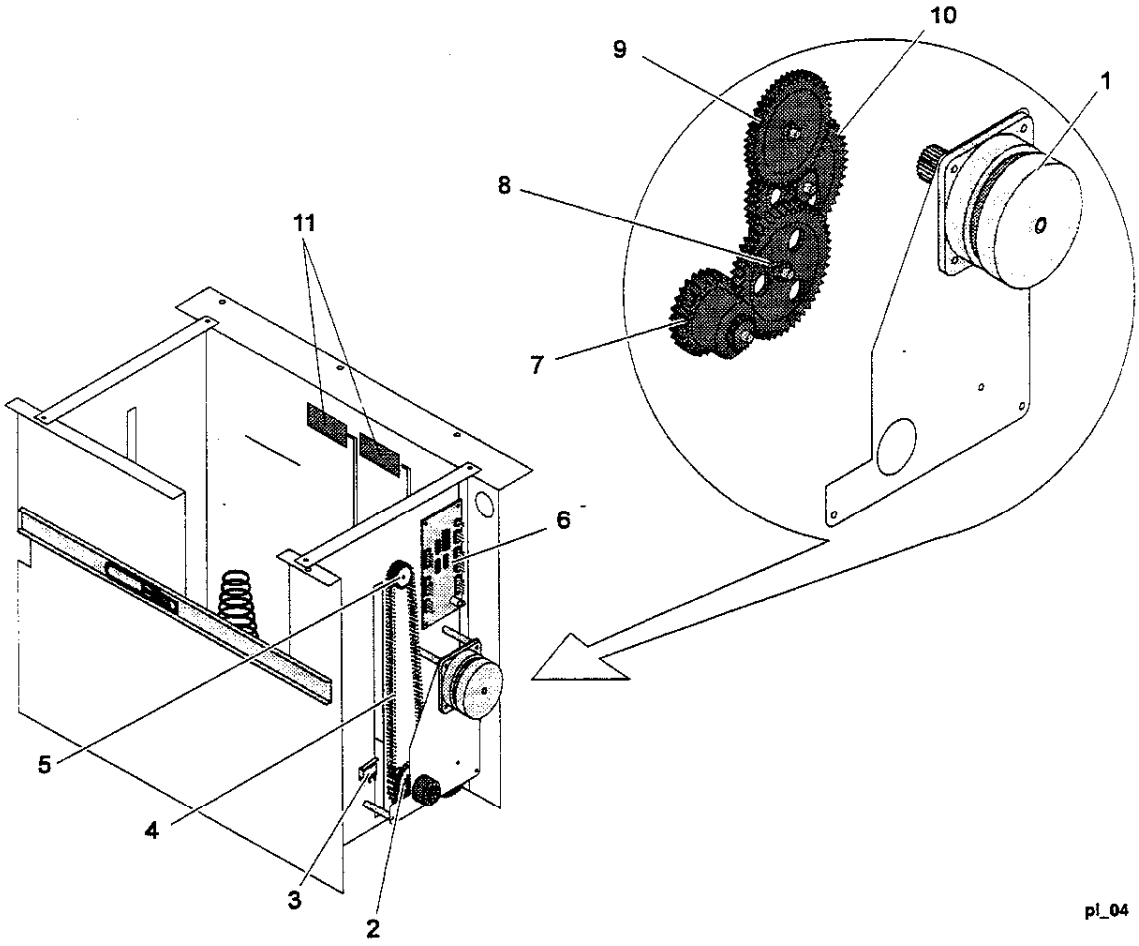
Item	Part	Description
1)	162K34130	Interface Harness
2)	54K12520	Transport Assembly
3)	17E08010	Caster 2.0" Drawer
4)	- - - - - -	Front Panel, Drawer
5)	- - - - - -	Front Panel, Supply Storage
6)	17E07990	Caster 2.5" Locking
7)	- - - - - -	High Capacity Feeder Cabinet
8)	17E08000	Caster 2.5" No Lock
9)	- - - - - -	Rear Access Cover
10)	110K09300	Deck One Switch Assembly

13.2.2 PL22 Input Power



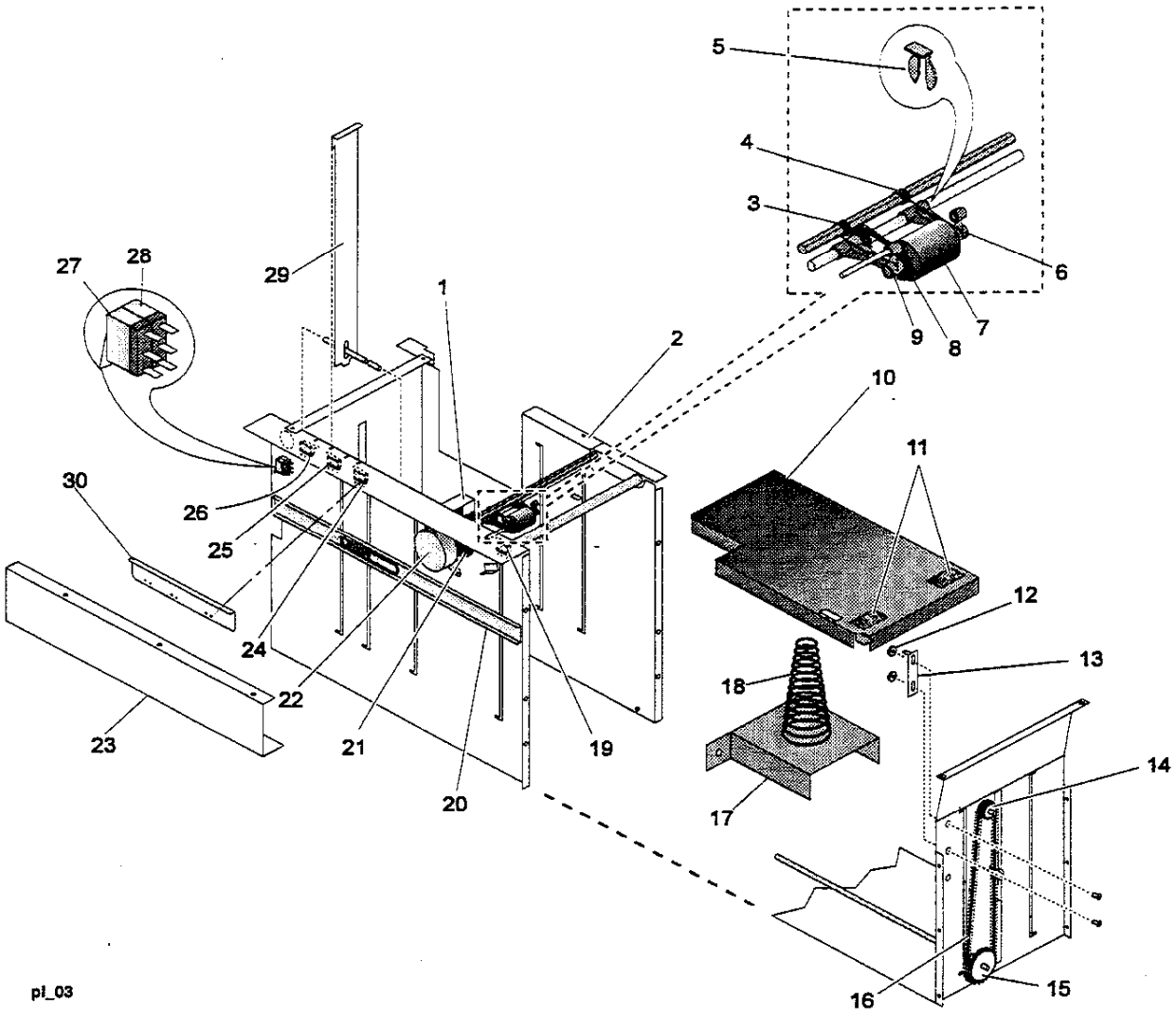
Item	Part	Description
1)	117E18040	External Power Jumper Cord
2)	162K34120	Internal Power Cord
3)	105E07970	Power Supply

13.2.3 PL23 Elevator Drive Assembly



Item	Part	Description
1)	127K24150	Elevator Motor Assembly
2)	7E49490	Sprocket 30T
3)	110E08750	Switch, Micro
4)	23E15250	Elevator Belt
5)	7E49480	Sprocket 13T
6)	160K39390	Controller PWB
7)	7E26660	Gear / Pulley
8)	7E49510	Gear
9)	7E49500	Gear
10)	7E16570	Gear, Dual Idler
11)	600K64620	Tray Pad Kit

13.2.4 PL24 Elevator Assembly



Item	Part	Description
1)	110K09310	Tray Empty Sensor
2)	- - - - - -	Paper Width Guide
3)	809E13370	Feed Roller Spring, Left
4)	809E13360	Feed Roller Spring, Right
5)	19E21070	Retainer Clips
6)	31E09040	Feed Roll Arm, Right
7)	600K59410	Feed Roll Kit {includes Roll & 2 Retainer Clips (item 5)}
8)	23E06680	Chain, Feed Drive
9)	31E09050	Feed Roll Arm, Left
10)	- - - - - -	Elevator Tray
11)	19E17160	Cork Pad
12)	27E02140	Nut, Snubber
13)	19E38510	Left Corner Snubber
14)	7E49480	Sprocket 13T
15)	7E49490	Sprocket 30T
16)	23E15250	Elevator Belt
17)	- - - - - -	Mounting Bracket, Spring
18)	- - - - - -	Elevator Tray Spring
19)	110E07970	Switch, Elevator Up
20)	- - - - - -	Drawer Rail
21)	7E052890	Feed Gear
22)	127K26460	Feed Motor Assembly
23)	- - - - - -	Left Access Cover
24)	110E07970	Letter Size Switch, Micro
25)	110E07970	Folio Size Switch, Micro
26)	110E07970	Legal Size Switch, Micro
27)	110E07970	Elevator Interlock Switch, Micro
28)	110E07970	"Tray Out" Sensing Switch, Micro
29)	- - - - - -	Paper Length Guide
30)	- - - - - -	Switch Bracket

13.3 High Capacity Feeder REPS

This section explains the removal and replacement procedures (REPS) for the High Capacity Feeder parts which are listed in *Section 13.2 High Capacity Feeder Parts List.*

NOTE: Parts listed on the parts list that do not have a REP can be easily removed and replaced without a procedure. However, carefully look at how they are installed before removing them.

There are a number of steps you should follow **before** you begin any procedure:

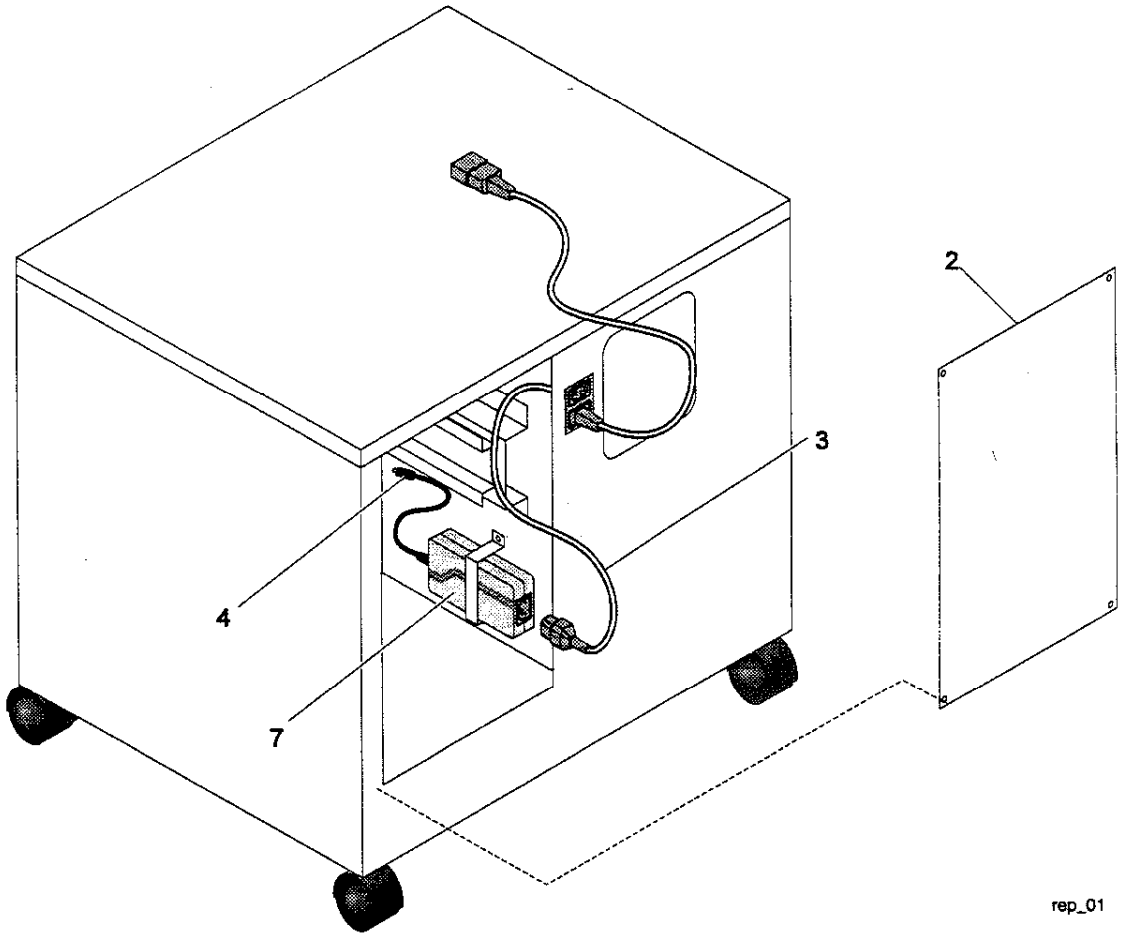
1. If applicable, cancel pending jobs and take the printer offline.
2. Switch OFF the printer main power and disconnect the power cord from the wall outlet.
3. Do not use force to remove or install printer or High Capacity Feeder components.
4. Use only the screw size and type designated in the REP. The wrong screw could easily damage tapped holes.
5. Wear a wrist strap to dissipate static electricity which may damage sensitive electronic parts.
6. The terms elevator, elevator tray, and paper tray are used interchangeably.
7. See *13.5, Wiring Diagrams,* for detailed wiring diagrams.

13.3.1 Power Supply

Removal

1. Disconnect the AC Power Cord from the High Capacity Feeder.
2. Remove the four screws that secure the Rear Access Cover. Remove the access cover (Figure 13.3.1.1).
3. Disconnect the AC power cord from the rear of the Power Supply (Figure 13.3.1.1).
4. Cut the cable tie that secures the power supply plug to the rear of the feeder drawer (Figure 13.3.1.1).
5. Disconnect the power supply plug from the Controller PWB.
6. Slide the feeder drawer open.
7. Slide the Power Supply forward until it is free of the mounting bracket (Figure 13.3.1.1) (if necessary, loosen the nuts that secure the mounting bracket). Remove the Power Supply.

Figure 13.3.1.1 Power Supply.



Replacement

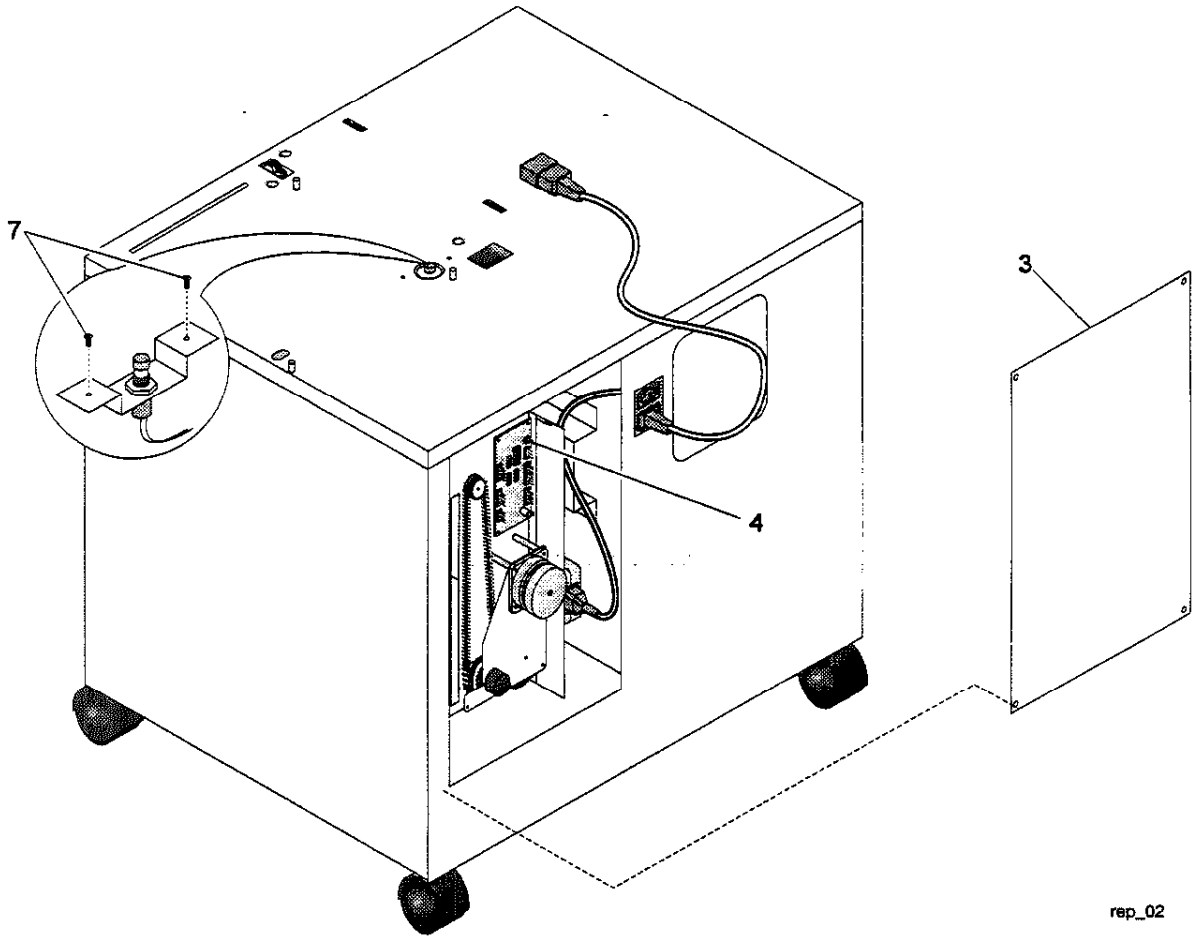
1. Perform the removal steps in reverse order

13.3.2 Deck One Switch Assembly

Removal

1. Disconnect the AC Power Cord from the High Capacity Feeder.
2. Disconnect and remove the printer from the feeder.
3. Remove the four screws that secure the Rear Access Cover (Figure 13.3.2.1). Remove the access cover.
4. Disconnect J5 from the Feeder Controller PWB (Figure 13.3.2.1).
5. Slide the feeder drawer open.
6. Cut the cable tie that secures the switch harness to the feeder frame.
7. Remove the two screws that secure the switch assembly to the feeder frame(Figure 13.3.2.1). Remove the switch.

Figure 13.3.2.1 Deck One Switch Assembly.



Replacement

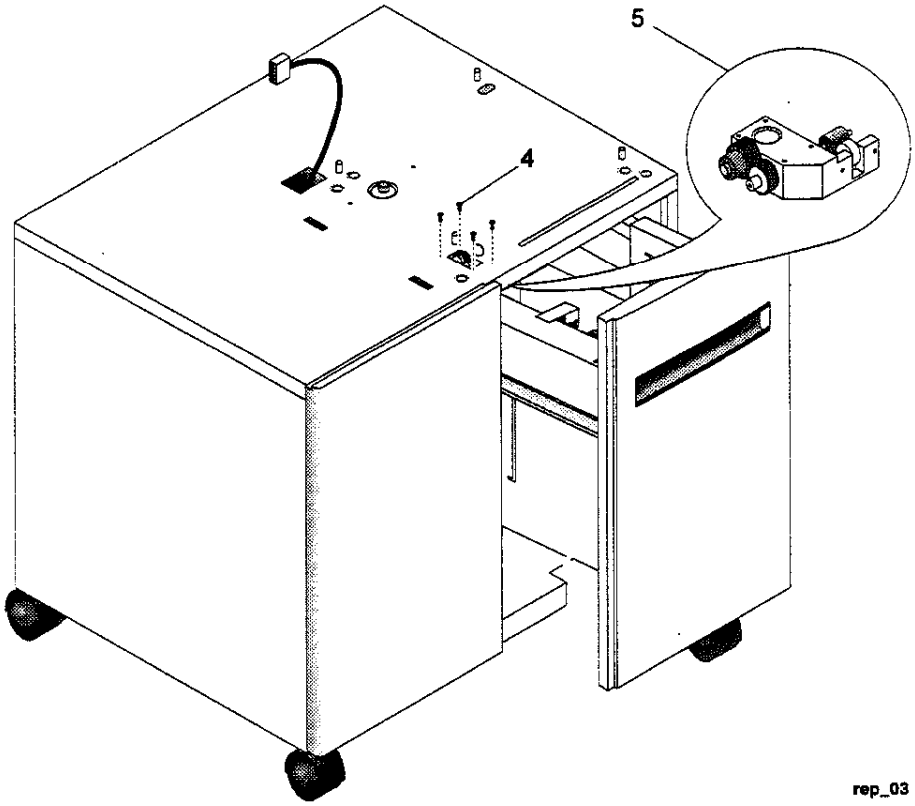
1. Perform the removal steps in reverse order.

13.3.3 Transport Assembly

Removal

1. Disconnect the AC Power Cord from the High Capacity Feeder.
2. Disconnect and remove the printer from the feeder.
3. Slide the feeder drawer open.
4. Remove the four screws that secure the Transport Assembly to the feeder frame (Figure 13.3.3.1).
5. Remove the Transport Assembly from the feeder (Figure 13.3.3.1).

Figure 13.3.3.1 Transport Assembly.



Replacement

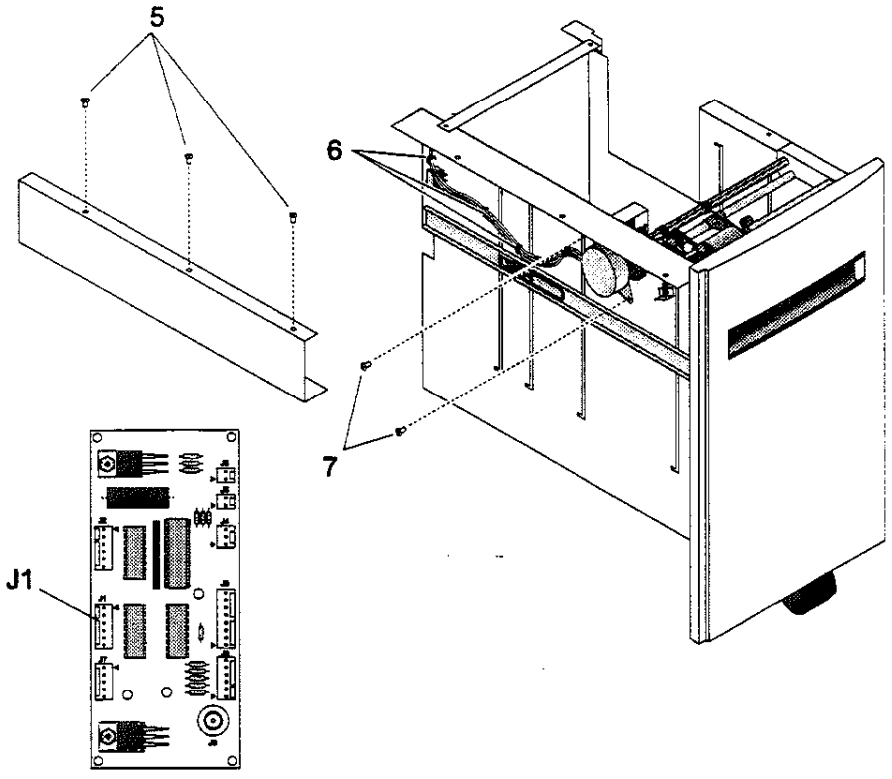
1. Perform the removal steps in reverse order.

13.3.4 Paper Feed Motor Assembly

Removal

1. Disconnect the AC Power Cord from the High Capacity Feeder.
2. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
3. Disconnect J1 from the Feeder Controller PWB.
4. Slide the feeder drawer open.
5. Remove the three screws that secure the Left Cover to the drawer frame (Figure 13.3.4.1). Remove the cover.
6. Cut the cable ties that secure the Feeder Motor Harness (Figure 13.3.4.1).
7. Remove the two screws that secure the Feed Motor Assembly. Remove the assembly (Figure 13.3.4.1).

Figure 13.3.4.1 Paper Feed Motor Assembly.



rep_04

Replacement

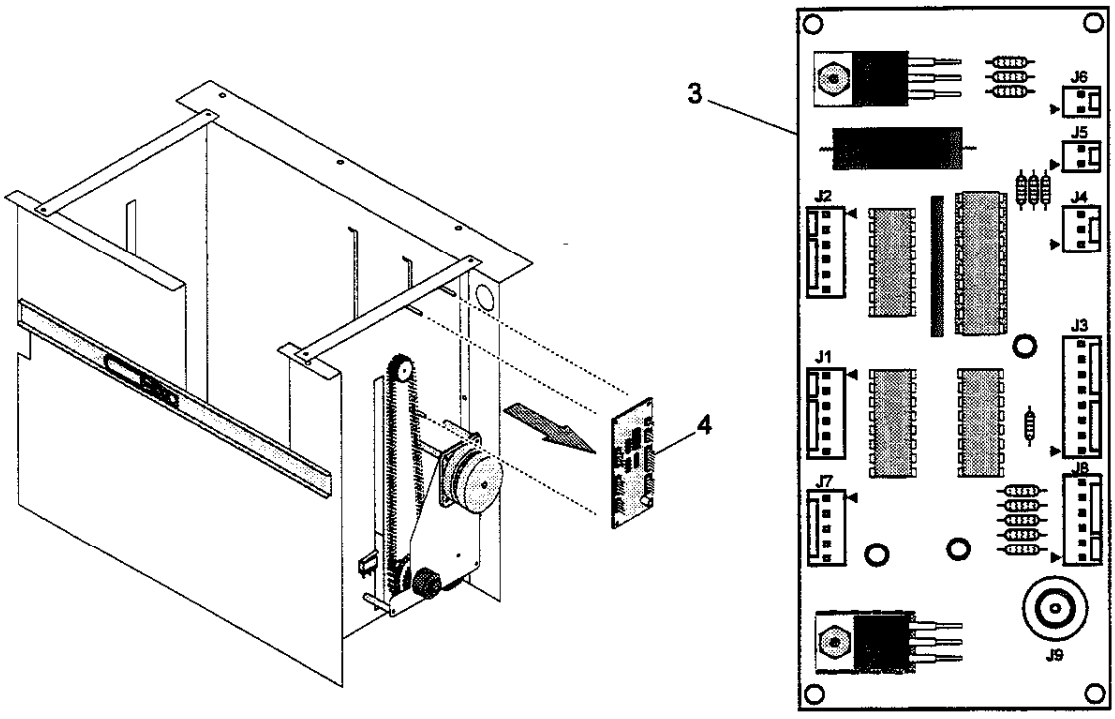
1. Perform the removal steps in reverse order.

13.3.5 Controller PWB

Removal

1. Disconnect the AC Power Cord from the High Capacity Feeder.
2. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
3. Disconnect 8 connectors (J1, J2, J3, J4, J5, J7, J8, and J9) from the Feeder Controller PWB (Figure 13.3.5.1).
4. Remove the screw that secures the lower corner of the Controller PWB and gently lift the PWB off of the three support posts on the chassis (Figure 13.3.5.1).

Figure 13.3.5.1 Controller PWB.



rep_05

Replacement

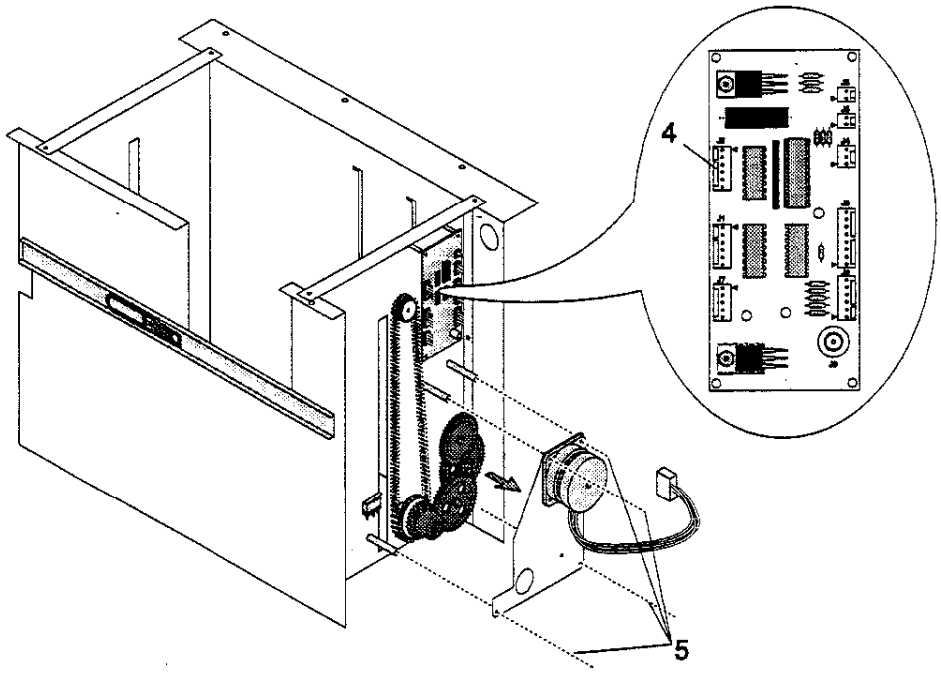
1. Perform the removal steps in reverse order.

13.3.6 Elevator Motor Assembly

Removal

1. Open the feeder drawer and remove all paper.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
4. Disconnect J2 from the Feeder Controller PWB (Figure 13.3.6.1).
5. Remove the four screws that secure the Elevator Motor Assembly (Figure 13.3.6.1).
6. Remove the assembly.

Figure 13.3.6.1 Elevator Motor Assembly.



rep_06

Replacement

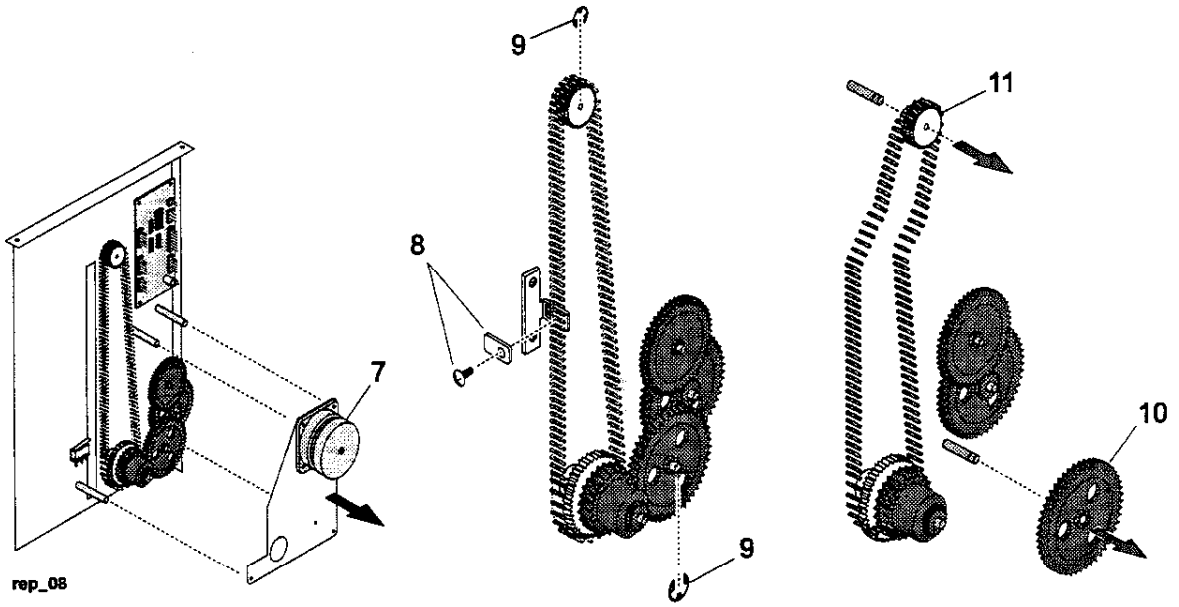
1. Perform the removal steps in reverse order.

13.3.7 Elevator Belt (Rear)

Removal

1. Open the feeder drawer and remove all paper.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
4. Disconnect J5, J7, and J9 and slide the drawer fully open.
5. Release the latches on the drawer rails and remove the drawer from the cabinet.
6. Place the drawer on a suitable work surface to allow access to the rear drive assembly.
7. Remove the Elevator Motor Assembly (Procedure 13.3.6).
8. Remove the screw and clamp from the belt drive clamp (Figure 13.3.7.1).
9. Remove two retaining clips (Figure 13.3.7.1).
10. Remove lower Gear (Figure 13.3.7.1).
11. Slide upper Gear and Belt off the upper shaft (Figure 13.3.7.1).
12. Remove Belt.

Figure 13.3.7.1 Elevator Belt (Rear).



Replacement

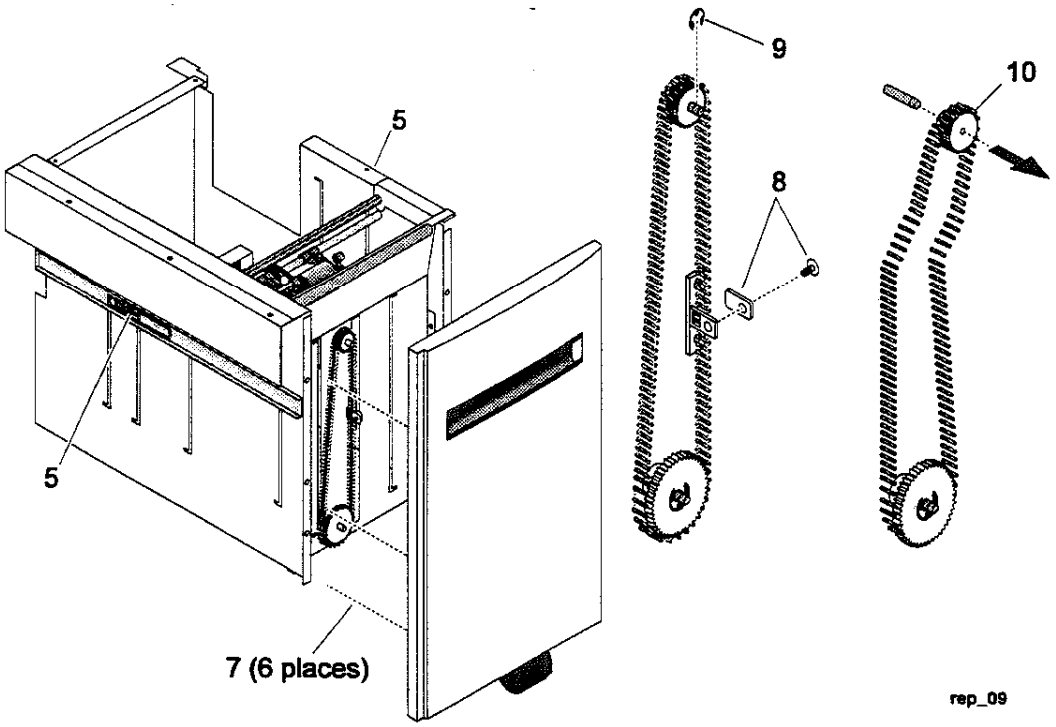
1. Perform the removal steps in reverse order, but do not replace the elevator assembly in the cabinet until the Belt Adjustment check is performed.
2. Check the Belt Adjustment.

13.3.8 Elevator Belt (Front)

Removal

1. Open the feeder drawer and remove all paper.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
4. Disconnect J5, J7, and J9 and slide the drawer fully open.
5. Release the latches on the drawer rails and remove the drawer from the cabinet (Figure 13.3.8.1).
6. Place the drawer on a suitable work surface.
7. Remove the six screws securing the drawer Front Cover (Figure 13.3.8.1).
8. Remove the screw and clamp from the belt drive clamp (Figure 13.3.8.1).
9. Remove the upper Gear retaining clip (Figure 13.3.8.1).
10. Slide upper Gear and Belt off the upper shaft (Figure 13.3.8.1).
11. Remove Belt.

Figure 13.3.8.1 Elevator Belt (Front).



Replacement

1. Perform the removal steps in reverse order, but do not replace the elevator assembly in the cabinet until the Belt Adjustment check is performed
2. Check the Belt Adjustment.

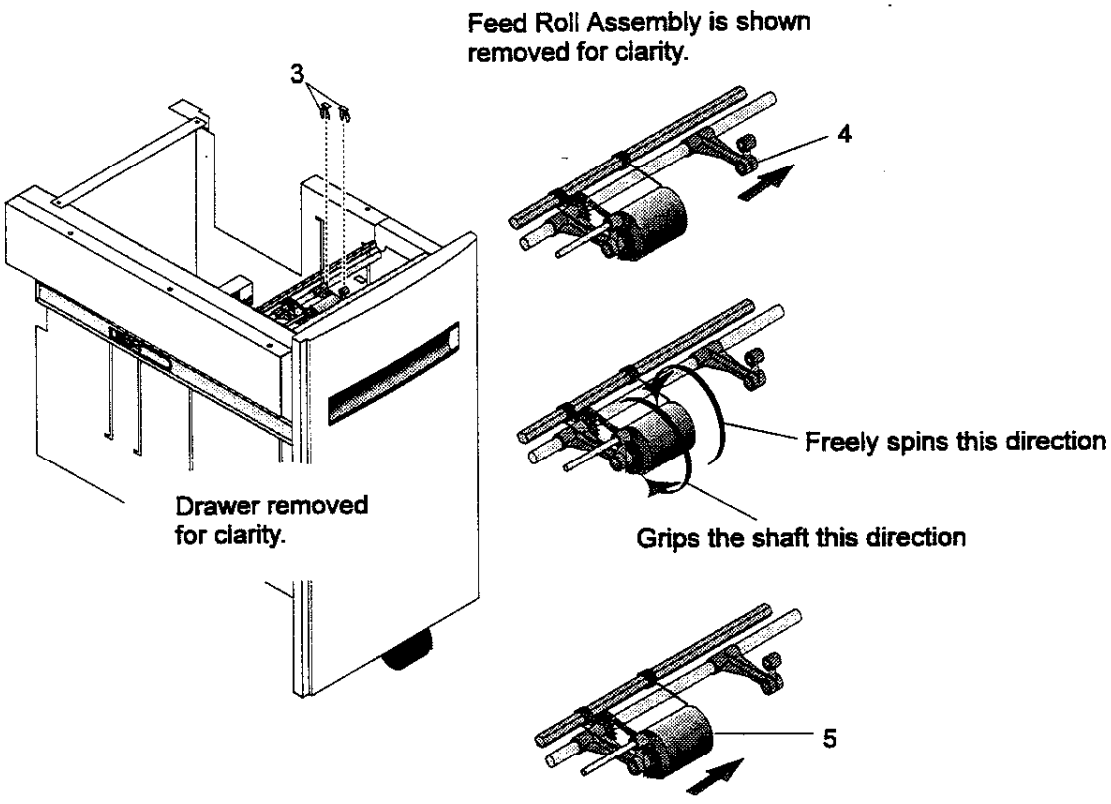
13.3.9 Feed Roll Assembly

Removal

1. Slide the feeder drawer open to lower the elevator tray.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the two Retainer Clips on the feed roll shaft.
4. Slide the Right Feed Roll Arm to the right.

NOTE: Before removing the Feed Roll in the next step, rotate the Feed Roll on the shaft and note which way the one-way clutch grips the shaft. The new Feed Roll must be installed in this manner.

5. Remove the Feed Roll from the shaft.



Replacement

1. Perform the removal steps in reverse order.

NOTE: The Feed Roll has an integral one-way mechanical clutch. When installing a new Feed Roll, ensure that it freely rotates as shown in the illustration.

13.3.10 Elevator Belt Adjustment

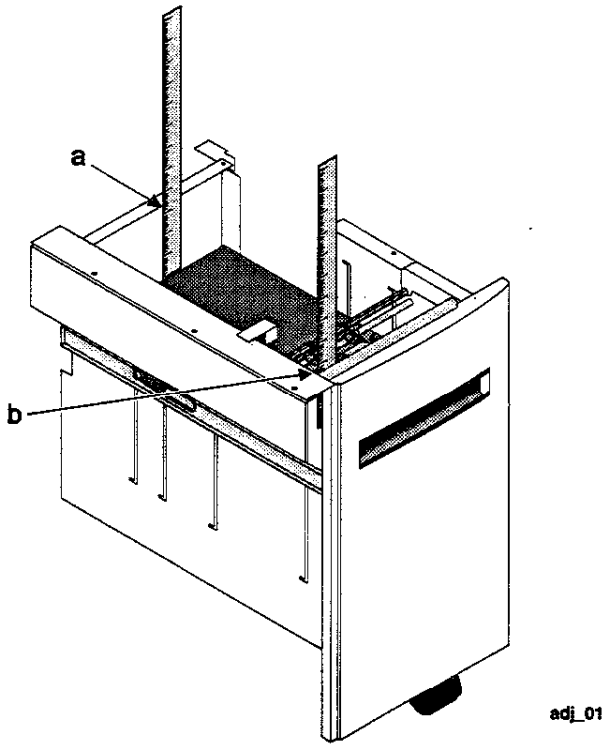
Whenever the Rear or Front Elevator Belts are replaced or paper feed problems are occurring, the following check must be made to ensure that the paper feed tray is level.

Check

1. Open the feeder drawer and remove all paper.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the four screws that secure the Rear Access Cover. Remove the access cover.
4. Disconnect J5, J7, and J9 and slide the drawer fully open.
5. Release the latches on the drawer rails and remove the drawer from the cabinet.
6. Place the drawer on a suitable work surface.
7. Using a 12" ruler, measure the distance at "a" and "b" (measurement is made from the Paper Tray surface to the top of the drawer frame) (Figure 13.3.10.1). The two measurements should be within 1/16".

NOTE: The check is made by direct measurement to ensure that the tray remains parallel to the to the top of the drawer frame, and properly positioned to the feed components. The check is not made with a spirit level because a "level" check is relative to the tray location, i.e., in the drawer, extended on the rails, and therefore unreliable.

Figure 13.3.10.1 Elevator Belt Check.

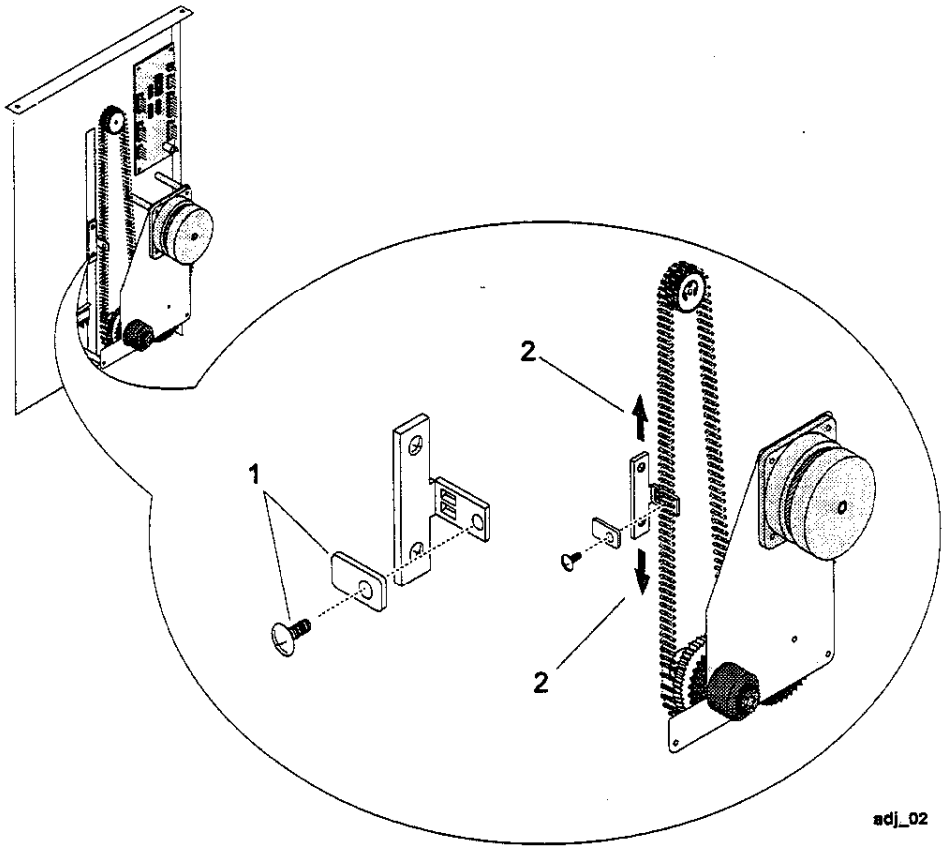


Adjustment

The following procedure is referenced to the rear Elevator Belt. Unless the front Elevator Belt has just been replaced, access to the rear is easier.

1. Remove the clamp screw and remove the clamp (Figure 13.3.10.2).
2. Loosely reassemble the clamp and move the clamp until the tray measurements front to rear are equal (+or- 1/16") (Figure 13.3.10.2).
3. Tighten the clamp screw and reassemble the elevator.

Figure 13.3.10.2 Elevator Belt Adjustment.



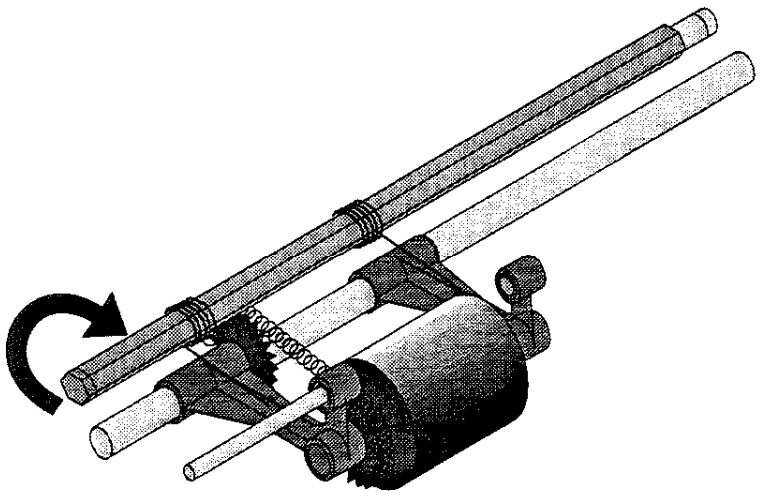
13.3.11 Feed Roll Spring Adjustment

Whenever the Feed Roll Springs are replaced or paper feed problems are occurring, the following check must be made to ensure that the Feed Roll Springs are providing the correct downward pressure on the Feed Roll.

Adjustment

1. Open the feeder drawer and allow the elevator tray to lower.
2. Disconnect the AC Power Cord from the High Capacity Feeder.
3. Remove the E-ring from the right end of the Spring Shaft.
4. Slide the Spring Shaft to the right until the left end is free of the Left Frame.
5. As view from the right end of the shaft, rotate the shaft counterclockwise until the springs contact the Feed Roll Arms (Figure 13.3.11.1).
6. Rotate the shaft counterclockwise an additional four (4) flats then insert the shaft into the left frame (Figure 13.3.11.1).
7. Reinstall the E-ring on the right end of the shaft.

Figure 13.3.11.1 Feed Roll Arm Spring Tension.



13.4 Function of Major Components

The Xerox 4517 HCF is a bottom mounted cabinet feeding device which delivers paper on demand to the printers paper transport system. The HCF and the printer communicate via a custom port, where the HCF receives its feed signals, and where the HCF informs the printer of status and paper size. The HCF derives its power from its own internal auto-ranging power supply. Printer AC power is daisy-linked from the HCF.

The function of the major components constituting the High Capacity Feeder is described below.

13.4.1 Function

The HCF:

1) Cabinet mount HCF (left side storage, right side feeder).
2) HCF slides in and out of cabinet on drawer slides.
3) HCF is adjustable to four paper sizes (Letter, A4, Folio, Legal).
4) HCF status/command signals are communicated through the 500 sheet interface connector.

Drawer Switches

This set of microswitches, located at the upper rear corner of the left side frame, acts as Tray Ready Switch and Elevator Interlock Switch. They are actuated by closing the front drawer of the HCF. When the drawer is closed, the switches are actuated allowing operation of the HCF to occur. When the drawer is open and the Tray Ready Switch is deactuated, the printer UI will display Lower 2 out (or Lower 1 out). When the drawer is open and the Elevator Interlock Switch is deactuated, the elevator will lower until the drawer is closed or the Down Limit Switch is actuated.

Opening the drawer during operation of the HCF may result in jams, as the opening of the Elevator Interlock Switch causes the tray to go down. In addition, due to the fact that the paper path is located at the front of the printer, opening the drawer will interrupt the paper path.

Deck One Switch

This plunger switch, located on the top surface of the cabinet, is actuated only when the 500 Sheet Feeder is placed on the cabinet. This switch is used to increase the feed time of the High Capacity Feeder when a 500 Sheet Feeder is added to the printing system.

Elevator Up

This microswitch, located on the upper front portion of the left side frame, is actuated by the feed roller shaft assembly and provides upper limit sensing of the elevator/paper stack. When the feeder drawer is closed, the elevator/paper stack rises until the paper stack lifts the feed rolls and deactuates the Elevator Up Switch. As paper is fed to the printer, the paper stack height decreases. When the paper stack decreases enough to allow the feed roll assembly to actuate the Elevator Up Switch, the elevator will index up keeping the paper stack at the proper feed height.

Lower Limit Switch

This microswitch, located on the lower portion of the rear of the HCF, is actuated by the elevator slide bearing assembly and provides lower limit sensing of the elevator/paper stack. Once this switch is made the HCF will be static until the drawer switches are reset by opening and closing the front drawer.

Paper Out Sensor

This photo sensor, located upper left internally, is actuated by a flag arm which drops through a cut out in the elevator tray and provides paper present/paper out sensing of the HCF. If paper is present, then the sensor is made, and the elevator position will be maintained and readied for feeding.

If paper is not present (last sheet fed or no paper stack inserted), then the sensor will not be made, and the elevator (after reaching the upper limit), will then be lowered to be available for paper loading.

Feed Motor

This 24 VDC stepper motor, located in the upper left side of the drawer, under the Left Access Cover, drives the paper feed roller assembly, allowing sheets of paper to separate and be transported forward into the printers' paper path.

Elevator Motor

This 24 VDC stepper motor, located lower portion of the rear frame, drives the elevator up and down between the upper and lower limit switches.

Power Supply

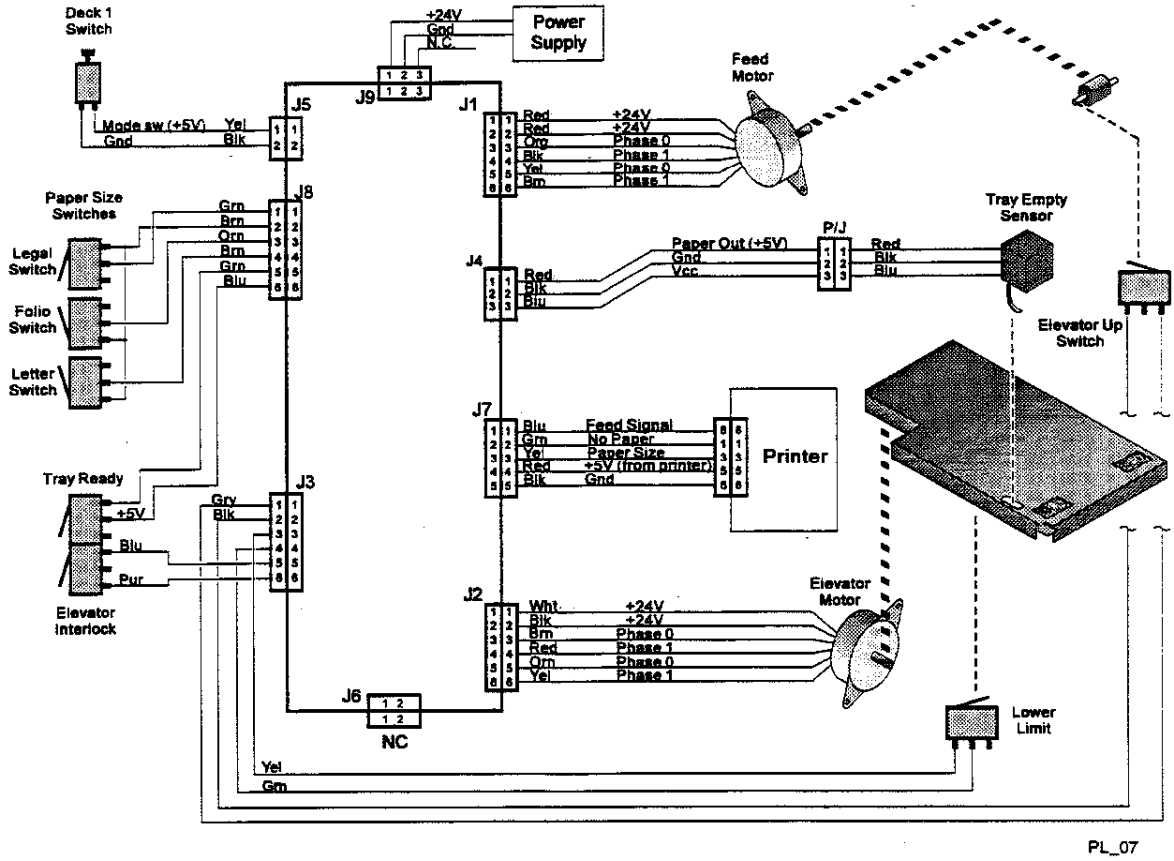
The power supply is a universal power supply with auto-sense of the AC line voltage. It connects to J9 on the Controller PWB and supplies +24 VDC to power the Paper Feed and Elevator Motors. The AC power is daisy chained from the High Capacity Feeder to the printer and to other options.

Controller PWB

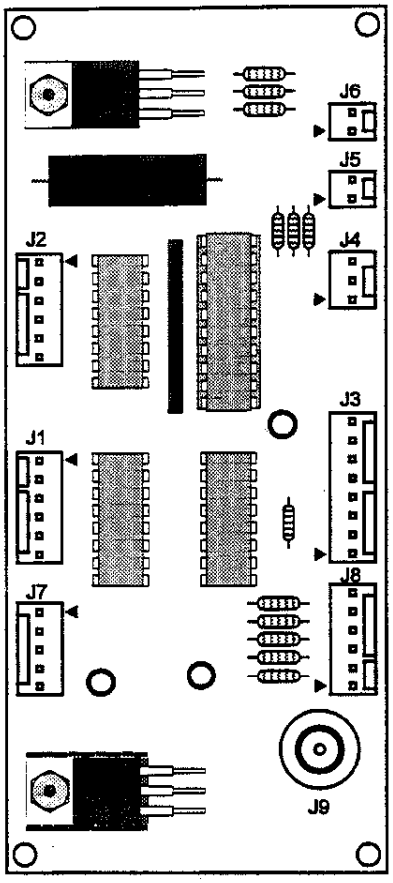
The Controller PWB receives +5 VDC, ground, and a paper feed signal from the printer. The Controller PWB controls all feeder functions and supplies a paper size signal and a paper/no paper status to the printer. All switches, motors, and sensors are connected directly to the Controller PWB.

13.5 Wiring Diagrams

13.5.1 Block Schematic Diagram



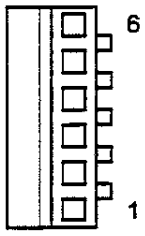
13.5.2 Control PWB



▶ Denotes Pin #1 wir_pwb

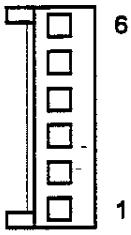
13.5.3 Connectors

P1



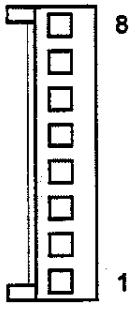
wir_p1

P2



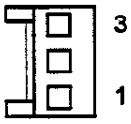
wir_p2

P3



wir_p3

P4

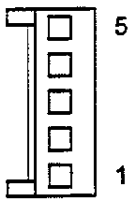


wir_p4

P5

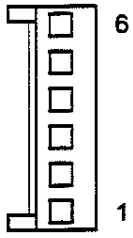
wir_p5

P7

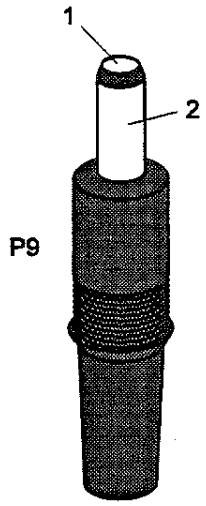


wir_p7

P8



wir_p8



wir_p9

13.6 High Capacity Feeder - Repair Analysis Procedures

13.6.1 Initial Actions

1 Check the feeder for obvious problems, such as; no paper, elevator tray not level, broken sensors, jammed paper, damaged feed roll assembly, etc. The feeder appears normal.

Y N
| Repair or replace damaged component as necessary.

2 With AC power applied, open then close the feeder drawer. You can hear elevator movement.

Y N
| Perform procedure 13.6.2 Elevator Motor Assembly.

3 Open the feeder drawer. The elevator goes down.

Y N
| Perform procedure 13.6.2 Elevator Motor Assembly.

4 Remove all paper and close the feeder drawer. The elevator drives up to the feed rolls.

Y N
| Perform procedure 13.6.5 Elevator Up Switch.

5 The elevator then drives to the Lower Limit Switch.

Y N
| Perform procedure 13.6.6 Tray Empty Sensor.

6 Open the feeder drawer and add one ream of paper to the feeder. Set the Paper Length Guide for the paper installed. Close the feeder drawer. The elevator drives up to and remains in the feed position.

Y N
| Perform procedure 13.6.6 Tray Empty Sensor.

7 Printer indicates **Lower 2 Out** (**Lower 1 Out** if 500 sheet tray is not installed).

Y N
| Go to step 9.

8 Perform procedure 13.6.8 Tray Ready Switch.

9 Verify the paper size settings in the printer matches the paper installed in the feeder. Set the printer to feed from the High Capacity Feeder. Initiate a test print. Paper is fed from the High Capacity Feeder.

Y N
| Perform procedure 13.6.7 Print Interface Cable. If the Print Interface Cable checks out OK, perform procedure 13.6.3 Paper Feed Motor Assembly.

10 The customer complains of intermittent paper jams.

Y N
| The High Capacity Feeder appears to be working properly.

11 Check for a dirty or worn Feed Roll (13.2.4) Clean or replace as necessary. Perform Elevator Tray Check/Adjustment (13.3.10). Check Feed Roll Spring Adjustment (13.3.11). If a 500 sheet lower tray is installed, measure the voltage between P/J5 pins 1 and 2. the voltage is 0.0 VDC.

Y N

| Ensure that the printer/500 sheet tray is seated properly on the Mode Switch. Check out Mode Switch and associated wiring. If OK, replace the Controller PWB (13.2.3).

12 Replace the Controller PWB (13.2.3).

13.6.2 Elevator Motor Assembly

1 Disconnect the AC power and remove the Rear Access Cover.

2 Reconnect the AC power and measure the voltage from J2 pin 1 to frame ground. The voltage is +24.0 +/- 1.0 VDC.

Y N

| Replace the Power Supply (13.2.2).

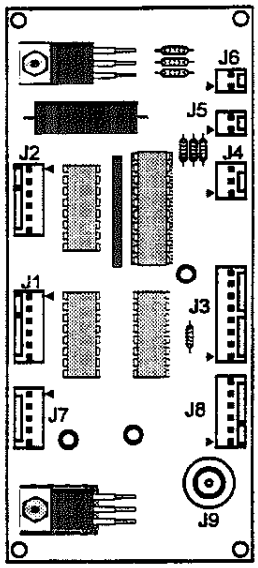
3 Disconnect the AC power. Disconnect P/J2 from the Controller PWB. Make the measurements listed in Table 1. All measurements are correct.

Y N

| Replace the Elevator Motor Assembly (13.2.3):

Table 1. Elevator Motor

From	To	Reading
P2 Pin 1	P2 Pin 3	30 +/- 3 ohms
P2 Pin 1	P2 Pin 5	30 +/- 3 ohms
P2 Pin 2	P2 Pin 4	30 +/- 3 ohms
P2 Pin 2	P2 Pin 6	30 +/- 3 ohms



rap_01

4 Reconnect P/J2 and disconnect P/J3. Measure the resistance between pins 5 and 6 on the disconnected plug. The resistance is 0 (zero) ohms with the feeder drawer open, and infinite with the drawer closed.

Y N

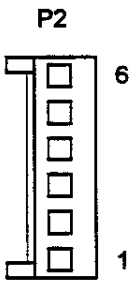
| Check the wiring between the Elevator Interlock Switch and P3. If OK, replace the switch (13.2.4).

5 Measure the resistance between pins 3 and 4 on P3. The resistance is 0 (zero) ohms with the Lower Limit Switch actuated, and infinite with the switch deactuated.

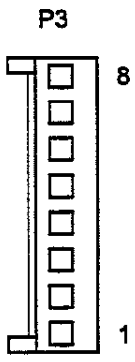
Y N

| Check the wiring between the Lower Limit Switch and plug P3. If OK, replace the switch (13.2.4).

6 Replace the Controller PWB (13.2.3).



wir_p2



wir_p3

13.6.3 Paper Feed Motor Assembly

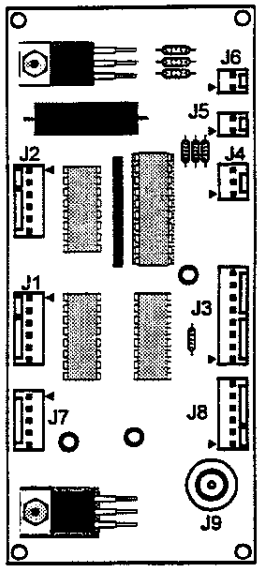
1 Disconnect the AC power and remove the Rear Access Cover.

2 Disconnect P/J1 from the Controller PWB. Make the measurements listed in Table 1. All measurements are correct.

Y N
| Replace the Paper Feed Motor Assembly (13.2.4).

Table 1. Paper Feed Motor

From	To	Reading
P1 Pin 1	P1 Pin 4	32 +/- 3 ohms
P1 Pin 1	P1 Pin 6	32 +/- 3 ohms
P1 Pin 2	P1 Pin 3	32 +/- 3 ohms
P1 Pin 2	P1 Pin 5	32 +/- 3 ohms



▸ Denotes Pin #1

rap_01

3 Reconnect P/J1 and reconnect AC power. Measure the voltage between pins 1 and 5 on P/J7 on the Controller PWB. Initiate a test print. The voltage pulses from 5.0 VDC to approximately 0.0 VDC when the printer initiates a paper feed signal.

Y N
| The problem appears to be in the printer.

4 Initiate a test print and measure the voltages listed in Table 2 during a paper feed cycle. The voltages are correct.

Y N
| Replace the Controller PWB (13.2.3).

Table 2. Paper Feed Motor

From	To	Reading
P/J1 Pin 1	P/J1 Pin 4	11 +/- 2.0 VDC
P/J1 Pin 1	P/J1 Pin 6	11 +/- 2.0 VDC
P/J1 Pin 2	P/J1 Pin 3	11 +/- 2.0 VDC
P/J1 Pin 2	P/J1 Pin 5	11 +/- 2.0 VDC

5 Check the paper feed assembly for binding, loose or defective components, or defective feed rolls. If the assembly is OK, replace the Paper Feed Motor (13.2.4).

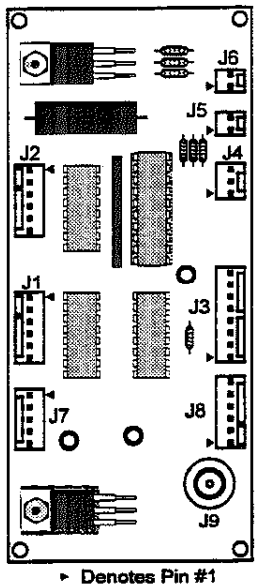
13.6.4 Paper Size Switches

1 Disconnect the AC power and remove the Rear Access Cover.

2 Disconnect P/J8 from the Controller PWB. Make the measurements listed in Table 1. All measurements are correct.

Y N

I Check the wiring between the Paper Size Switches and P8. If OK, replace the defective switch (13.2.4).



▸ Denotes Pin #1

rap_01

Table 1. Paper Size Switches

Paper Length Guide set to:		Letter	A4	Folio	Legal
From	To				
P8 Pin 2	P8 Pin 1	Infinite	Infinite	Infinite	0 ohms
P8 Pin 2	P8 Pin 3	Infinite	Infinite	0 ohms	Infinite
P8 Pin 2	P8 Pin 4	0 ohms	Infinite	Infinite	Infinite

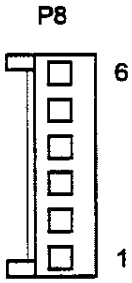
3 Reconnect P/J8. Reconnect AC power. Make the measurements listed in Table 2 at P/J7 on the Controller PWB. The measurements are correct.

Y N

I Replace the Controller PWB (13.2.3).

Table 2. Paper Size Voltage

Paper Length Guide set to:		Letter	A4	Folio	Legal
From	To				
P/J7 Pin 3	P/J7 Pin 5	3.5 VDC	2.1 VDC	2.5 VDC	3.3 VDC



4 Check the wiring between the P/J8 and the printer connector. If OK, it appears to be a printer problem.

wir_p8

13.6.5 Elevator Up Switch

1 Disconnect the AC power.

2 Open the feeder drawer and remove the Left Access Cover (13.2.4).

3 Check the mechanical operation of the switch. The switch is deactuated when paper is in the feed position and actuated when the elevator tray is lowered. The mechanical operation is correct.

Y N
| Repair or replace as necessary.

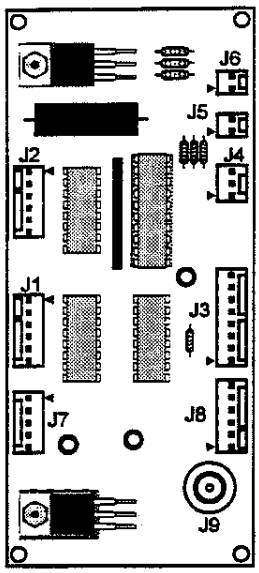
4 Measure the resistance of the switch. The resistance is 0 (zero) ohms with the switch deactuated and infinite with the switch actuated.

Y N
| Replace the Elevator Up Switch (13.2.4).

5 Check the wiring between the Elevator Up Switch and P/J3 pins 1 & 2 on the Controller PWB. The wiring is OK.

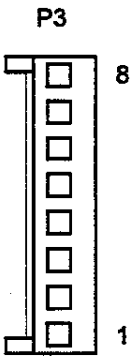
Y N
| Repair or replace the wiring as necessary.

6 The Elevator Up Switch appears to be operating correctly. Return to the RAP that sent you here.



▸ Denotes Pin #1

rap_01



wir_p3

13.6.6 Tray Empty Sensor

1 Disconnect the AC power and remove the Rear Access Cover.

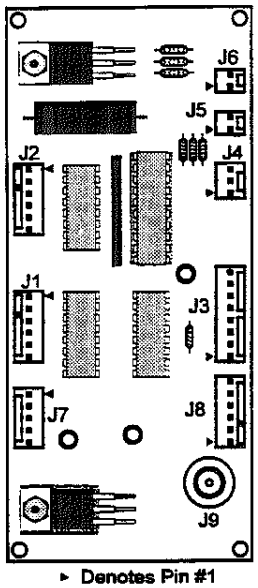
2 Disconnect P/J4 from the Controller PWB. Reconnect the AC power. Measure the voltages listed in Table 1 at J4 on the Controller PWB. All voltages are correct.

Y N

| Replace the Controller PWB (13.2.3).

Table 1. Tray Empty Sensor

From	To	Reading
J4 Pin 1	J4 Pin 2	5.0 VDC
J4 Pin 1	J4 Pin 3	0.0 VDC
J4 Pin 2	J4 Pin 3	5.0 VDC



▸ Denotes Pin #1

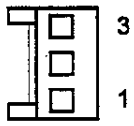
rap_01

3 Disconnect the AC power. Reconnect P/J4 and reconnect AC power. Measure the voltages listed in Table 2. All voltages are correct.

Y N

| Check the wiring between the Tray Empty Sensor and P4. If OK, replace the Sensor (13.2.4).

P4



wir_p4

Table 2. Tray Empty Sensor

From	To	Sensor Actuated Readings	Sensor Deactuated Readings
J4 Pin 1	J4 Pin 2	0.1 VDC	5.0 VDC
J4 Pin 3	J4 Pin 1	1.0 VDC	3.8 VDC
J4 Pin 3	J4 Pin 2	1.2 VDC	1.2 VDC

4 Replace the Controller PWB (13.2.3).

13.6.7 Printer Interface Cable

1 Disconnect the AC power and remove the Rear Access Cover.

2 Reconnect the AC power. Measure the voltage from P/J7 pin 4 to pin 5. The voltage is 5.0 +/- 0.25 VDC.

Y N

| The printer is not supplying 5.0 VDC to the High Capacity Feeder. Troubleshoot the printer.

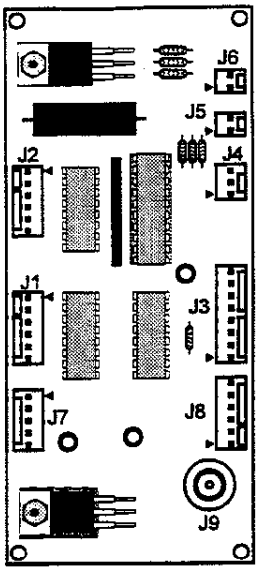
3 With the paper tray in the feed position, measure the voltage from P/J7 pin 3 to pin 5. The voltage is correct for the setting of the Paper Length Guide (Table 1).

Y N

| Perform procedure (13.6.4) Paper Size Switches.

Table 1. Paper Size Voltage

Paper Length Guide set to:		Letter	A4	Folio	Legal
From	To				
P/J7 Pin 3	P/J7 Pin 5	3.5 VDC	2.1 VDC	2.5 VDC	3.3 VDC



rap_01

4 Measure the voltage from P/J7 pin 2 to pin 5. The voltage is 5.0 +/- 0.3 VDC with the feeder in a no paper condition and 0.0 VDC with paper in the feed position.

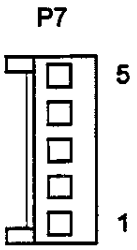
Y N

| Perform procedure (13.6.6) Tray Empty Sensor.

5 Measure the voltage from P/J7 pin 1 to pin 5. Initiate a test print. The voltage pulses from 5.0 +/- 0.3 VDC to 0.0 VDC during a paper feed cycle.

Y N

| The problem appears to be in the printer. Troubleshoot the printer.



wir_p7

6 All signals between the printer and the feeder are correct. Return to Initial Actions and continue.

13.6.8 Tray Ready Switch

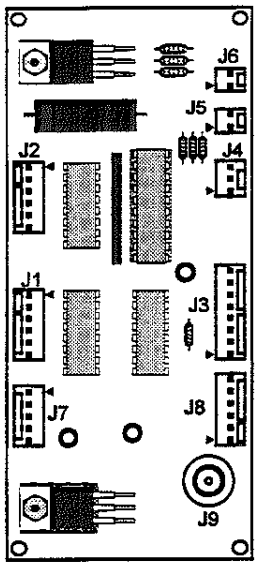
1 Disconnect the AC power and remove the rear access cover..

2 Disconnect P/J8. Measure the resistance between pins 5 and 6 on the disconnected plug. The resistance is 0 (zero) ohms with the feeder drawer closed, and infinite with the drawer open.

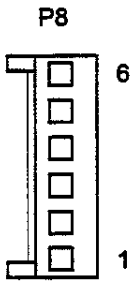
Y N

| Check the switch associated wiring. If OK, replace the Tray Ready Switch (13.2.4).

3 Replace the Controller PWB (13.2.3).



rap_01



wir_p8

13.7 Installation and Removal

For the installation and removal of the High Capacity Feeder, see the 4517/4517mp High Capacity Feeder User Guide.