

Model: PRIPORT PEARL/PEARL-MC		Date: 31-Mar-00	No: R-C229-6
Subject: New Pearl Series Model (PEARL-MC) Information		Prepared by: M. Ohtsubo, Priport Service Planning Section	
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	<input type="checkbox"/> Paper path	<input type="checkbox"/> Transmit/receive	<input type="checkbox"/> Retrofit information
	<input checked="" type="checkbox"/> Other (New Version Machine Information)		
Model Name: PEARL/PEARL-MC: Ricoh JP5000, Gestetner 5450, RexRotary 1560, nashuatec CP450, SVN 3350DNP			

Pearl-MC was released in March 2000 as the successor to Pearl.

The model names for Pearl-MC are the same as those for Pearl because there are no specification differences between the two models.

However, a new model code “ C233 “ has been assigned to Pearl-MC because there are some new mechanisms and some parts are not interchangeable with #C229 Pearl.

This bulletin is to inform you of all the information unique to #C233 Pearl-MC for service.

Add the information on the following pages to the C229 service manual, to cover all the information for #C233 Pearl-MC.

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1. OVERALL INFORMATION

1.1 ESSENTIAL DIFFERENCES BETWEEN C233 AND C229 MODELS

No.	Item	Remarks
1	Thermal Head, Thermal Head Power Supply, MPU, I/O Board, PSU	Some related parts were different. Refer to the new electrical components section.
2	Energy Saver Mode	Energy saver mode lowers the energy consumption level below 10 W. When the machine enters Energy saver mode, only the LED for the clear modes key stays on. All other keys and the LCD remain at stand-by until the clear modes key is touched.
3	Operation Panel	<ul style="list-style-type: none"> The sorter key was added. The clear modes key also works for Energy saver mode.
4	Sharpen Image Mode	In User Tools 4-27, the sharpness of character images in Letter mode can be increased. Fine details become more apparent in letter mode. (As a side effect, the edges of paper pasted onto the original might appear on copy images.) "Thin Lettering" (images become sharper) or "Standard" can be selected. "Standard" is the default.
5	Drum Home Position Indicators	New LEDs were added to indicate when the drum is home position. <ul style="list-style-type: none"> Green LED: Indicates the drum is in its home position. Red LED: Indicates that drum is not in its home position.
6	JS Sorter Connection	<ul style="list-style-type: none"> The new JS40 sorter can be connected. Some new SP modes were added for JS40 Sorter. Refer to the service tables section for details.
7	Friction Pad (Paper Feed Section)	A newly designed friction pad was used. It has increased tolerance to feed poor quality (thin) paper. (The specifications for the paper type remain the same.)
8	New SP modes	Some SP modes were changed. Refer to the service tables section for details.
9	Torque Limiter	The torque limiter was added to prevent damage to the main motor (locking) when torque from the drum or pressure cylinder gets too high.
10	Feed Encoder Sensor Position	A new caution was made for the feed encoder sensor position. For details, refer to 'Feed Start Sensor and Feed Encoder' in the replacement and adjustment section.

No.	Item	Remarks
11	Paper Feed Length Adjustment	The adjustment method remains the same, however the SP mode number was changed. Refer to 'Paper Feed Length Adjustment' in the replacement and adjustment section.
12	Firmware Update Method	The firmware on the MPU can be upgraded using a flash memory card. It is not necessary to use the card interface board. Refer to 'Load Program (SP8-20)' in the service tables section.

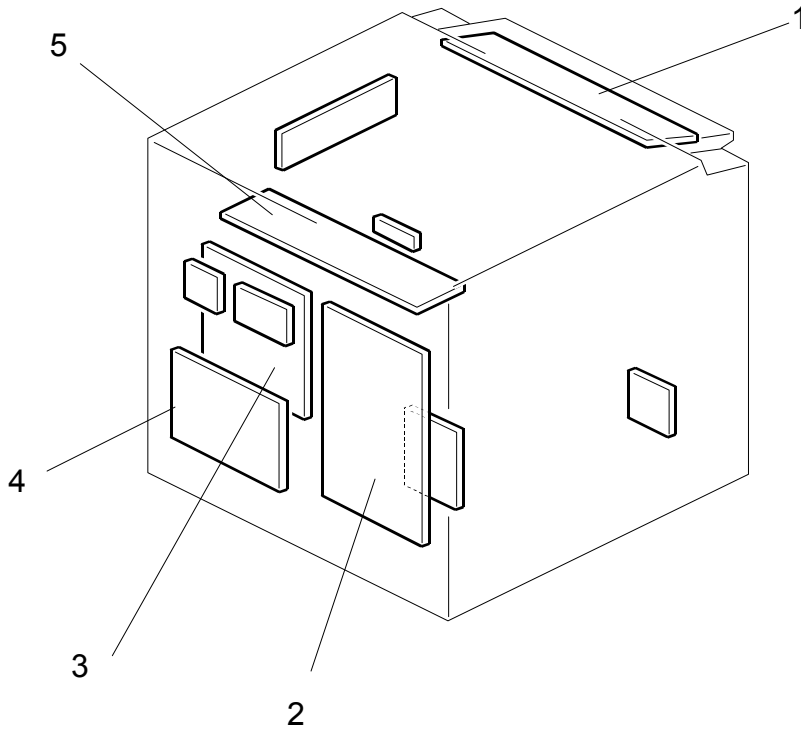
1.2 SPECIFICATIONS

The specifications are identical to the C229 model, except that the power consumption data for Energy Saver mode was added.

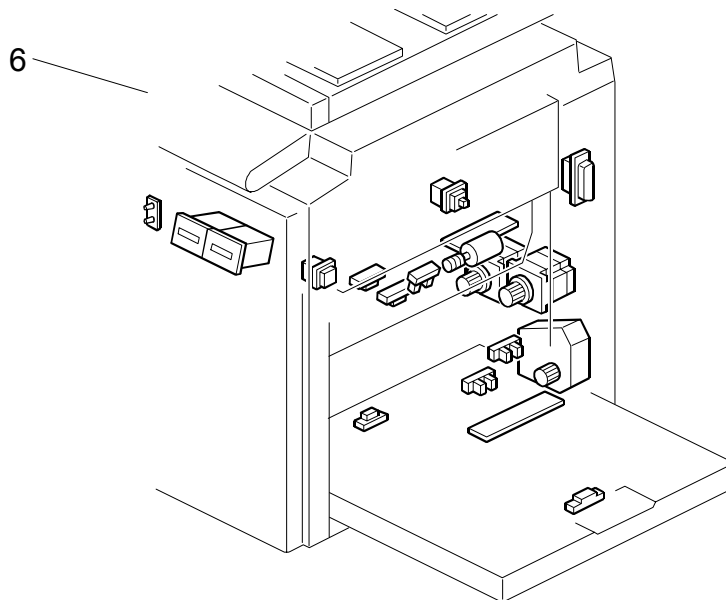
Power Consumption:	110/120 V version:	Maximum: 285 W (Same as C229 model) Energy saver mode: 10 W
	220 - 240 V version:	Maximum: 280 W (Same as C229 model) Energy saver mode: 10 W

1.3 NEW ELECTRICAL COMPONENTS

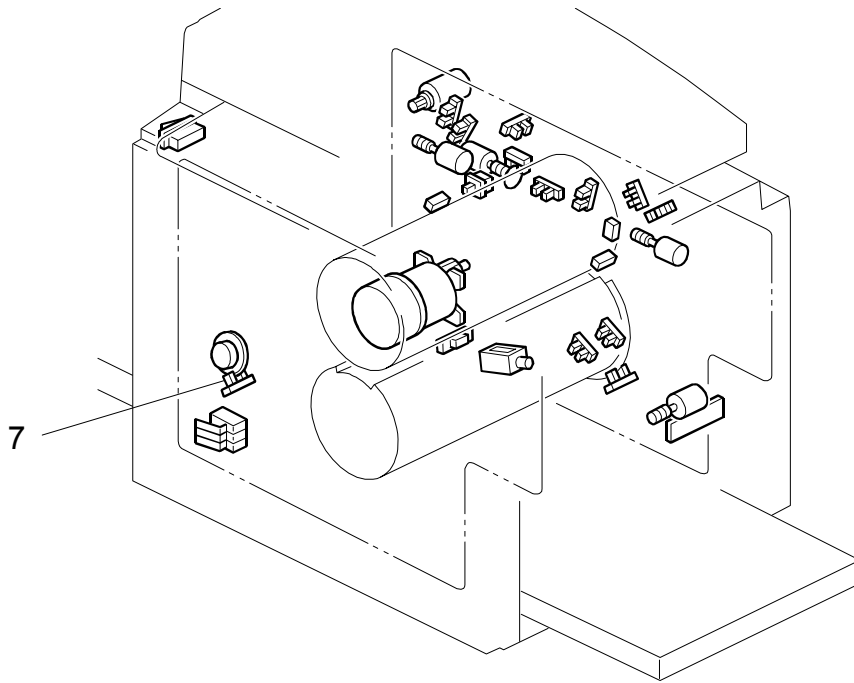
1.3.1 PRINTED CIRCUIT BOARD



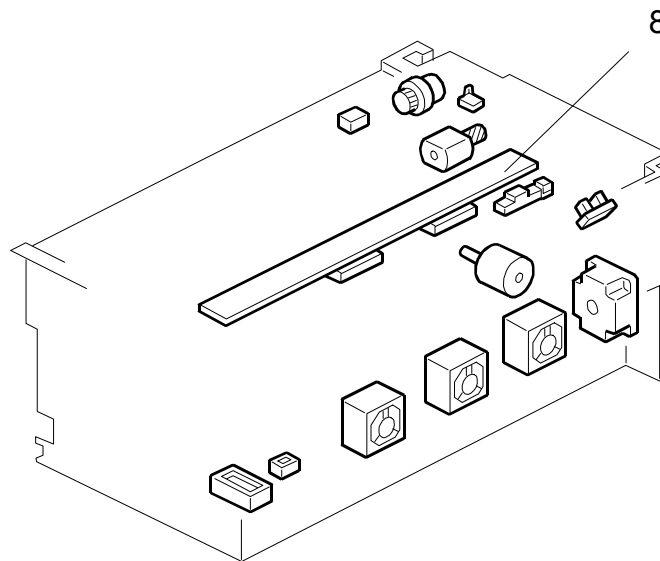
1.3.2 PAPER FEED SECTION



1.3.3 PRESSURE CYLINDER SECTION



1.3.4 MASTER MAKING UNIT



1.3.5 TABLES OF ELECTRICAL COMPONENTS

Boards

Index No.	Name	Function
1	Operation Panel Board	Controls the operation panel.
2	Power Supply Unit (PSU)	Provides dc power to the system.
3	Main Processing Unit (MPU)	Controls all machine functions both directly and through other boards.
4	I/O Board	Controls the mechanical components.
5	Thermal Head Power Supply Board	Provides dc power to the thermal head.

Sensors

Index No.	Name	Function
6	Drum Home Position Sensor	Informs when the drum is at home position to turn on the green LED.

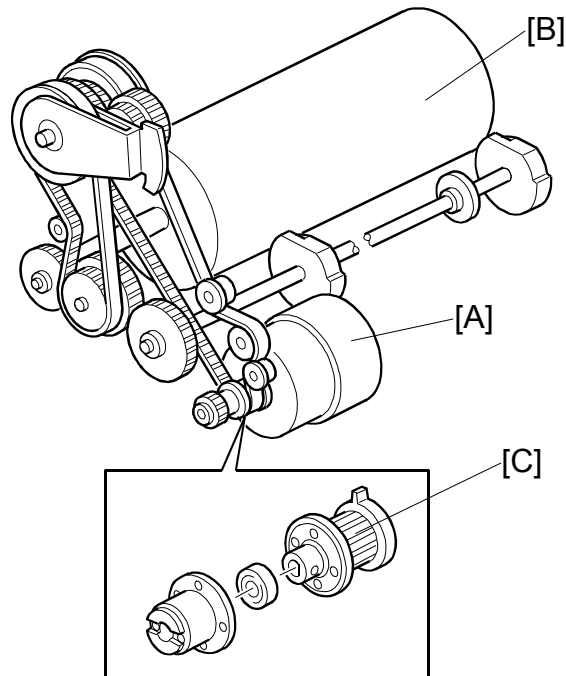
Others

Index No.	Name	Function
7	Thermal Head	Burns the image of the original onto the master.
8	Drum Home Position Indicator (LEDs)	LEDs that indicates the drum position.

2. DETAILED SECTION DESCRIPTIONS

2.1 MAIN MOTOR PROTECTION MECHANISM

The main motor [A] drives the pressure cylinder [B] and the drum. When the pressure cylinder or drum is locked, the torque limiter [C] stops drive from the main motor gear from being transmitted to these parts. This prevents the mechanism from being overloaded.



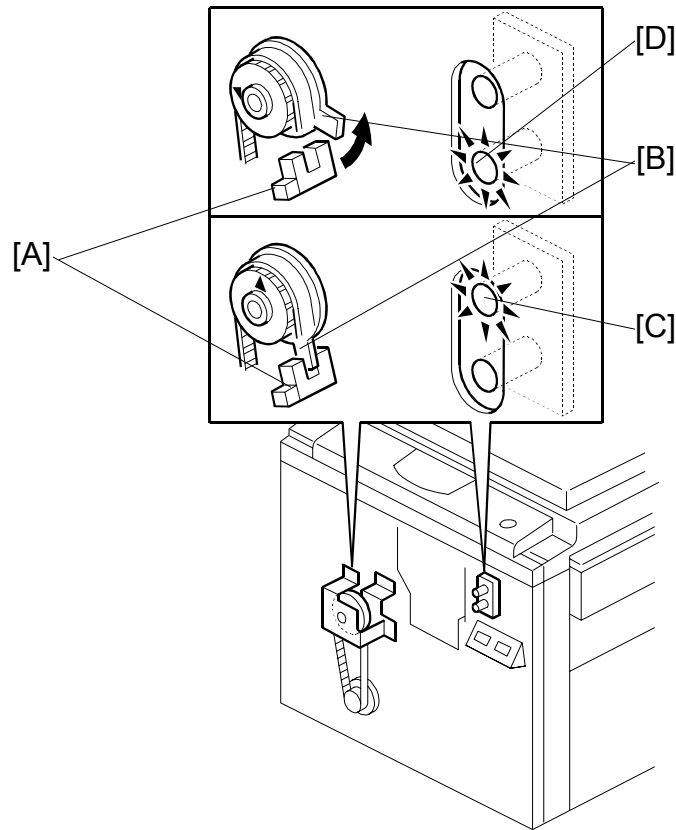
C233D010.WMF

When the mechanism is locked, the LCD indicates SC-05-00, SC05-01, or SC05-03. However, there are no damaged parts or changes in drum and pressure cylinder position.

To recover the machine, eliminate the cause of the problem then turn the main switch off/on.

CAUTION: 1) These service call codes can appear in different situations.
2) Make sure jammed paper and masters are removed before switching off/on.

2.2 DRUM HOME POSITION DETECTION



C232D020.WMF

LEDs are added to inform the operator when the drum is at the exact home position and can be pulled out. The drum home position is monitored by the drum home position sensor [A], which is newly added for the actuator disk [B] on the pressure cylinder.

Green LED [C] turns on when the drum is at the home position.

Red LED [D] warns that the drum is not at the home position.

NOTE: If the red LED lights when the machine is in standby mode, the drum is not at the home position and the front door must be closed to reset the drum position.

3. INSTALLATION

There are no differences from the C229 model in this section.

4. SERVICE TABLES

4.1 DIP SW, LED, VR, TP, AND FUSE TABLES

Fuse FU706 is added on the power supply board. There are no other differences from the C229 model in this section.

4.1.1 FUSES

Power Supply Unit

Fuse	Rated Current	Protect
FU700	10A	Power Supply Unit
FU701	5A	Main Motor Drive Board
FU702	5A	Main Motor Drive Board
FU703	5A	I/O Board
FU704	5A	Thermal Head Power Supply Board, I/O Board
FU706	2A	Power Supply Unit

4.2 SERVICE CALL CODES

New SC codes for the optional JS40 Sorter (SC 40 series) were added. For these SC's, refer to the JS40 Service Manual. There are no other differences from the C229 model in this section.

4.3 SPECIAL TOOLS

The Flash Memory Card is added as a special tool. This is used instead of the C229 model's ROM Board. There are no other differences from the C229 model in this section.

Description	Part Number	Application
Main Drive Securing Tool Kit (Drum securing tool and two positioning shafts as a set)	C229 9000	For main drive positioning
Scanner Positioning Pin Kit (4 pins as a set)	A006 9104	For scanner wire installation
Flash Memory Card	A230 9352	For updating firmware

4.4 SERVICE PROGRAM MODE

Some SP modes were changed or newly added for the C233 model. The following table shows all of the items in the service program mode.

NOTE: The marks beside the SP mode numbers in the following tables represent the following meanings:

*: A new item was added or the default setting was changed.

** : New item, but not used for the C233 model.

Main Menu Number List

1. Data Logging
2. Basic Settings
3. User Custom Settings
4. Input Test Mode
5. Output Test Mode
6. System Adjustment
7. Memory Data Clear
8. System Test

4.4.1 SERVICE PROGRAM TABLE

1. Data Logging

SP No.	Display	Function	Default	User Tools
1-001-1	Total Master Counter	Master counters 1-001-1: Total count 1-001-2: User counter 1-001-3 to 28: Counters for various copy modes	0	-
1-001-2	Resettable Master Count		0	1-2
1-001-3	M Counter ADF Mode		0	-
1-001-4	M Counter Economy Mode		0	-
1-001-5	M Counter Combine 2		0	-
1-001-6	M Counter Combine 4		0	-
1-001-7	M Counter Enl. Mode		0	-
1-001-8	M Counter Red. Mode		0	-
1-001-9	M Counter Zoom Mode		0	-
1-001-10	M Counter Dir. Mag.		0	-
* 1-001-11	M Counter Auto Mag.		0	-
1-001-12	M Counter Make-up Mode		0	-
1-001-13	M Counter Make-up Photo		0	-
1-001-14	M Counter Margin Erase		0	-
1-001-15	M Counter Online Mode		0	-
1-001-16	M Counter Online Overlay		0	-
1-001-17	M Counter Overlay Mode		0	-
1-001-18	M Counter Format Overlay		0	-
1-001-19	M Counter Memory Combine		0	-
1-001-20	M Counter Date Stamp		0	-
1-001-21	M Counter Page Number		0	-
1-001-22	M Counter Default Stamp		0	-
1-001-23	M Counter User Stamp		0	-
1-001-24	M Counter Letter Mode		0	-
1-001-25	M Counter Ltr/Pht Mode		0	-
1-001-26	M Counter Photo Mode		0	-
1-001-27	M Counter Pencil Mode		0	-
1-001-28	M Counter Tint Mode		Master counters 1-001-29 to 35: Original sizes 1-001-43 to 47: Various copy modes 1-001-38 to 42: Various types	0
1-001-29	M Counter A3/DLT	0		-
1-001-30	M Counter B4/LG	0		-
1-001-31	M Counter A4-L/LT-L	0		-
1-001-32	M Counter A4/LT	0		-
1-001-33	M Counter B5-L	0		-
1-001-34	M Counter B5	0		-
1-001-35	M Counter Other Sizes	0		-
1-001-36	M Counter Short Master	0		-
1-001-37	M Counter Image Rotation	0		-
1-001-38	M Counter Special	0		-
1-001-39	M Count Standard Paper	0		-
1-001-40	M Counter Thick Paper	0	-	

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools
1-001-41	M Counter User 1 Paper		0	-
1-001-42	M Counter User 2 Paper		0	-
1-001-43	M Counter Same-No. Class		0	-
1-001-44	M Counter By-Class Class		0	-
1-001-45	M Counter Manual Class		0	-
1-001-46	M Counter Job Separator		0	-
1-001-47	M Counter Autocycle		0	-
** 1-001-48	M Counter Tray Auto Sel.		0	-
** 1-001-49	M Counter 3 Tray Mode		0	-
* 1-001-50	M Counter Online Sort		0	-
* 1-001-51	M Counter Sort		0	-
* 1-001-52	M Counter Class Sort		0	-
1-002-1	Total Print Counter		Print counters	0
1-002-2	Resettable Print Counter	'-L': Lengthwise	0	1-2
1-002-3	P Counter Color Drum	1-002-4 to -13: Paper sizes	0	-
1-002-4	P Counter Over A3/DLT	1-002-14 to -25: Trays	0	-
1-002-5	Print Counter A3/DLT	V: Longedge feed	0	-
1-002-6	Print Counter B4/LG	Oth: Other paper sizes	0	-
1-002-7	Print Counter A4-L/LT-L		0	-
1-002-8	Print Counter A4/LT		0	-
1-002-9	Print Counter B5-L		0	-
1-002-10	Print Counter B5		0	-
1-002-11	Print Counter A6-L		0	-
1-002-12	Print Counter Under A6-L		0	-
1-002-13	P Counter Other Sizes		0	-
** 1-002-14	P Cnt. Tray1 A3 Speed1-3	These items are not used.	0	-
** 1-002-15	P Cnt. Tray1 A3 Speed4-5		0	-
** 1-002-16	P Cnt. Tray1A4B5Vspeed 1-3		0	-
** 1-002-17	P Cnt. Tray1A4B5Vspeed 4-5		0	-
** 1-002-18	P Cnt. Tray1 Oth.Speed1-3		0	-
** 1-002-19	P Cnt. Tray1 Oth.Speed4-5		0	-
** 1-002-20	P Cnt. Tray2 A3.Speed1-3		0	-
** 1-002-21	P Cnt. Tray2 A3 Speed4-5		0	-
** 1-002-22	P Cnt. Tray2 A4B5Vspeed 1-3		0	-
** 1-002-23	P Cnt. Tray2A4B5Vspeed 4-5		0	-
** 1-002-24	P Cnt. Tray2 Oth.Speed1-3		0	-
** 1-002-25	P Cnt. Tray2 Oth Speed4-5		0	-
1-003	Set Master Counter		0	-
1-004	Ejected Master Counter		0	-
1-005	Ink Pump Rotation Count		0	-
1-006	Master End Counter		0	-

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools
1-007	Ink End Counter		0	-
1-008	Master Full Counter		0	-
1-020	Original Counter ADF		0	-
1-021	Original Counter Platen		0	-
1-030-1	UC M Counter: Code 1	Master and printer counters for each user code	0	-
1-030-2	UC P Counter: Code 1		0	-
1-030-3	UC M Counter: Code 2		0	-
1-030-4	UC P Counter: Code 2		0	-
1-030-5	UC M Counter: Code 3		0	-
1-030-6	UC P Counter: Code 3		0	-
1-030-7	UC M Counter: Code 4		0	-
1-030-8	UC P Counter: Code 4		0	-
1-030-9	UC M Counter: Code 5		0	-
1-030-10	UC P Counter: Code 5		0	-
1-030-11	UC M Counter: Code 6		0	-
1-030-12	UC P Counter: Code 6		0	-
1-030-13	UC M Counter: Code 7		0	-
1-030-14	UC P Counter: Code 7		0	-
1-030-15	UC M Counter: Code 8		0	-
1-030-16	UC P Counter: Code 8		0	-
1-030-17	UC M Counter: Code 9		0	-
1-030-18	UC P Counter: Code 9		0	-
1-030-19	UC M Counter: Code10		0	-
1-030-20	UC P Counter: Code10		0	-
1-030-21	UC M Counter: Code11		0	-
1-030-22	UC P Counter: Code11		0	-
1-030-23	UC M Counter: Code12		0	-
1-030-24	UC P Counter: Code12		0	-
1-030-25	UC M Counter: Code13		0	-
1-030-26	UC P Counter: Code13		0	-
1-030-27	UC M Counter: Code14		0	-
1-030-28	UC P Counter: Code14	Master and printer counters for each user code	0	-
1-030-29	UC M Counter: Code15		0	-
1-030-30	UC P Counter: Code15		0	-
1-030-31	UC M Counter: Code16		0	-
1-030-32	UC P Counter: Code16		0	-
1-030-33	UC M Counter: Code17		0	-
1-030-34	UC P Counter: Code17		0	-
1-030-35	UC M Counter: Code18		0	-
1-030-36	UC P Counter: Code18		0	-
1-030-37	UC M Counter: Code19		0	-
1-030-38	UC P Counter: Code19		0	-
1-030-39	UC M Counter: Code20		0	-
1-030-40	UC P Counter: Code20		0	-

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools
1-031-1	UC Total Master Counter		0	-
1-031-2	UC Total Print Counter		0	-
1-040	ROM Part Number		-	-
* 1-041-1	Serial Number	Use this to view the serial numbers input with SP 3-070	0	-
** 1-041-2	Bank Serial Number	This item is not used.	0	-
** 1-041-3	PDTable Serial Number	This item is not used.	0	-
* 1-042	ROM Version		-	-
** 1-043	Feed ROM Version	This item is not used.	0	-
** 1-044-1	Bank ROM1 Version	This item is not used.	0	-
** 1-044-2	Bank ROM2 Version		0	-
** 1-045	PDTable ROM Version	This item is not used.	0	-
* 1-046	JSSorter ROM Version		0	-
1-050	Service Telephone Number	Enter data with SP3-72 at installation if required.	0	-
1-051	Last Service Call Code		0	-
1-060	Power On Time		0	-
* 1-070-1	1 - 3 Prints	Copies-per-original counters	0	-
* 1-070-2	4 - 5 Prints		0	-
1-070-3	6 - 10 Prints		0	-
1-070-4	11 - 20 Prints		0	-
1-070-5	21 - 30 Prints		0	-
1-070-6	31 - 50 Prints		0	-
1-070-7	51 - 70 Prints		0	-
1-070-8	71 - 100 Prints		0	-
1-070-9	101 - 200 Prints		0	-
1-070-10	201 - 500 Prints		0	-
1-070-11	501 - 1000 Prints		0	-
1-070-12	Over 1000 Prints		0	-
1-080	Misfeed Setting Counter	Number of times the user changed the 'Misfeed' or 'Multifeed' settings for paper feed or separation pressures	0	-
1-081	Multifeed Setting Count		0	-
1-082	Start Error Message Cnt.	Number of times an error message appeared when the Start key was pressed	0	-
** 1-090	Move Counter Back Plate	This item is not used.	0	-
** 1-091	Adjust Counter PDTable	This item is not used.	0	-
* 1-100	OpenCounter Cover On Move	Counts how often the sorter cover is open and shut	0	-
1-102-1	Jam DF Feed-in Error	Counters for various types of jams	0	-
1-102-2	Jam DF Feedout Error		0	-
1-104-1	Jam Master Set Error		0	-

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools	
1-104-2	Jam Master Clamp Error		0	-	
1-104-3	Jam Master Cut Error		0	-	
1-106-1	Jam Master Eject ON Chk		0	-	
1-106-2	Jam Pressure Plate Error		0	-	
1-106-3	Jam Master Eject OFF Chk		0	-	
1-107-1	Jam Regist ON Check		0	-	
1-107-2	Jam Feed Timing ON Check		0	-	
1-107-3	Jam Feed Timing OFF Chk		0	-	
1-107-4	Jam Paper Upper Wrapping		0	-	
1-107-5	Jam Paper Lower Wrapping		0	-	
1-107-6	Jam Paper Exit OFF Check		0	-	
1-202-1	Jam% DF Feed-in Error		Jam ratios for various types of jam	0	-
1-202-2	Jam% DF Feed-out Error			0	-
1-204-1	Jam% Master Set Error			0	-
1-204-2	Jam% Master Clamp Error			0	-
1-204-3	Jam% Master Cut Error	0		-	
1-206-1	Jam% Master Eject ON Chk		0	-	
1-206-2	Jam% Press Plate Error		0	-	
1-206-3	Jam% M Eject OFF Check		0	-	
1-207-1	Jam% Regist ON Check		0	-	
1-207-2	Jam% Feed Timing ON Chk		0	-	
1-207-3	Jam% Feed Timing OFF Chk		0	-	
1-207-4	Jam% Paper Upper Wrap		0	-	
1-207-5	Jam% Paper Lower Wrap		0	-	
1-207-6	Jam% Paper Exit OFF Chk		0	-	
1-300-1	Jam P0 Standard	Feed-in jams and registration roller jams for various paper sizes and	0	-	
1-300-2	Jam P0 Thick		0	-	
* 1-300-3	Jam P0 Others		<ul style="list-style-type: none"> paper types '-L': Lengthwise 	0	-
* 1-301-1	Jam P1 Standard	Registration roller jams (when the paper feed timing sensor stays on) for various paper sizes and paper types	0	-	
* 1-301-2	Jam P1 Thick		0	-	
* 1-301-3	Jam P1 Others		<ul style="list-style-type: none"> '-L': Lengthwise 	0	-
* 1-302-1	Jam P2 A3/B4 Standard	Upper wrap, lower wrap, and feed-out jams for various paper sizes and paper types	0	-	
* 1-302-2	Jam P2 A3/B4 Thick		0	-	
* 1-302-3	Jam P2 A3/B4 Others		0	-	
* 1-303-1	P Count A3/B4 Standard	<ul style="list-style-type: none"> '-L': Lengthwise 	0	-	
* 1-303-2	P Count A3/B4 Thick		0	-	
* 1-303-3	P Count A3/B4 Others		0	-	
1-304-1	M Set Error Low Temp		0	-	
1-304-2	M Set Error Normal Temp		0	-	

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools
1-304-3	M Set Error High Temp		0	-
1-305-1	M Clamp Error Low Temp		0	-
1-305-2	M Clamp Error Nor. Temp		0	-
1-305-3	M Clamp Error High Temp		0	-
1-306-1	M Cut Error Low Temp	Master error counters for different temperature conditions (temperature detected by the thermistor in the drum)	0	-
1-306-2	M Cut Error Normal Temp		0	-
1-306-3	M Cut Error High Temp		0	-
1-307-1	M Eject ON Jam Low Temp		0	-
1-307-2	M Eject ON Jam Nor Temp		0	-
1-307-3	M Eject ON Jam High Temp		0	-
1-308-1	Press Plate Error Low		0	-
1-308-2	Press Plate Error Normal		0	-
1-308-3	Press Plate Error High		0	-
1-309-1	M Eject OFF Jam Low Temp		0	-
1-309-2	M Eject OFF Jam Nor Temp		0	-
1-309-3	M Eject OFF Jam High Tem		0	-
1-310-1	Tray1 MisFeed Counter A3	Feed-in jams and tray registration roller jams for various paper sizes for the	0	-
1-310-2	Tray1 MisFeed Cnt. A4B5V		0	-
1-310-3	Tray1 MisFeed Cnt. Other		0	-
** 1-311-1	Tray2 MisFeed Counter A3	These items are not used.	0	-
** 1-311-2	Tray2 MisFeed Cnt. A4B5V		0	-
** 1-311-3	Tray2 MisFeed Cnt. Other		0	-
** 1-312-1	Trans.MisFeed Counter A3		0	-
** 1-312-2	Trans.MisFeed Cnt. A4B5V		0	-
** 1-312-3	Trans.MisFeed Cnt. Other		0	-
** 1-313	Jam Counter Tandem		0	-
** 1-314-1	Jam Cnt. RegistFeed A3		0	-
** 1-314-2	Jam Cnt.RegistFeed A4B5V		0	-
** 1-314-3	Jam Cnt.RegistFeed Other		0	-
** 1-315-1	Tray1 Jam Cnt.Ent. A3		0	-
** 1-315-2	Tray1 Jam Cnt.Ent. A4B5V		0	-
** 1-315-3	Tray1 Jam Cnt.Ent. Other		0	-
** 1-316-1	Tray2 Jam Cnt.Ent. A3		0	-
** 1-316-2	Tray2 Jam Cnt.Ent. A4B5V		0	-
** 1-316-3	Tray2 Jam Cnt.Ent. Other		0	-
** 1-317-1	Tray1 Jam Cnt.MidTrns.A3		0	-
** 1-317-2	Tray1JamCntMidTrnsA4B5V		0	-
** 1-317-3	Tray1JamCnt.MidTrnsOther		0	-
** 1-318-1	Tray2 Jam Cnt.MidTrns.A3		0	-
** 1-318-2	Tray2JamCnt.MidTrnsA4B5V	0	-	

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	User Tools
** 1-318-3	Tray2JamCnt.MidTrnsOther		0	-
* 1-320-1	1Master Print Cnt. 1-20	Master counters for sorter mode. For details, see the sorter service manual.	0	-
* 1-320-2	1Master Print Cnt. 21-40		0	-
* 1-320-3	1Master Print Cnt. 41-50		0	-
* 1-320-4	1Master Print Cnt. 51-80		0	-
* 1-320-5	1Master Print Cnt.81-		0	-
* 1-321-1	Master Cnt.on Sort 1-5	Job counters for sorter mode. For details, see the sorter service manual.	0	-
* 1-321-2	Master Cnt.on Sort 6-10		0	-
* 1-321-3	Master Cnt.on Sort 11-20		0	-
* 1-321-4	Master Cnt.on Sort 21-30		0	-
* 1-321-5	Master Cnt.on Sort 31-50		0	-
* 1-321-6	Master Cnt.on Sort 51-		0	-
* 1-322-1	Cnt.SortPrint over A4	Print counters for sorter mode. For details, see the sorter service manual.	0	-
* 1-322-2	Cnt.SortPrint under A4		0	-
* 1-322-3	Cnt.SortPrint Table		0	-
* 1-322-4	Cnt.SortPrint Tray1		0	-
* 1-322-5	Cnt.SortPrint Tray2		0	-
* 1-323-1	Jam Cnt. MidTrans.	Counters for various location jams. For details, see the sorter service manual.	0	-
* 1-323-2	Jam Cnt. HoriTrans.		0	-
* 1-323-3	Jam Cnt.EndTip VertTrans.		0	-
* 1-323-4	Jam Cnt.EndTip Rest.Low		0	-
* 1-323-5	Jam Cnt.EndTip Rest.Upper		0	-
** 1-400-1	Chk.Sales2-002SetKey Counter	For Japanese version only.	-	-
** 1-400-2	Chk.Sales2-003SetKeyCard		-	-
** 1-400-3	Chk.Sales2-006PCCont.Set		-	-
** 1-400-4	Chk.Sales2-007PDTable		-	-
** 1-400-5	Chk.Sales2-016SwapStart Key		-	-
** 1-400-6	Chk.Sales2-050Sharpen ImageMode		-	-
** 1-400-7	Chk.Sales2-370InkSupply PrePrt		-	-
** 1-400-8	Chk.Sales2-380JapanDisp. Type		-	-
** 1-400-9	Chk.Sales2-420Feed FrictionPadType		-	-

2. Basic Settings

SP No.	Display	Function	Default	Setting	User Tools
2-002	Set Key Counter	Also see 2-291.	No	No/Yes	-
2-003	Set Key Card	Japan only	No	No/Yes	-
2-004	Sorter Select	0:None 1:DS (Japan only) 2:JS (C592)	0	0 to 2	-
** 2-005	Disable Paper Bank	Not used.	No	Yes/No	-
2-006	PC Controller Settings	Do not adjust.	AUTO	AUTO / 10PS	1-9
** 2-007	Disable Paper Exit Tray	Not used.	No	Yes/No	-
2-010	Sizes in Metric or Inch		-	0:JPN 1:mm 2:Inch	1-6
2-011	Select Language Type	See Note 1.	-	0 to 6	-
2-015	Machine Destination	See Note 2.	0	0: Other 1: Japan	-
2-016	Swap Start Key	See Note 3.	No	Yes/No	-
2-020-1	Default Original Mode	Defaults for various user settings See Notes 4 to 13.	0	0 to 3	3-3
2-020-2	Default Tint Mode		OFF	ON/OFF	3-8
2-020-3	Default Paper Type		1	0 to 4	3-1
2-020-4	Default Master Density		1	0 to 3	3-2
2-020-5	Default Print Speed		3	1 to 5	-
2-020-6	Default Auto Cycle Mode		ON	ON/OFF	4-1
2-020-7	Def Image Position Tp/Btm		0	-15.0 to 15.0	-
2-020-8	Def Image Position Lt/Rt		0	-10.0 to 10.0	-
2-020-9	Default Photo/Lightness		1	0 to 2	3-6
2-020-10	Default Photo/Screen		0	0 to 4	3-7
2-020-11	Def On-line Paper Size		14	0 to 14	3-10
2-020-12	Default Make-up Pattern1		0	0 to 43	-
2-020-13	Default Make-up Pattern2		0	0 to 43	-
2-020-14	Default Make-up Pattern3		0	0 to 43	-
2-020-15	Default Make-up Pattern4		0	0 to 43	-
2-020-16	Default Ratio		4	0 to 8	3-11
2-020-17	Default Eco Ink		1	0 to 3	-
2-030	Panel Beeper	See Note 14.	1	0 to 2	2-5
2-031	Background Correction	See Note 15.	No	No/Yes	4-6
2-032-1	TH Egy Temp Ctl - Black	See Note 16.	ON	ON/OFF	-
2-032-2	TH Egy Temp Ctl - Color		OFF	ON/OFF	
2-040	Ink Detection	Enables/disables various sensors for test purposes.	ON	ON/OFF	-
2-041	Paper Length Detection		ON	ON/OFF	-
2-042-1	Paper Width Detection		ON	ON/OFF	4-3
2-042-2	Paper Size Indicators		OFF	ON/OFF	-

SERVICE PROGRAM MODE

SP No.	Display	Function	Default	Setting	User Tools
2-043	Drum Master Detection		ON	ON/OFF	-
2-044	Platen Cover Set Detect		ON	ON/OFF	-
2-045	ADF Close Detection		ON	ON/OFF	-
2-046-1	Platen Orig. Size Detect		ON	ON/OFF	4-5
2-046-2	ADF Orig. Size Detect	See Note 17.	ON	ON/OFF	4-4
2-050	Sharpen Image Mode	See Note 18.	OFF	ON/OFF	4-27
2-060	Long Paper Mode	See Note 19.	OFF	ON/OFF	-
2-070	Auto Combine Originals	See Note 20.	NO	YES/NO	4-8
2-080	A3 Master 2 Count Up	See Note 21.	0	0 to 2	-
2-090	APS A5 Size Detection	See Note 22.	NO	YES/NO	-
2-100	User Code Mode		OFF	ON/OFF	1-4
2-110	Auto Quality Start		ON	ON/OFF	4-13
2-120	Exit Wing Position	See Note 23.	0	0 to 2	4-15
2-125	Drum Idling	See Note 24.	Fast	Fast/ Slow	-
** 2-140	Auto Tray Switching	Not used.	Yes	Yes/No	4-23
2-150	Auto Image Rotation	See Note 25.	Yes	Yes/No	4-20
2-170	Auto Master Save Select	OFF: A3 master always used regardless of original size.	AUTO	AUTO / OFF	4-21
2-210	Ink Master Left	Also for master roll. See Note 26.	OFF	ON/OFF	4-18
2-220	Key Card Setting	Japan only	1	0 to 3	1-5
2-230	Copy Count Display		Down	Up / Down	2-3
2-240	Class Display Select	Japan only	School	School/ Normal	
2-241	Class Entry Per Orig.		Normal	By Orig / Normal	4-2
2-250	Combine Orig. Sep. Line	See Note 27.	0	0 to 4	4-9
2-260	Auto Combine Mode Reset		No	Yes/No	4-10
2-270	Print Restart in Class	See Note 28.	2	1 to 2	4-16
2-271	Job Sep. At Class Mode		Yes	Yes/No	4-17
** 2-280	Paper Tray Priority	Not used.	0	0 to 2	4-22
** 2-281	Tray Mode Select	Not used.	0	0 to 1	4-24
** 2-282	Paper Tray Auto Select	Not used.	ON	ON/OFF	4-26
2-290	Key Operator Code		OFF	ON/OFF	6-6
2-291	Restricted Access	See Note 31.	OFF	ON/OFF	6-8
2-300	Stamp Type	See Note 32.	0	0 to 6	5-1
2-301	Default Stamp Size	See Note 33.	0	0 to 3	5-2
2-302	Default Stamp Density	See Note 34.	0	0 to 2	5-3
2-303	Default Stamp Position	See Note 35.	0	0 to 9	5-4
2-304	User Stamp Size	See Note 36.	0	0 to 3	5-5
2-305	User Stamp Density		0	0 to 2	5-6

SP No.	Display	Function	Default	Setting	User Tools
2-306	User Stamp Position		0	0 to 9	5-7
2-307	Date Stamp Type		m.d.'y	d.m.'y / m.d.'y	5-9
2-308	Date Stamp Position	See Note 37.	0	0 to 3	5-10
2-309	Page Numbering Type	See Note 38.	0	0 to 2	5-12
2-310	Default Page Position	See Note 39.	0	0 to 3	5-13
2-320	Skip Feed Mode Display		Yes	Yes/No	4-11
2-370	Ink Supply w/Trial Print	ON: Ink is supplied while a trial print is made after making a new master.	OFF	ON/OFF	-
2-380	Japanese Display Type	Do not use.	0	0 to 2	-
2-390	A3/DLT Drum Selection	See Note 40.	-	DLT/A3/ B4	-
2-400	User1 Paper Type	See Note 41.	0	0 to 5	4-19
2-401	User2 Paper Type		0	0 to 5	4-19
2-410	Auto On-line Mode	YES: The on-line mode is automatically activated when data is sent from a PC (needs the optional PC controller)	No	Yes/No	-
2-420	Feed Friction Pad Type	Do not use.	Normal	Normal / Custom	-
2-422	Ink Auxiliary Supply	See Note 42.	0	0 to 2	-
* 2-660-1	Set Jogger Mode Normal	For details, refer to the sorter service manual.	1	0 to 1	4-25
* 2-660-2	Set Jogger Mode Class		0	0 to 1	4-25
* 2-661	JS Sorter Speed Setting		OFF	ON/OFF	-
* 2-662	JS Sorter PaperVolmeLimit		No	Yes/No	-
* 2-663	JS Sorter Set Unit		Upper & lower	Upper & lower Upper Lower	-
* 2-664	Save Ink in Sorter Modes	Yes: The Ink Save mode is activated when a sorter mode is selected	OFF	ON/OFF	-

Notes**1: 2-011 (Display language)**

0: Japanese, 1: English, 2: German, 3: French, 4: Italian, 5: Spanish, 6: Dutch

2: 2-015 (Machine Destination)

Always set this mode as 'Other.' If 'Japan' is selected, User Tools 1-5 that are not used for other versions are displayed.

3: 2-016 (Swap Start Key)

Enables swapping *the Start (master making) key function* and *the Print key function* depending on the end user's preference. ('No' is the default setting.)

4: 2-020-1 (Default original mode)

0: Letter, 1: Letter/Photo, 2: Photo, 3: Pencil

5: 2-020-3 (Default paper type)

0: Special, 1: Standard, 2: Thick, 3: User 1, 4: User 2

6: 2-020-4 (Default master density)

0: Pale, 1: Normal, 2: Fairly dark, 3: Dark

7: 2-020-5 (Default print speed, cpm)

1: 60, 2: 75, 3: 90, 4: 105, 5: 120

8: 2-020-9 (Default Photo/Lightness)

This is the default brightness in photo or letter/photo mode.

0: Dark, 1: Normal, 2: Light

9: 2-020-10 (Default Photo/Screen)

This is the default screen type for photo mode.

0: Standard, 1: Coarse 1, 2: Coarse 2, 3: Coarse 3, 4: Coarse 4 (coarsest)

10: 2-020-11 (Default On Line paper size)

This is the default paper size when the On Line key is pressed,

0: A3, 1: B4, 2: A4, 3: A4 lengthwise, 4: B5, 5: B5 lengthwise, 6: A5,
7: A5 lengthwise, 8: A6, 9: A6 lengthwise, 10 to 12: Not used, 13: Free, 14: Auto

Free – The master size is determined by the paper size sent from the PC.

Auto – The master size is determined by the paper size on the paper feed table. If the data from the PC is for a larger paper size, the excess data is lost.

Other settings: For example, if the setting is 0 (A3), the machine always makes an A3 master.

11: 2-020-12 to -15 (Default make-up patterns 1 to 4)

0 to 39: Preset patterns, from 1 to 40

40 to 43: User-created patterns A to D

12: 2-020-16 (Default Ratio)

U.S. version

0: 65%, 1: 74%, 2: 77%, 3: 93%, 4: 100%, 5: 121%, 6: 129%, 7: 155% 8: Auto

Other versions

0: 71%, 1: 82%, 2: 87%, 3: 93%, 4: 100%, 5: 115%, 6: 122%, 7: 141% 8: Auto

Selects a magnification ratio at power on or when the Modes Clear key is pressed. The same function has also been assigned to User Tool 3-11.

13: SP2-20-17 (Default Eco Ink)

By selecting ON in this mode, the Economy mode, which conserves ink during printing, can be set as the default at power on.

14: 2-030 (Panel beeper)

0: Disabled, 1: Enabled (except for when keys pressed), 2: Enabled fully

15: 2-031 (Background correction)

This can be used in letter/photo, photo, and tint modes to prevent the background of an original from appearing on copies. See Detailed Section Descriptions – Image Processing for more details.

16: 2-032 (Thermal head energy control with temperature)

If this is switched on, the energy supplied to the thermal head will depend on the temperature measured by the thermistor in the drum.

	Less than 18 °C	18 – 28 °C	More than 28 °C
Standard	SP 3-020-1 value (Default: -7%)	SP 3-020-1 – 5% (Default: -12%)	SP 3-020-1 – 10% (Default: -17%)
Economy	SP 3-020-2 value (Default: -25%)		

17: 2-046-2 (ADF original size detection)

Disabling ADF original size detection allows the ADF to scan originals within the following range.

Width: 105 to 297 mm

Length: 128 to 864 mm

18: 2-050 (Sharpen Image Mode)

When this SP mode is on, fine details become more apparent in letter mode. But the edges of paper pasted onto the original might appear on the print.

19: 2-060 (Long paper mode)

This disables trailing edge detection to allow long printer paper to be fed. This is not within specifications, so the machine's performance cannot be guaranteed using this mode.

20: 2-070 (Auto Combine Original mode)

This SP mode determines the use of the Combine key.

0: Normal – The Combine key accesses the Combine feature, in which two originals can be combined onto one copy

1: Automatic – The Combine key accesses the Auto Combine feature, in which the same original is printed twice or four times on the copy

This SP mode is only referred to when using the exposure glass. From the ADF, Auto Combine is always used if more than one original is placed.

The default is Normal.

21: 2-080 (Double count-up for A3 masters)

0: The counters go up by 1 only.

1: The master counter goes up by 2.

2: The master and print counters both go up by 2.

22: 2-090 (APS A5 Size Detection)

This determines how the machine behaves if the APS sensors cannot detect the original because it is too small

0: No original detected, 1: A5 assumed

Default: 0

23: 2-120 (Exit Wing Position)

This determines the position of the wings on the paper delivery table.

0: Auto (determined by the setting of SP6-100 for the currently-used paper type)

1: Always Up (regardless of SP6-100), 2: Always Down (regardless of SP6-100)

24: 2-125 (Drum Idling)

This mode has two options: “Fast” and “Slow”. Fast is the default setting and is used with the new 16-kgf printing pressure setting. (See Pearl RTB No. 3 for more details about the new printing pressure setting.)

Fast mode skips the 30-rpm drum rotation speed at the beginning of printing. Consequently, the drum rotation speed increases as shown in the table below. Slow mode does not skip the 30-rpm drum rotation speed. Note that there are two cases depending on the temperature inside of the drum, detected by the thermistor. With the ‘Slow’ setting, paper wrapping jams become more likely unless the printing pressure is reduced to 14 kgf.

SP2-125 Setting	Drum Temperature	Trial Print	1st Print	2nd Print	3rd Print	4th Print	5th Print	6th Print	7th Print
Slow	Below 15 °C	16	16	30	60	75	90	105	120
	15 °C or above	16	30	60	75	90	105	120	120
Fast	Below 15 °C	16	16	60	75	90	105	120	120
	15 °C or above	16	60	75	90	105	120	120	120

* These figures apply to the highest printing speed (120-rpm).

25: 2-150 (Auto Image Rotation)

If enabled, this feature rotates the scanned image if the original and printing paper are of the same size but different orientations.

0: Disabled, 1: Enabled

Default: Enabled

26: 2-210 (Ink Near-end Detection)

This SP mode enables and disables the display for ink and master roll near-end detection.

The machine determines how much of the master roll is remaining by subtracting the length of each master that is made.

In addition, it determines how much ink is left by counting the number of ink pump strokes that have been made.

The default is 0 (disabled). In this condition, the master and ink consumption is still monitored, but if a near-end condition occurs, it will not be displayed.

If this SP mode is changed to 1 (enabled), near-end will be displayed, but only for a few seconds when the machine has just been switched on.

27: 2-250 (Separation lines for Combine Original mode)

This can only be used with Memory Combine mode, using the optional memory board.

This determines the type of separation line printed on copies between the images of the different originals.

0: None (default), 1: Solid, 2: Broken line type A, 3: Broken line type B, 4: Crop marks

28: 2-270 (Print Restart in Class)

This determines how the machine behaves if the Job Separator feature is not used.

1: Auto Start – After printing for one class has been finished, there is a pause of a few seconds, then printing for the next class begins automatically. The short break allows the user to take the stack of prints off the delivery table.

2: Disabled (Default) – After printing for one class has been finished, the machine stops. The user must press Print to start printing for the next class.

31: 2-291 (Restricted Access)

When the key counter is installed, the technician enables the key counter with SP 2-002. However, the user can override this setting with SP 2-291 (which is also user tool 6-8).

OFF: Copies can be made even if the user has no key counter, regardless of SP 2-002.

ON: The user must have a key counter, if SP2-002 has been switched on.

The default is OFF, so to use the key counter, the user must switch 2-291 on using the equivalent user tool (6-8).

32: 2-300 (Stamp type)

This determines what the Stamping function (Stamp key) puts on the printouts.

33: 2-301 (Default stamp size)

This determines the size of the stamp.

0: Normal (about 32 x 64 mm), 1: x 2, 2: x 4, 3: x 8

34: 2-302 (Default Stamp Density)

0: Solid fill (default), 1: Fine pattern, 2: Coarse pattern

35: 2-303 (Default Stamp Position)

0: Upper left, 1: Upper middle, 2: Upper right, 3: Center left, 4: Center,

5: Center right, 6: Lower left, 7: Lower middle, 8: Lower right,

9: Everywhere (repeated)

User tool 5-4 (SP 3-120 to 128) can be used to adjust the co-ordinates of types 0 to 8.

36: 2-304 to 2-306 (User Stamp Size, Density, and Position)

These settings are the same as SP 2-301 to 2-303, except that they are for the user stamp. User stamps are stored using user tool 5-8.

User tool 5-7 (SP 3-130 to 138) can be used to adjust the co-ordinates of types 0 to 8.

37: 2-308 (Date Stamp Position)

0: Upper left (horizontal), 1: Lower right (horizontal), 2: Lower left (vertical),
3: Upper right (vertical)

38: 2-309 (Page Numbering Type)

0: P1, P2, P3, . . . 1: 1/5, 2/5, 3/5, . . . 2: - 1 -, - 2 -, - 3 -, . . .

39: 2-310 (Default Page Number Stamping Position)

0: Upper right (horizontal), 1: Upper left (vertical), 2: Bottom middle (horizontal),
3: Center right (vertical)

Settings 0 and 1 determine the default for the 'P1, P2' and '1/5, 2/5' types of page numbering.

Settings 2 and 3 determine the default for the '- 1 -, - 2 -' types of page numbering.

40: 2-390 (Drum Size – A3 or DLT)

This setting changes the master making area. It also affects the available range for the default image position shift (top/bottom, SP2-020-7).

A3: -15 mm to + 15 mm

DLT: -10 mm to + 10 mm

41: 2-400, 401 (Paper types for User 1 and User 2)

The user can customize two paper types (User 1 and User 2) in addition to the three usual paper types (Normal, Thick, Special).

These SP modes give the machine a rough idea of what type of paper the user is using as types User 1 and User 2.

0: This paper type is not being used at present

1: Standard, no feed (Standard paper type, non feed likely)

2: Standard, double feed (Standard paper type, double feed likely)

3: Thick, no feed (Thick paper type, non feed likely)

4: Thick, double feed (Thick paper type, double feed likely)

5: Thick, medium (Thick paper type, with intermediate chances of double and non-feed)

42: 2-422 (Ink Auxiliary Supply)

This mode determines when ink is detected and supplied. There are three possible settings.

- '0: After': Ink detection and supply are done when a print job finishes.
- '1: Before': They are done when the Print Start key is pressed (and before starting printing).
- '2: No': Ink is not added except during normal printing.

Note that if the machine detects a low ink condition during printing, ink is supplied regardless of this setting.

To minimize the wait time for drum idling, ink supply prior to starting printing has been eliminated by setting this mode to '0: After' as the default. With older firmware, when the Print Start key is pressed, the machine carries out the ink detection and (if low ink is detected) starts to supply ink before starting printing. (This ink detection is likely only when an operator cancels the Auto-cycle mode, which is selected by default. In the Auto-cycle mode, the machine enters the printing process without detecting the ink after making a master.)

3. User Custom Settings

SP No.	Display	Function	Default	Setting	User Tools
3-001	Minimum Print Quantity		0	0 to 9999%	2-1
3-002	Maximum Print Quantity		9999	0 to 9999%	2-2
3-010-1	Magnification (A3 to A4)	Allows the user to change the default reproduction ratios	71	50 to 200%	3-4
3-010-2	Magnification (B4 to A4)		82	50 to 200%	3-4
3-010-3	Magnification (A3 to B4)		87	50 to 200%	3-4
3-010-4	Magnification (Margins)		93	50 to 200%	3-4
3-010-5	Magnification (Standard)		100	50 to 200%	3-4
3-010-6	Magnification (B4 to A3)		115	50 to 200%	3-4
3-010-7	Magnification (A4 to B4)		122	50 to 200%	3-4
3-010-8	Magnification (A4 to A3)		141	50 to 200%	3-4
3-020-1	T Head Energy - Standard		Thermal head energy in standard and economy modes, as percentage of full power. Also see SP 2-032.	-7	0 to -99%
3-020-2	T Head Energy - Economy	-25		0 to -99%	-
3-030	Auto Reset Time	Determines how long it takes for the machine to return to the defaults.	0	0, 1 to 5	1-1
3-051	Number of Skip Feeds		2	2-9	4-11
3-060-1	MarginErase A3 MainScan	Determines the edge erase margins. For example, for A3 main scan, the width of the original is 297 mm, and the erase margin is set at 293. This means that only the central 293 mm will be scanned.	293	50-297	3-9
3-060-2	MarginErase A3 SubScan		420	50-420	3-9
3-060-3	MarginErase B4/LG-L Main		253	50-257	3-9
3-060-4	MarginErase B4/LG-L Sub		360	50-364	3-9
3-060-5	MarginErase A4/LT-L Main		206	50-216	3-9
3-060-6	MarginErase A4/LT-L Sub		293	50-297	3-9
3-060-7	MarginErase A4 MainScan		293	50-297	3-9

SP No.	Display	Function	Default	Setting	User Tools
3-060-8	MarginErase A4 SubScan	Determines the edge erase margins. For example, for A3 main scan, the width of the original is 297 mm, and the erase margin is set at 293. This means that only the central 293 mm will be scanned.	206	50-216	3-9
3-060-9	MarginErase B5-L Main		178	50-182	3-9
3-060-10	MarginErase B5-L Sub		253	50-257	3-9
3-060-11	MarginErase B5 MainScan		253	50-257	3-9
3-060-12	MarginErase B5 SubScan		178	50-182	3-9
3-060-13	MarginErase A5-L Main		144	50-148	3-9
3-060-14	MarginErase A5-L Sub		206	50-210	3-9
3-060-15	MarginErase A5 MainScan		206	50-210	3-9
3-060-16	MarginErase A5 SubScan		144	50-148	3-9
3-060-17	MarginErase Card-L Main		96	50-105	3-9
3-060-18	MarginErase Card-L Sub		144	50-148	3-9
3-060-19	MarginErase Card Main		144	50-148	3-9
3-060-20	MarginErase Card Sub		96	50-105	3-9
3-060-21	MarginErase Custom Main		This allows the user to input a custom size. SP3-060-21 and 22 specify edge erase margins for this original size.	66	50-300
3-060-22	MarginErase Custom Sub	161		50-432	3-9
3-061-1	Set Custom Size - Main		70	50-300	3-9
3-061-2	Set Custom Size - Sub		165	50-432	3-9

SP No.	Display	Function	Default	Setting	User Tools
3-070-1	Serial Number	Use these to input the serial numbers Serial number locations: Main body: Open front cover, on the left of the machine (master eject box area) Bank: Rear cover Paper delivery table: On the base Do these at installation if required. The data is used in the data printout mode in the system test. (SP3-70 and -72 can be seen in SP1-41 and -50.)	0	-	-
** 3-070-2	Bank Serial Number		0	-	-
** 3-070-3	PDTable Serial Number		0	-	-
3-071	Installation Date		0	-	-
3-072	Service Telephone Number		0	-	-
3-073	Clock		-	-	1-8
3-074	First Power On Date		-	-	-
3-090	Manual Idling Rotation	This determines the number of drum idling rotations when the user has selected Quality Start with the Quality Start key.	45	0-90	4-12
3-091-1	Auto Idling 0-4h	These determine the number of drum idling rotations in Auto Quality Start mode, depending on the length of time the machine has been unused.	0	0-90	4-14
3-091-2	Auto Idling 4-24h		0	0-90	4-14
3-091-3	Auto Idling 24-72h		15	0-90	4-14
3-091-4	Auto Idling 72h-Over		15	0-90	4-14
3-092-1	Autoldling 0-4h Low Temp	3-091: 18 to 28 °C 3-092: Below 18 °C 3-093: Above 28 °C	0	0-90	4-14
3-092-2	Auto Idling 4-24h Low		0	0-90	4-14
3-092-3	Auto Idling 24-72h Low		45	0-90	4-14
3-092-4	Auto Idling 72h-Over Low		45	0-90	4-14
3-093-1	Autoldling 0-4h HighTemp		0	0-90	4-14
3-093-2	Auto Idling 4-24h High		0	0-90	4-14
3-093-3	Auto Idling 24-72h High		0	0-90	4-14
3-093-4	Autoldling 72h-Over High		15	0-90	4-14

SP No.	Display	Function	Default	Setting	User Tools
3-100 (-1 to -12)	Register Class 1-1 to 1-12	The number of students in each class. No. of grades: Up to 9 No. of classes per grade: Up to 12 No. of students per class: Program with these SP modes Defaults for each grade Classes 1 to 4: 30 Classes 5 to 12: 0	0	0-9999	3-5
3-101 (-1 to -12)	Register Class 2-1 to 2-12		0	0-9999	3-5
3-102 (-1 to -12)	Register Class 3-1 to 3-12		0	0-9999	3-5
3-103 (-1 to -12)	Register Class 4-1 to 4-12		0	0-9999	3-5
3-104 (-1 to -12)	Register Class 5-1 to 5-12		0	0-9999	3-5
3-105 (-1 to -12)	Register Class 6-1 to 6-12		0	0-9999	3-5
3-106 (-1 to -12)	Register Class 7-1 to 7-12		0	0-9999	3-5
3-107 (-1 to -12)	Register Class 8-1 to 8-12		0	0-9999	3-5
3-108 (-1 to -12)	Register Class 9-1 to 9-12		0	0-9999	3-5
3-110	Register User Code		These are for administering the user codes and the key operator code.	-	-
3-111	Change User Code	-		-	6-4
3-112	Register Key Operator	0000		0000 to 9999	6-7
3-113	Clear User Code	-		-	6-5
3-120-1	Stamp Top Rt - Side	These specify the coordinates of the eight possible positions for the preset stamp.	24	8 to 144	5-4
3-120-2	Stamp Top Rt - UpDown		24	8 to 104	5-4
3-121-1	Stamp Top Mdl - Side	These specify the coordinates of the eight possible positions for the preset stamp.	0	-72 to 72	5-4
3-121-2	Stamp Top Mdl - UpDown		24	8 to 104	5-4
3-122-1	Stamp Top Lft - Side		24	8 to 144	5-4
3-122-2	Stamp Top Lft - UpDown		24	8 to 104	5-4
3-123-1	Stamp Btm Rt - Side		24	8 to 144	5-4
3-123-2	Stamp Btm Rt - UpDown		24	8 to 104	5-4
3-124-1	Stamp Btm Mdl - Side		0	-72 to 72	5-4
3-124-2	Stamp Btm Mdl - UpDown		24	8 to 104	5-4
3-125-1	Stamp Btm Lft - Side		24	8 to 144	5-4
3-125-2	Stamp Btm Lft - UpDown		24	8 to 104	5-4
3-126-1	Stamp Rt Mdl - Side		24	8 to 144	5-4

SP No.	Display	Function	Default	Setting	User Tools
3-126-2	Stamp Rt Mdl - UpDown	These specify the coordinates of the eight possible positions for the preset stamp.	0	-52 to 52	5-4
3-127-1	Stamp Center - Side		0	-72 to 72	5-4
3-127-2	Stamp Center - UpDown		0	-52 to 52	5-4
3-128-1	Stamp Lft Mdl - Side		24	8 to 144	5-4
3-128-2	Stamp Lft Mdl - UpDown		0	-52 to 52	5-4
3-130-1	UserStamp Top Rt - Side	These specify the coordinates of the eight possible positions for the user stamp.	24	8 to 144	5-7
3-130-2	UserStamp Top Rt - UpDn		24	8 to 104	5-7
3-131-1	U Stamp Top Mdl - Side		0	-72 to 72	5-7
3-131-2	U Stamp Top Mdl - UpDown		24	8 to 104	5-7
3-132-1	U Stamp Top Lft - Side		24	8 to 144	5-7
3-132-2	U Stamp Top Lft - UpDown		24	8 to 104	5-7
3-133-1	User Stamp Btm Rt - Side		24	8 to 144	5-7
3-133-2	User Stamp Btm Rt - UpDn		24	8 to 104	5-7
3-134-1	U Stamp Btm Mdl - Side		0	-72 to 72	5-7
3-134-2	U Stamp Btm Mdl - UpDown		24	8 to 104	5-7
3-135-1	U Stamp Btm Lft - Side		24	8 to 144	5-7
3-135-2	U Stamp Btm Lft - UpDown		24	8 to 104	5-7
3-136-1	User Stamp Rt Mdl - Side	These specify the coordinates of the eight possible positions for the preset stamp.	24	8 to 144	5-7
3-136-2	User Stamp Rt Mdl - UpDn		0	-52 to 52	5-7
3-137-1	User Stamp Center - Side		0	-72 to 72	5-7
3-137-2	User Stamp Center - UpDn		0	-52 to 52	5-7
3-138-1	U Stamp Lft Mdl - Side		24	8 to 144	5-7
3-138-2	U Stamp Lft Mdl - UpDown		0	-52 to 52	5-7

SP No.	Display	Function	Default	Setting	User Tools
3-140-1	Date Top Lft - Side	These specify the co-ordinates of the four possible positions for the date stamp.	20	8-40	5-11
3-140-2	Date Top Lft - UpDown		8	8-40	5-11
3-141-1	Date Btm Rt - Side		20	8-40	5-11
3-141-2	Date Btm Rt - UpDown		8	8-40	5-11
3-142-1	Date Btm Lft - Side		12	8-40	5-11
3-142-2	Date Btm Lft - UpDown		20	8-40	5-11
3-143-1	Date Top Rt - Side		8	8-40	5-11
3-143-2	Date Top Rt - UpDown		20	8-40	5-11
3-150-1	Page Top Rt - Side	These specify the co-ordinates of the four possible positions for the page number stamp.	12	8-40	5-14
3-150-2	Page Top Rt - UpDown		8	8-40	5-14
3-151-1	Page Top Lft - Side		12	8-40	5-14
3-151-2	Page Top Lft - UpDown		12	8-40	5-14
3-152-1	Page Btm Mdl - Side		0	0	5-14
3-152-2	Page Btm Mdl - UpDown		8	8-40	5-14
3-153-1	Page Mdl Rt - Side		8	8-40	5-14
3-153-2	Page Mdl Rt - UpDown		0	0	5-14
3-161	Num of Master Eject Trial	This specifies the number of master eject attempts before an error is indicated.	2	1 to 3	-
* 3-400	Low Power Setting		3min	OFF/1 to 120 min	1-11
3-540	PDTable Capacity Limit	Capacity of the delivery table	1000	0 to 1000 (0: No limit)	2-7
** 3-541-1	PDTablePos. A3-L S-Plate	Not used.	0	-10 to 10 mm	3-12
** 3-541-2	PDTablePos. A3-L E-Plate		0	-10 to 10 mm	3-12
** 3-541-3	PDTablePos. B4-L S-Plate		0	-10 to 10 mm	3-12
** 3-541-4	PDTablePos. B4-L E-Plate		0	-10 to 10 mm	3-12
** 3-541-5	PDTablePos. A4-L S-Plate		0	-10 to 10 mm	3-12
** 3-541-6	PDTablePos. A4-L E-Plate		0	-10 to 10 mm	3-12
** 3-541-7	PDTablePos. A4 SidePlate		0	-10 to 10 mm	3-12



SP No.	Display	Function	Default	Setting	User Tools
** 3-541-8	PDTablePos. A4 EndPlate		0	-10 to 10 mm	3-12
** 3-541-9	PDTablePos. B5-L S-Plate		0	-10 to 10 mm	3-12
** 3-541-10	PDTablePos. B5-L E-Plate		0	-10 to 10 mm	3-12
** 3-542-1	PDTablePos. A3-L S-Plate	Not used.	0	-10 to 10 mm	3-12
** 3-542-2	PDTablePos. A3-L E-Plate		0	-10 to 10 mm	3-12
** 3-542-3	PDTablePos. B4-L S-Plate		0	-10 to 10 mm	3-12
** 3-542-4	PDTablePos. B4-L E-Plate		0	-10 to 10 mm	3-12
** 3-542-5	PDTablePos. A4-L S-Plate		0	-10 to 10 mm	3-12
** 3-542-6	PDTablePos. A4-L E-Plate		0	-10 to 10 mm	3-12
** 3-542-7	PDTablePos. A4 S-Plate		0	-10 to 10 mm	3-12
** 3-542-8	PDTablePos. A4 E-Plate		0	-10 to 10 mm	3-12
** 3-542-9	PDTablePos. B5-L S-Plate		0	-10 to 10 mm	3-12
** 3-542-10	PDTablePos. B5-L E-Plate		0	-10 to 10 mm	3-12
** 3-542-11	PDTablePos. B5 S-Plate		0	-10 to 10 mm	3-12
** 3-542-12	PDTablePos. B5 E-Plate		0	-10 to 10 mm	3-12
** 3-543-1	PDTablePos.DLT-L S-Plate	Not used.	0	-0.4 to 0.4 inch	3-12
** 3-543-2	PDTablePos.DLT-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-3	PDTablePos. LG-L S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-4	PDTablePos. LG-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-5	PDTablePos. LT-L S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-6	PDTablePos. LT-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-7	PDTablePos. LT S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-543-8	PDTablePos. LT E-Plate		0	-0.4 to 0.4 inch	3-12

SP No.	Display	Function	Default	Setting	User Tools
** 3-544-1	PDTablePos.DLT-L S-Plate	Not used.	0	-0.4 to 0.4 inch	3-12
** 3-544-2	PDTablePos.DLT-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-3	PDTablePos. LG-L S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-4	PDTablePos. LG-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-5	PDTablePos. LT-L S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-6	PDTablePos. LT-L E-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-7	PDTablePos. LT S-Plate		0	-0.4 to 0.4 inch	3-12
** 3-544-8	PDTablePos. LT E-Plate		0	-0.4 to 0.4 inch	3-12
* 3-660	JSSorter Bin Capacity Limit	For details, refer to the sorter service manual.	50	1 to 50 sheets	-
* 3-661-1	JSSorter Joger Int.Num Normal		2	1 to 3	-
* 3-661-2	JSSorterJoger Int.Num Class		2	1 to 3	-

4. Input Test Mode

SP No.	Display
4-020	Scanner HP Sensor
4-021-1	Original Length SN 0
4-021-2	Original Length SN 1
4-021-3	Original Width SN 2
4-021-4	Original Width SN 3
4-021-5	Original Length SN 4
4-021-6	Original Length SN 5
4-022	Platen Cover Sensor
4-040	Master Unit Set Sensor
4-041	Cutter HP Sensor
4-042	Master Set Sensor
4-043	Master End Sensor
4-044	Master Edge Sensor
4-046	Platen Release Sensor
4-060	Eject Box Set Sensor
4-061	Paper Eject Sensor
4-062	Pressure Plate HP Sensor
4-063	Pressure Plate Limit SN
4-080	Paper Table Lowering SW
4-081	Paper End Sensor
4-082	Table Lower Limit Sensor
4-083	Paper Table Height SN
4-084	Paper Registration SN
4-085	Paper Feed Timing Sensor
4-086-1	Paper Feed Pressure 0
4-086-2	Paper Feed Pressure 1
4-086-3	Paper Feed Pressure 2
4-086-4	Paper Feed Pressure 3
4-087-1	Separation Pressure 0
4-087-2	Separation Pressure 1
4-087-3	Separation Pressure 2
4-087-4	Separation Pressure 3
4-088	Paper Table Set Sensor
4-089	Paper Feed Start Sensor
4-090-1	Paper Width Detection 0
4-090-2	Paper Width Detection 1
4-090-3	Paper Width Detection 2
4-090-4	Paper Width Detection 3
4-090-5	Paper Width Detection 4
4-090-6	Paper Width Detection 5
4-091	Paper Length Sensor
* 4-092	Relay Guide Set Sensor
4-100	Paper Exit Sensor

SP No.	Display
4-101-1	Wing Upper Position SN
4-101-2	Wing Lower Position SN
* 4-120-1	1st Drum Position Sensor
* 4-120-2	2nd Drum Position Sensor
* 4-120-3	Drum Home Position Sensor
4-122-1	Drum Type Check 0
4-122-2	Drum Type Check 1
4-123	Ink Pump Sensor
4-124	Ink Cartridge Set Sensor
4-125	Ink Detection
4-126	Drum Idling Roller HP SN
4-127-1	1st Drum Master Sensor
4-127-2	2nd Drum Master Sensor
4-128	Lower Wrapping Jam SN
4-129-1	A3 Cam Sensor
4-129-2	A4 Cam Sensor
4-131	Main Motor Lock Detect
4-140	Image Shift HP Sensor
4-141	Drum Shift HP Sensor
4-142-1	Clamp Close Position SN
4-142-2	Clamper Open Position SN
4-143	P Cylinder Feed Encoder
** 4-144	Tray Feed Start Sensor
4-400	Front Door Open Detect
4-500	DF Installation Detect
4-501	DF Cover Open Sensor
4-502	DF Registration Sensor
4-503	DF Original Set Sensor
4-504-1	DF Original Width SN 1
4-504-2	DF Original Width SN 2
4-504-3	DF Original Width SN 3
4-504-4	DF Original Length SN 1
4-504-5	DF Original Length SN 2
4-505	DF Position Sensor
4-506	DF APS Start Sensor
4-520	Slider Upper Limit SN
4-521	Job Separator Paper SN
4-522	Slider Position Sensor
4-523	Slider HP Sensor
** 4-540-1	PDTable Paper End (Delivery table paper sensor)
** 4-540-2	PDTable S-Plate Position (Side plate set sensor)
** 4-540-3	PDTable S-Plate Pulse SN
** 4-540-4	PDTable S-Plate HP SN
** 4-540-5	PDTable E-Plate Position (End plate set sensor)
** 4-540-6	PDTable E-Plate Pulse SN

SP No.	Display
** 4-540-7	PDTable E-Plate HP SN
4-580	Key Card Detection
* 4-660-1	JS Sorter Lower Unit SN
* 4-660-2	JS Sorter Lower Entry SN
* 4-660-3	JS Sorter Upper Unit SN
* 4-660-4	JS Sorter Upper Entry SN
* 4-660-5	JS Sorter Midd. Transport SN
* 4-660-6	JS Sorter Horz. Transport SN
* 4-660-7	Set Non-Sort Position
* 4-660-8	Set Sort Position
* 4-660-9	Side Jogger HP for L-Unit
* 4-660-10	Side Jogger HP for U-Unit
* 4-660-11	End Jogger HP for L-Unit
* 4-660-12	End Jogger HP for U-Unit
* 4-660-13	Lead Cam Lwr Limit For L-Unit
* 4-660-14	Lead Cam Lwr Limit For U-Unit
* 4-660-15	Paper Exit Pawl SN for L-Unit
* 4-660-16	Paper Exit Pawl SN for U-Unit
* 4-660-17	Set Lower Unit F-Cover
* 4-660-18	Set Upper Unit F-Cover
* 4-660-19	Set Non-Sort Tray
* 4-660-20	Set Vert. Transport Cover
* 4-660-21	Set Horz. Transport Cover
* 4-660-22	Set Stapler Cover (Japan only)
* 4-660-23	Upper Bin for Lower Unit
* 4-660-24	Upper Bin for Upper Unit
* 4-660-25	Stapler HP
* 4-660-26	Stapler Detection SN
* 4-660-27	Stapler Cartridge SN
* 4-660-28	Paper SN for Stapler
** 4-700	1st Relay Sensor (2 nd relay sensor)
** 4-701	2nd Relay Sensor (3 rd relay sensor)
** 4-710-1	R-Tray1 Tray Set SN
** 4-710-2	R-Tray1 Paper End SN
** 4-710-3	R-Tray1 Paper Volume SN
** 4-710-4	R-Tray1 Paper Width SN1 (front right tray paper width sensor)
** 4-710-5	R-Tray1 Paper Width SN2 (rear right tray paper width sensor)
** 4-710-6	R-Tray1 Upper Limit SN
** 4-710-7	R-Tray1 Lower Limit SN
** 4-710-8	Set Tandem Tray (tandem tray sensor)
** 4-711-1	L-Tray1 Tray Set SN
** 4-711-2	L-Tray1 Paper End SN (left tray paper length sensor)
** 4-711-3	L-Tray1 Paper Width SN1 (front left tray paper width sensor)
** 4-711-4	L-Tray1 Paper Width SN2 (rear left tray paper width sensor)
** 4-711-5	L-Tray1 Upper Limit SN

SP No.	Display
** 4-711-6	L-Tray1 Lower Limit SN
** 4-712-1	Back-Plate HP SN
** 4-712-2	Back-Plate SN (return position sensor)
** 4-713-1	Tray2 Tray Set SN
** 4-713-2	Tray2 Paper End SN
** 4-713-3	Tray2 Paper Volume SN
** 4-713-4	Tray2 Paper Width SN1 (front tray 2 paper width sensor)
** 4-713-5	Tray2 Paper Width SN2 (rear tray 2 paper width sensor)
** 4-713-6	Tray2 Paper Length SN
** 4-713-7	Tray2 Upper Limit SN
** 4-713-8	Tray2 Lower Limit SN
** 4-714-1	Vertical Cover Set SN
** 4-714-2	2nd Tray Feed Sensor (1 st relay sensor)
** 4-714-3	Tray Exit Sensor (tray registration sensor)
4-900	Key Counter Detection

5. Output Test Mode

SP No.	Display
5-001	All Indicators On
5-020	Xenon Lamp
5-021-1	Move Scanner - Scan
5-021-2	Move Scanner - Return
5-021-3	Move Scanner to HP
5-040	Master Feed Clutch
5-041	Master Vacuum Fan
5-042-1	Cutter Motor Forward
5-042-2	Cutter Motor Reverse
5-042-3	Move Cutter to HP
5-043-1	Platen Release Motor
5-043-2	Apply Platen Pressure
5-043-3	Release Platen Pressure
5-044	Master Duct Entrance Sol
5-060-1	Pressure Plate to Limit
5-060-2	Press Plate to Eject Pos
5-060-3	Pressure Plate to HP
5-061-1	M Eject Motor Forward
5-061-2	M Eject Motor Reverse
5-080-1	Paper Table Motor Up
5-080-2	Paper Table Motor Down
5-081-1	Paper Pressure Motor Up
5-081-2	Paper Press Motor Down
5-082-1	Sep. Pressure Motor Up
5-082-2	Sep. Pressure Motor Down
5-083-1	Paper Feed Motor Slowest
5-083-2	Paper Feed Motor 30 rpm
5-083-3	Paper Feed Motor 1st
5-083-4	Paper Feed Motor 2nd
5-083-5	Paper Feed Motor 3rd
5-083-6	Paper Feed Motor 4th
5-083-7	Paper Feed Motor 5th
* 5-083-8	Paper Feed Motor Revs. Slowest (Revs. = reverse rotation)
* 5-083-9	Paper Feed Motor Revs. 30 rpm
* 5-083-10	Paper Feed Motor Revs. 1st
* 5-083-11	Paper Feed Motor Revs. 2nd
* 5-083-12	Paper Feed Motor Revs. 3rd
* 5-083-13	Paper Feed Motor Revs. 4th
* 5-083-14	Paper Feed Motor Revs. 5th
5-084-1	Regist Motor Slowest
5-084-2	Regist Motor 30 rpm
5-084-3	Registration Motor 1st
5-084-4	Registration Motor 2nd

SP No.	Display
5-084-5	Registration Motor 3rd
5-084-6	Registration Motor 4th
5-084-7	Registration Motor 5th
5-084-8	Regist. Motor Revs. Slowest
* 5-084-9	Regist. Motor Revs. 30 rpm
* 5-084-10	Regist. Motor Revs. 1st
* 5-084-11	Regist. Motor Revs. 2nd
* 5-084-12	Regist. Motor Revs. 3rd
* 5-084-13	Regist. Motor Revs. 4th
* 5-084-14	Regist. Motor Revs. 5th
5-100-1	Wing Guide Motor Up
5-100-2	Wing Guide Motor Down
5-101	Air Knife Fan
5-102	Transport Vacuum Fan
5-120-1	Drum Rotation Slowest
5-120-2	Drum Rotation 1st Speed
5-120-3	Drum Rotation 2nd Speed
5-120-4	Drum Rotation 3rd Speed
5-120-5	Drum Rotation 4th Speed
5-120-6	Drum Rotation 5th Speed
5-121	Printing Pressure Sol.
5-123-1	Shift Pressure Cam to A3
5-123-2	Shift Pressure Cam to A4
5-124-1	Drum Idling Roller ON
5-124-2	Idling Roller Return
* 5-125-1	Drum Home Pos. LED GREEN
* 5-125-2	Drum Home Pos. LED RED
5-140-1	Clamper Motor - Open
5-140-2	Clamper Motor - Close
5-141-1	Image Shift Motor - <input type="checkbox"/>
5-141-2	Image Shift Motor - <input type="checkbox"/>
5-142-1	Drum Shift Motor - <input type="checkbox"/>
5-142-2	Drum Shift Motor - <input type="checkbox"/>
5-400	Print Counter Up
5-401	Master Counter Up
5-402	Thermal Head ON
5-500	DF Feed Motor
5-501	DF Feed Clutch
5-502	DF Pick-up Solenoid
5-520-1	Slider Lift Motor - Up
5-520-2	Slider Lift Motor - Down
5-521-1	Job Separator Motor Fwd.
5-521-2	Job Separator Motor Rev.
** 5-540-1	Move S-Plate-Extension
** 5-540-2	Move S-Plate-Retracton

SP No.	Display
** 5-540-3	Move E-Plate-Retraction
** 5-540-4	Move E-Plate-Extension
5-580-1	Count-up Key Card
5-580-2	Key Card Motor
* 5-660-1	Lead Cam Motor Up For L-Unit
* 5-660-2	Lead Cam Motor Down For L-Unit
* 5-660-3	Lead Cam Motor Up For U-Unit
* 5-660-4	Lead Cam Motor Down For U-Unit
* 5-660-5	Middle Transport Motor
* 5-660-6	Horiz. Transport Motor
* 5-660-7	Lower Vert. Transport Motor
* 5-660-8	Upper Vert. Transport Motor
* 5-660-9	ShiftNon/SortMotor To Sort
* 5-660-10	ShiftNon/SortMotor To Non
* 5-660-11	S-Jogger For L-Unit Forward
* 5-660-12	S-Jogger For L-Unit Reverse
* 5-660-13	S-Jogger For U-Unit Forward
* 5-660-14	S-Jogger For U-Unit Reverse
* 5-660-15	E-Jogger For L-Unit Forward
* 5-660-16	E-Jogger For L-Unit Reverse
* 5-660-17	E-Jogger For U-Unit Forward
* 5-660-18	E-Jogger For U-Unit Reverse
* 5-660-19	Stapler Motor : Forwad
* 5-660-20	Stapler Motor : Reverse
* 5-660-21	Mid. Transport Fan Motor
* 5-660-22	Horz. Transport Fan1 Motor
* 5-660-23	Horz. Transport Fan2 Motor
* 5-660-24	Vrt Trans. Fan1 Mtr For L Unit
* 5-660-25	Vrt Trans. Fan2 Mtr For L Unit
* 5-660-26	Vrt Trans. Fan1 Mtr For U Unit
* 5-660-27	Vrt Trans. Fan2 Mtr For U Unit
* 5-660-28	Wing Guide Solenoid
* 5-660-29	Non Sort Tray Lock Sol.
* 5-660-30	Paper Exit Pawl For L-Lnit
* 5-660-31	Paper Exit Pawl For U-Lnit
* 5-660-32	JS Sorter Free Rum
** 5-710-1	R-Tray1 Lift Motor : Up
** 5-710-2	R-Tray1 Lift Motor : Down
** 5-710-3	R-Tray1 UnLock Sol. (tray 1 right lock solenoid)
** 5-710-4	Tray1 Separation Pad Sol (tray 1 friction pad solenoid)
** 5-710-5	Tray1 Connection Sol.
** 5-711-1	L-Tray1 Lift Motor : Up
** 5-711-2	L-Tray1 Lift Motor : Down
** 5-711-3	L-Tray1 UnLock Sol. (tray 1 left lock solenoid)
** 5-712-1	Move TrayB-Plate-Right (move back plate drive motor-right)

SP No.	Display
** 5-712-2	Move TrayB-Plate-Left (move back plate drive motor-left)
** 5-713-1	Tray2 Lift Motor : Up
** 5-713-2	Tray2 Lift Motor : Down
** 5-713-3	Tray 2 UnLock Sol. (tray 2 lock solenoid)
** 5-713-4	Tray2 Separation Pad Sol (tray 2 friction pad solenoid)
** 5-714-1	Tray Paper Feed Motor For. (tray feed motor-forward)
** 5-714-2	Tray Paper Feed Motor Rev. (tray feed motor –reverse)
** 5-714-3	Tray Feed Motor (tray registration motor)
** 5-714-4	Tray Transport Clutch (tray 2 feed clutch)
** 5-714-5	Tray Mid. Transport Clutch (tray relay clutch)
** 5-714-6	Tray Feed Clutch (tray exit clutch)
5-900	Count-up Key Counter
* 5-901	PSU Fan Motor

6. System Adjustment

SP No.	Display	Function	Default	Settings
6-001-1	Main Scan Pos. - Platen	Side-to-side registration adjustment; see Note 1.	0	-5.0 to 5.0 mm
6-001-2	Main Scan Position - DF		0	-5.0 to 5.0 mm
6-002-1	Scan Start Pos. - Platen	Scanning start line adjustment; see Note 2.	0	-5.0 to 5.0 mm
6-002-2	Scan Start Position - DF		0	-5.0 to 5.0 mm
6-010	Master Writing Speed	See Note 3.	0	-5.0 to 5.0%
6-011-1	Scanning Speed - Platen	See Note 4.	0	-5.0 to 5.0%
6-011-2	Scanning Speed - DF		0	-5.0 to 5.0%
6-012	Master Writing Length	Do not use in the field.	0	-5.0 to 5.0 %
6-020-1	V&Thresh Master Eject SN	The use of these SP modes is explained in various parts of the Replacement and Adjustment section. (C229 service manual)	2.5	0.0 to 5.0V
6-020-2	V&Thresh DrumMaster 1 SN		2.5	0.0 to 5.0V
6-020-3	V&Thresh DrumMaster 2 SN		2.5	0.0 to 5.0V
6-020-4	V & Thresh Master End SN		0.9	0.0 to 5.0V
6-020-5	V & Thresh Paper Exit SN		2.5	0.0 to 5.0V
6-020-6	V&Thresh Master Edge SN		1.5	0.0 to 5.0V
6-032-1	SBU Auto Calibration	Refer to the Replacements and Adjustments section. (C229 service manual)	-	-
6-032-2	SBU Gain Setting	Do not adjust.	-	-
6-032-3	SBU DC Count Setting		-	-
6-032-4	SBU Reference Value		-	-
6-032-5	SBU Offset Value		-	-
6-050	LCD Contrast Adjustment	See Note 5.	6	0 to 7
6-070	Master Making Density	See Note 6.	1	0 to 2
6-082-1	MTF Filter Letter Mode	See Note 7.	0	0 to 11
6-082-2	MTF Filter Ltr/Pht Mode		5	0 to 11
6-082-3	MTF Filter Pencil Mode		6	0 to 11
6-082-4	MTF Filter Photo Mode		2	0 to 11

SP No.	Display	Function	Default	Settings
6-090-1	FeedPressure Std Special	See Note 8.	3	0 to 6
6-090-2	Freq - Special Paper		5	0 to 6
6-090-3	V Freq - Special Paper		6	0 to 6
6-091-1	FeedPressure Std Nor Ppr		3	0 to 6
6-091-2	Freq - Normal Paper		5	0 to 6
6-091-3	V Freq - Normal Paper		6	0 to 6
6-092-1	FeedPressure Std Thick		5	0 to 6
6-092-2	Freq - Thick Paper		6	0 to 6
6-092-3	V Freq - Thick Paper		6	0 to 6
6-093-1	FeedPressure Std User 1		5	0 to 6
6-093-2	Freq - User 1 Paper		6	0 to 6
6-093-3	V Freq - User 1 Paper		6	0 to 6
6-094-1	FeedPressure Std User 2		1	0 to 6
6-094-2	Freq - User 2 Paper		2	0 to 6
6-094-3	V Freq - User 2 Paper		3	0 to 6
6-095-1	SepPressure Std Special		1	0 to 6
6-095-2	Freq - Special Paper		3	0 to 6
6-095-3	V Freq - Special Paper		4	0 to 6
6-096-1	SepPressure Std Nor Ppr		3	0 to 6
6-096-2	Freq - Normal Paper		4	0 to 6
6-096-3	V Freq - Normal Paper		6	0 to 6
6-097-1	SepPressure Std Thick		2	0 to 6
6-097-2	Freq - Thick Paper		3	0 to 6
6-097-3	V Freq - Thick Paper		4	0 to 6
6-098-1	SepPressure Std User 1		4	0 to 6
6-098-2	Freq - User 1 Paper		5	0 to 6
6-098-3	V Freq - User 1 Paper		6	0 to 6
6-099-1	SepPressure Std User 2		1	0 to 6
6-099-2	Freq - User 2 Paper		2	0 to 6
6-099-3	V Freq - User 2 Paper		3	0 to 6
6-100-1	Wing Angle - Special Ppr	See Note 9.	Low	High/Low
6-100-2	Wing Angle - Normal Ppr		High	High/Low

SP No.	Display	Function	Default	Settings
6-100-3	Wing Angle - Thick Paper	See Note 9.	Low	High/Low
6-100-4	Wing Angle - User1 Paper		High	High/Low
6-100-5	Wing Angle - User2 Paper		Low	High/Low
6-101-1	Paper Clamp - Spl Paper	See Note 10.	OFF	Enable/OFF
6-101-2	Paper Clamp - Nor Paper		Enable	Enable/OFF
6-101-3	Paper Clamp - Thk Paper		OFF	Enable/OFF
6-101-4	Paper Clamp - U1 Paper		Enable	Enable/OFF
6-101-5	Paper Clamp - U2 Paper		OFF	Enable/OFF
6-110-1	PaperFeed Delay - 16 rpm	Do not adjust. (Changes the feed motor on timing after the feed start timing sensor is activated.)	200	0 to 255
6-110-2	Feed Delay - 20 rpm		200	0 to 255
6-110-3	Feed Delay - 30 rpm		200	0 to 255
6-110-4	Feed Delay - 60 rpm		219	0 to 255
6-110-5	Feed Delay - 75 rpm		147	0 to 255
6-110-6	Feed Delay - 90 rpm		100	0 to 255
6-110-7	Feed Delay - 105 rpm		53	0 to 255
6-110-8	Feed Delay - 120 rpm		26	0 to 255
6-111-1	Thick Feed Delay - 16 rpm	Do not adjust. (Changes the feed motor on timing in thick and special paper modes after the feed start timing sensor is activated.)	200	0 to 255
6-111-2	Feed Delay - 20 rpm		200	0 to 255
6-111-3	Feed Delay - 30 rpm		200	0 to 255
6-111-4	Feed Delay - 60 rpm		199	0 to 255
6-111-5	Feed Delay - 75 rpm		130	0 to 255
6-111-6	Feed Delay - 90 rpm		78	0 to 255
6-111-7	Feed Delay - 105 rpm		40	0 to 255
6-111-8	Feed Delay - 120 rpm		16	0 to 255
* 6-112-1	Regist Delay - 16 rpm	Do not adjust. (Changes the registration motor on timing after the feed start timing sensor is activated.)	34	0 to 255
* 6-112-2	Regist Delay - 20 rpm		34	0 to 255
* 6-112-3	Regist Delay - 30 rpm		34	0 to 255
* 6-112-4	Regist Delay - 60 rpm		31	0 to 255
* 6-112-5	Regist Delay - 75 rpm		28	0 to 255
* 6-112-6	Regist Delay - 90 rpm		24	0 to 255
* 6-112-7	Regist Delay - 105 rpm		19	0 to 255
* 6-112-8	Regist Delay - 120 rpm		14	0 to 255

SP No.	Display	Function	Default	Settings
6-113-1	Thick Regist Delay - 16	Do not adjust. (Changes the registration motor on timing in thick and special paper modes after the feed start timing sensor is activated.)	43	0 to 255
6-113-2	Regist Delay - 20 rpm		43	0 to 255
6-113-3	Regist Delay - 30 rpm		43	0 to 255
6-113-4	Regist Delay - 60 rpm		40	0 to 255
6-113-5	Regist Delay - 75 rpm		35	0 to 255
6-113-6	Regist Delay - 90 rpm		30	0 to 255
6-113-7	Regist Delay - 105 rpm		25	0 to 255
6-113-8	Regist Delay - 120 rpm		20	0 to 255
* 6-114-1	A4 Regist Delay - 16 rpm	Do not adjust. (Changes the registration motor on timing in the use of the A4 drum after the feed start timing sensor is activated.)	33	0 to 255
* 6-114-2	Regist Delay - 20 rpm		33	0 to 255
* 6-114-3	Regist Delay - 30 rpm		33	0 to 255
* 6-114-4	Regist Delay - 60 rpm		30	0 to 255
* 6-114-5	Regist Delay - 75 rpm		28	0 to 255
* 6-114-6	Regist Delay - 90 rpm		24	0 to 255
* 6-114-7	Regist Delay - 105 rpm		19	0 to 255
* 6-114-8	Regist Delay - 120 rpm		13	0 to 255
6-115-1	A4 Thick Regist Delay 16	Do not adjust. (Changes the registration motor on timing in thick and special paper modes in combination with the use of the A4 drum after the feed start timing sensor is activated.)	43	0 to 255
6-115-2	Regist Delay - 20 rpm		43	0 to 255
6-115-3	Regist Delay - 30 rpm		43	0 to 255
6-115-4	Regist Delay - 60 rpm		40	0 to 255
6-115-5	Regist Delay - 75 rpm		35	0 to 255
6-115-6	Regist Delay - 90 rpm		30	0 to 255
6-115-7	Regist Delay - 105 rpm		25	0 to 255
6-115-8	Regist Delay - 120 rpm		20	0 to 255
* 6-116-1	Paper Clamp Timing Pulse	See Replacements and Adjustments – Paper Feed Length Adjustment for how to use.	145	0 to 255
* 6-116-2	Paper Clamp - Thick Paper	See Replacements and Adjustments – Paper Feed Length Adjustment for how to use.	148	0 to 255
* 6-116-3	Paper Clamp Pls - A4 Cam	Do not adjust.	145	0 to 255
* 6-116-4	Feed Timing Pulse	Do not adjust.	113	0 to 255
* 6-116-5	Feed Stop Timing Pulse	See Replacements and Adjustments – Paper Feed Length Adjustment for how to use.	21	0 to 255

SP No.	Display	Function	Default	Settings
* 6-116-6	Print Position 2 Setting	Do not adjust.	103	0 to 255
* 6-116-7	Print Position 1 Setting	Do not adjust.	140	0 to 255
* 6-117-1	Skip Regist Delay 16 rpm	Do not adjust. (Changes the registration motor on timing (when using the skip feed mode) after the feed start sensor is activated.)	33	0 to 255
* 6-117-2	Skip Regist Delay - 20 rpm		33	0 to 255
* 6-117-3	Skip Regist Delay - 30 rpm		33	0 to 255
* 6-117-4	Skip Regist Delay - 60 rpm		31	0 to 255
* 6-117-5	Skip Regist Delay - 75 rpm		28	0 to 255
* 6-117-6	Skip Regist Delay - 90 rpm		24	0 to 255
* 6-117-7	Skip Regist Delay - 105 rpm		19	0 to 255
* 6-117-8	Skip Regist Delay - 120 rpm		13	0 to 255
* 6-118-1	A4 Skip Regist Delay 16 rpm	Do not adjust. (Changes the registration motor on timing in the use of the A4 drum after the feed start timing sensor is activated.)	33	0 to 255
* 6-118-2	A4 Skip Regist Delay - 20 rpm		33	0 to 255
* 6-118-3	A4 Skip Regist Delay - 30 rpm		33	0 to 255
* 6-118-4	A4 Skip Regist Delay - 60 rpm		30	0 to 255
* 6-118-5	A4 Skip Regist Delay - 75 rpm		28	0 to 255
* 6-118-6	A4 Skip Regist Delay - 90 rpm		24	0 to 255
* 6-118-7	A4 Skip Regist Delay - 105 rpm		19	0 to 255
* 6-118-8	A4 Skip Regist Delay - 120 rpm		13	0 to 255
6-130	Drum Master Clamp Regist	See Note 11.	0	-10.0 to 10.0mm
** 6-140-1	BankRegistDelay – 16rpm	Not used.	172	0 to 255
** 6-140-2	BankRegistDelay – 20rpm		200	0 to 255
** 6-140-3	BankRegistDelay – 30rpm		200	0 to 255
** 6-140-4	BankRegistDelay – 60rpm		200	0 to 255
** 6-140-5	BankRegistDelay – 75rpm		200	0 to 255
** 6-140-6	BankRegistDelay – 90rpm		128	0 to 255



SP No.	Display	Function	Default	Settings
** 6-140-7	BankRegistDelay – 105rpm	Not used.	72	0 to 255
** 6-140-8	BankREgistDelay – 120rpm		29	0 to 255
** 6-141-1	Trans.Assist.Delay-16rpm	Not used.	3	0 to 255
** 6-141-2	Trans.Assist.Delay-20rpm		3	0 to 255
** 6-141-3	Trans.Assist.Delay-30rpm		3	0 to 255
** 6-141-4	Trans.Assist.Delay-60rpm		3	0 to 255
** 6-141-5	Trans.Assist.Delay-75rpm		3	0 to 255
** 6-141-6	Trans.Assist.Delay-90rpm		3	0 to 255
** 6-141-7	Trans.Assist.Delay-105rpm		3	0 to 255
** 6-141-8	Trans.Assist.Delay-120rpm		2	0 to 255
** 6-142-1	Tray1FeedStop TimingPulse	Not used.	14	0 to 255
** 6-142-2	Tray1 Feed Speed		140	0 to 255
** 6-142-3	Tray1 Mid. Roller Speed		136	0 to 255
** 6-142-4	Tray1Mid.Roller Speed - %		90	0 to 255
** 6-142-5	Tray1Mid.Roller Speed – t		100	0 to 255
** 6-142-6	Tray1Feed StopTimingPulseA3		14	0 to 255
** 6-143-1	Tray2FeedStop TimingPulse	Not used.	14	0 to 255
** 6-143-2	Tray2 Feed Speed		140	0 to 255
** 6-143-3	Tray2 Mid. Roller Speed		136	0 to 255
** 6-143-4	Tray2Mid. Roller Speed - %		90	0 to 255
** 6-143-5	Tray2Mid.Roller Speed – t		100	0 to 255
** 6-144-1	Tray1stPrntRgstDly-16rpm	Not used.	172	0 to 255
** 6-144-2	Tray1stPrntRgstDly-20rpm		200	0 to 255
** 6-144-3	Tray1stPrntRgstDly-30rpm		200	0 to 255
** 6-144-4	Tray1stPrntRgstDly-60rpm		100	0 to 255
** 6-145-1	Bank1 RegistDelay 16rpm	Not used.	33	0 to 255

SP No.	Display	Function	Default	Settings
** 6-145-2	Bank1 RegistDelay 20rpm		33	0 to 255
** 6-145-3	Bank1 RegistDelay 30rpm		33	0 to 255
** 6-145-4	Bank1 RegistDelay 60rpm		32	0 to 255
** 6-145-5	Bank1 RegistDelay 75rpm		29	0 to 255
** 6-145-6	Bank1 RegistDelay 90rpm		25	0 to 255
** 6-145-7	Bank1 RegistDelay 105rpm		20	0 to 255
** 6-145-8	Bank1 RegistDelay 120rpm		15	0 to 255
** 6-146-1	Bank2 RegistDelay 16rpm		Not used.	33
** 6-146-2	Bank2 RegistDelay 20rpm	33		0 to 255
** 6-146-3	Bank2 RegistDelay 30rpm	33		0 to 255
** 6-146-4	Bank2 RegistDelay 60rpm	32		0 to 255
** 6-146-5	Bank2 RegistDelay 75rpm	29		0 to 255
** 6-146-6	Bank2 RegistDelay 90rpm	25		0 to 255
** 6-146-7	Bank2 RegistDelay 105rpm	20		0 to 255
** 6-146-8	Bank2 RegistDelay 120rpm	15		0 to 255
** 6-147-1	Bank RegistDelayA4 16rpm	Not used.	33	0 to 255
** 6-147-2	Bank RegistDelayA4 20rpm		33	0 to 255
** 6-147-3	Bank RegistDelayA4 30rpm		33	0 to 255
** 6-147-4	Bank RegistDelayA4 60rpm		31	0 to 255
** 6-147-5	Bank RegistDelayA4 75rpm		28	0 to 255
** 6-147-6	Bank RegistDelayA4 90rpm		24	0 to 255
** 6-147-7	Bank RegistDelayA4 105rpm		19	0 to 255
** 6-147-8	Bank RegistDelayA4 120rpm		13	0 to 255
** 6-148-1	Bank1 SkipRestDelay 16rpm	Not used.	33	0 to 255
** 6-148-2	Bank1 SkipRgstDelay 20rpm		33	0 to 255

SP No.	Display	Function	Default	Settings	
** 6-148-3	Bank1 SkipRgstDelay 30rpm		33	0 to 255	
** 6-148-4	Bank1 SkipRgstDelay 60rpm		32	0 to 255	
** 6-148-5	Bank1 SkipRgstDelay 75rpm		28	0 to 255	
** 6-148-6	Bank1 SkipRgstDelay 90rpm		25	0 to 255	
** 6-148-7	Bank1 SkipRgstDelay 105rpm		20	0 to 255	
** 6-148-8	Bank1 SkipRgstDelay 120rpm		14	0 to 255	
** 6-149-1	Bank2 SkipRgstDelay 16rpm		Not used.	33	0 to 255
** 6-149-2	Bank2 SkipRgstDelay 20rpm			33	0 to 255
** 6-149-3	Bank2 SkipRgstDelay 30rpm	33		0 to 255	
** 6-149-4	Bank2 SkipRgstDelay 60rpm	32		0 to 255	
** 6-149-5	Bank2 SkipRgstDelay 75rpm	28		0 to 255	
** 6-149-6	Bank2 SkipRgstDelay 90rpm	25		0 to 255	
** 6-149-7	Bank2 SkipRgstDelay 105rpm	20		0 to 255	
** 6-149-8	Bank2 SkipRgstDelay 120rpm	14		0 to 255	
** 6-150-1	Bank SkipRgstDelay A4 16rpm	Not used.	33	0 to 255	
** 6-150-2	Bank SkipRgstDelay A4 20rpm		33	0 to 255	
** 6-150-3	Bank SkipRgstDelay A4 30rpm		33	0 to 255	
** 6-150-4	Bank SkipRgstDelay A4 60rpm		31	0 to 255	
** 6-150-5	Bank SkipRgstDelay A4 75rpm		28	0 to 255	
** 6-150-6	Bank SkipRgstDelay A4 16rpm		24	0 to 255	
** 6-150-7	Bank SkipRgstDelay A4 105rpm		19	0 to 255	
** 6-150-8	Bank SkipRgstDelay A4 120rpm		13	0 to 255	
** 6-151-1	Bank1 Clamp Timing Pulse	Not used.	145	0 to 255	
** 6-151-2	Bank2 Clamp Timing Pulse		145	0 to 255	
** 6-151-3	Bank ClampTiming Pulse A4		145	0 to 255	

SP No.	Display	Function	Default	Settings
* 6-660-1	Timing Delay A3	For details, refer to the sorter service manual.	0	-10 to 10
* 6-660-2	Timing Delay B4 Sideways		0	-10 to 10
* 6-660-3	Timing Delay A4 Sideways		0	-10 to 10
* 6-660-4	Timing Delay A4 Lengthwise		0	-10 to 10
* 6-660-5	Timing Delay B5 Sideways		0	-10 to 10
* 6-660-6	Timing Delay DLT Sideways		0	-10 to 10
* 6-660-7	Timing Delay LG Sideways		0	-10 to 10
* 6-660-8	Timing Delay LT Sideways		0	-10 to 10
* 6-660-9	Timing Delay LT Lengthwise		0	-10 to 10
* 6-660-10	Timing Delay F Sideways		0	-10 to 10
* 6-660-11	Timing Delay Other Size		0	-10 to 10
* 6-661-1	Move Jogger – Sideways		0	-10 to 10
* 6-661-2	Move Jogger – Lengthwise		0	-10 to 10
* 6-662-1	JS Sorter Feed Speed 1st		0	-50 to 100
* 6-662-2	JS Sorter Feed Speed 2st		0	-50 to 100
* 6-662-3	JS Sorter Feed Speed 3st	0	-50 to 100	
* 6-662-4	JS Sorter Feed Speed 4st	0	-50 to 100	
* 6-662-5	JS Sorter Feed Speed 5st	0	-50 to 100	

Notes

1: 6-001 (Main scan position)

Inputting a positive number moves the image away from the operation side of the machine. Use the point (.) key to switch between + and –.

2: 6-002 (Scan start position)

Inputting a positive number moves the image away from the leading edge of the printer paper. Use the point (.) key to switch between + and –.

3: 6-010 (Master writing speed)

This changes the master feed motor speed.

Inputting a positive value stretches the image on the master. Inputting a negative value shrinks it.

Normally, do not use this SP mode to adjust the vertical magnification. Use it only if the vertical magnification is not satisfactory by adjusting Scanning Speed (SP6-011).

4: 6-011 (Scanning speed)

Inputting a positive value stretches the image on the master. Inputting a negative value shrinks it.

5: 6-050 (Operation panel LCD contrast)

0: Palest, 7: Darkest

6: 6-070 (Master making density)

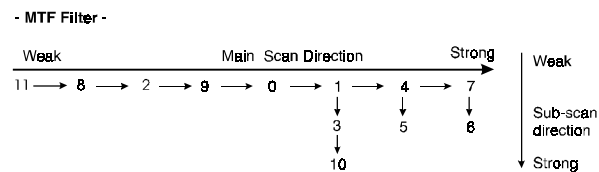
0: Pale, 1: Normal, 2: Dark

The default is 1: Normal. Changing this moves the user's image density settings up or down one notch.

7: 6-082 (MTF filters)

A stronger filter leads to a sharper image, but moiré can become more apparent.

Refer to the following diagram for the relationship between this SP mode and filter strength (the relationship is not linear). Do not use a value of 1; this is for designer's tests only.



Note: The value is the filter number

C229D505.WMF

8: 6-90 to 99 (Paper feed and separation pressures for different paper types)

These SP modes determine the paper feed and separation pressures that are automatically applied during paper feed. The user adjusts these pressures by selecting a paper type (normal, thick, special, user 1, user 2), and then by selecting how often non-feeds and double feeds are occurring.

The user customizes the user 1 and user 2 types by selecting from 5 choices. These choices can be seen in the description for SP 2-400 and 2-401. Each of these 5 choices has a set of feed and separation pressures (refer to Detailed Section Descriptions – Paper Feed).

6-090: Special paper, feed pressure
 6-091: Normal paper, feed pressure
 6-092: Thick paper, feed pressure
 6-093: User 1 paper, feed pressure
 6-094: User 2 paper, feed pressure
 6-095: Special paper, separation pressure
 6-096: Normal paper, separation pressure
 6-097: Thick paper, separation pressure
 6-098: User 1 paper, separation pressure
 6-099: User 2 paper, separation pressure

The settings for user 1 and user 2 depends on the type of paper that the user has set these up for (see SP 2-400 and 2-401).

9: 6-100 (Paper delivery table wing angle)

The machine lifts or lowers the wings depending on the paper type selected by the user (standard, special, thick, user 1, user 2).

The settings for user 1 and user 2 depends on the type of paper that the user has set these up for (see SP 2-400 and 2-401).

10: 6-101 (Paper clamping)

Whether the machine clamps the paper or not depends on the paper type selected by the user (standard, special, thick, user 1, user 2).

The settings for user 1 and user 2 depends on the type of paper that the user has set these up for (see SP 2-400 and 2-401).

11: 6-130 (Drum master clamper registration)

This determines how far after the leading edge the master is clamped.

A larger value clamps the master further away from the leading edge, and moves the image closer to the leading edge of the paper.

Do not use this SP to adjust leading edge registration. Use SP6-2 for that.

7. Memory Data Clear

SP No.	Display	User Tools
7-001	Clear Factory Settings	-
7-010	Clear Jam/Error Logging	-
7-011	Clear Resettable Counter	1-3
7-012	Clear Total Counter	-
7-020-1	Clear U-Counter: Code 1	6-2
7-020-2	Clear U-Counter: Code 2	6-2
7-020-3	Clear U-Counter: Code 3	6-2
7-020-4	Clear U-Counter: Code 4	6-2
7-020-5	Clear U-Counter: Code 5	6-2
7-020-6	Clear U-Counter: Code 6	6-2
7-020-7	Clear U-Counter: Code 7	6-2
7-020-8	Clear U-Counter: Code 8	6-2
7-020-9	Clear U-Counter: Code 9	6-2
7-020-10	Clear U-Counter: Code 10	6-2
7-020-11	Clear U-Counter: Code 11	6-2
7-020-12	Clear U-Counter: Code 12	6-2
7-020-13	Clear U-Counter: Code 13	6-2
7-020-14	Clear U-Counter: Code 14	6-2
7-020-15	Clear U-Counter: Code 15	6-2
7-020-16	Clear U-Counter: Code 16	6-2
7-020-17	Clear U-Counter: Code 17	6-2
7-020-18	Clear U-Counter: Code 18	6-2
7-020-19	Clear U-Counter: Code 19	6-2
7-020-20	Clear U-Counter: Code 20	6-2
7-021	Clear All User Counters	6-2
7-022	Clear User Code	-
7-023	Clear Key Operator Code	-
7-050	Clear User Program	-
7-051	Clear User Custom Default	-
7-052	Reset Make-up Pattern	-
7-062	Reset MTF Filter (SP6-82)	-
7-070	Reset Feed Pressure (SP6-90, 91, 92, 93, 94)	-
7-071	Reset Sep. Pressure (SP6-95, 96, 97, 98, 99)	-
7-072	Reset Wing Guide Angle (SP6-100)	-
7-073	Reset Paper Clamping Data (SP6-101)	-
7-074	Reset Feed Control Data (SP6-111, 112, 113, 114, 115, 117, 118)	-
7-075	Reset Feed Control Pulse Data (SP6-116)	-
** 7-400	Clear Change Sales Flag (Japan only)	
* 7-660	Clear JS Sorter Settings (feed control data, etc)	
** 7-700	Clear Bank Settings (feed control data, etc)	

8. System Test

SP No.	Display (Comments)
8-010-1	Scanner Free Run M
8-010-2	Magnification at FreeRun
8-011-1	ADF Free Run Mode
8-011-2	Mag. at ADF Free Run
8-020	Load Program (See "4.5.4 Load Program" section.)
* 8-020-1	Load Program
* 8-020-2	Load Program-ProgramData (factory use only)
* 8-020-3	Load Program-Font Data (factory use only)
* 8-020-4	Load Program-ExceptUStamp (factory use only)
* 8-021	UpLoad Program
8-030	APS Sensor Check Mode
8-040	TH Test Pattern Select (Patterns 0 to 9, 0: No pattern)
8-050-1	Make Master with Pattern
8-050-2	Make-up Pattern Number
8-070-1	Logging Data Printout (Needs the optional memory board)
8-070-2	User Code Counters Only (Needs the optional memory board)
8-070-3	Jam Counters Only (Needs the optional memory board)
8-070-4	SC Counters Only (Needs the optional memory board)
8-070-5	Jams/Errors Details (Needs the optional memory board)
8-071	Basic Settings Printout (Needs the optional memory board)
8-072-1	UserCustomSettings Print, excludes class mode (Needs the optional memory board)
8-072-2	Class Mode Settings (Needs the optional memory board)
8-073-1	Input Test Item Printout (Needs the optional memory board)
8-073-2	OutputTest Item Printout (Needs the optional memory board)
8-074-1	System Adjustment Print (Needs the optional memory board)
8-074-2	Paper Feed Adjustments (prints a list of SP values from 6-90 to 6-118)
* 8-074-3	Option Adjustment Print (prints a list of SP values from 6-140 to 6-151, and 6-660 to 6-662)
8-080	Not used
8-100-1	Register User Stamp A (UP Mode 5-8)
8-100-2	Register User Stamp B (UP Mode 5-8)
8-100-3	Register User Stamp C (UP Mode 5-8)
8-100-4	Register User Stamp D (UP Mode 5-8)
8-110	Register Makeup Pattern (UP Mode 5-15)

4.4.2 CLEARING THE FACTORY SETTINGS (SP7-1)

CAUTION

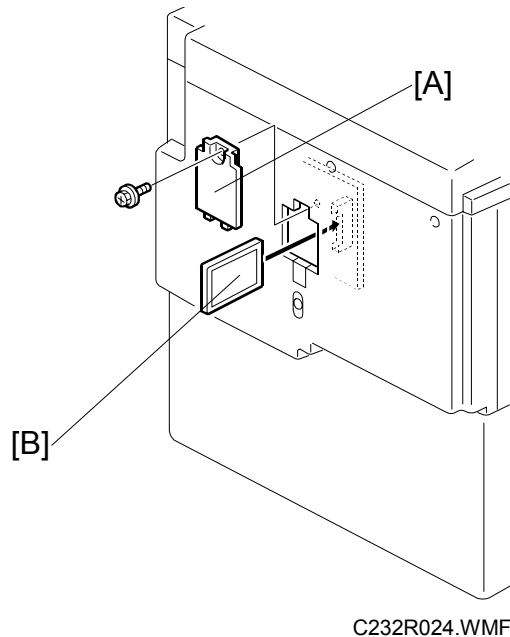
Performing "Clear factory settings" (SP7-1) resets a part of the settings stored in the RAM to their default settings. Normally, this SP mode should not be used. This procedure is required only after replacing the RAM on the MPU or when the machine malfunctions due to a damaged RAM.

The following data is not cleared even after performing "Clear factory settings" (SP7-1).

- SP2-10: Sizes in Metric or Inch
 - SP2-11: Select Language Type
 - SP2-380: Japanese Display Type (Do not use.)
 - SP2-390: A3/DLT Drum Selection
 - SP2-421: Type of Thermal Head (Do not use.)
 - SP3-70: Machine Serial Number
 - SP3-73: Clock
 - SP6- All : System Adjustment
1. Save the data SP mode in order to restore it later.
NOTE: If possible, print out all system parameter lists using SP8-70, 71, 72, 73, and 74. The optional memory board is required to use the data printout function.
 2. Enter SP7-1.
 3. Press the Enter (#) key while holding the "0" key.
NOTE: When the sequence is successful, "Cleared" is displayed.

4.4.3 LOAD PROGRAM (SP8-20)

The firmware in the flash ROM on the MPU can be upgraded using a flash memory card, as follows.



1. Before downloading new software, check the current version with SP1-42.
2. Turn off the main switch and disconnect the power plug.
3. Remove the cover [A].
4. Plug the flash memory card [B] into the connector on the MPU.
5. Connect the power plug and turn on the main switch.
6. Access SP8-20-1 and press the **OK** key. Press the **Enter (#)** key to start downloading (the LCD displays '**Processing**').
7. After completing the download (the LCD displays '**Completed**'), leave the SP mode.
8. Turn off the main switch, then remove the flash memory card.
9. Turn on the main switch, then enter the SP mode again and check the updated ROM version with SP1-42.

4.4.4 USER TOOLS

Some items in the SP mode can be accessed with the User Tools by users. The User Tools key on the operation panel accesses these.

The following table shows all the user tools.

User Tools Table

No.	Display	Equivalent SP No.
1-1	Auto Reset Time	3-030
1-2	R. Counter Display	1-001-2, 1-002-2
1-3	Reset R. Counter	7-011
1-4	Set User Code	2-100
1-5	Key Card Setting	2-220
1-6	Sizes in Metric or Inch	2-010
1-7	Select Language Type	2-011
1-8	Time Setting	3-073
1-9	Auto On-line	2-410
1-10	Data Print	8-070-2, 8-072-2
* 1-11	Set Energy Saving	3-400
2-1	Minimum Print Quantity	3-001
2-2	Maximum Print Quantity	3-002
2-3	Copy Count Display	2-230
2-5	Panel Beeper	2-030
2-6	LCD Contrast Adjustment	6-050
** 2-7	Set Delivery Capacity	3-540
3-1	Default Paper Type	2-020-3
3-2	Default Master Density	2-020-4
3-3	Default Original Mode	2-020-1
3-4	Magnification Ratio Settings	3-010-1 to -8
3-5	Class Mode Settings	3-100
3-5	Class Entry Number Settings	3-100 to 3-108
3-6	Default Photo/Lightness	2-020-9
3-7	Default Photo/Screen	2-020-10
3-8	Default Tint Mode	2-020-2
3-9	Margin Erase Area Settings	3-060-1 to -22
3-9	Custom Margin Erase Area Settings	3-061-1 to -2
3-10	Default On-line Paper Size	2-020-11
3-11	Ratio Priority	2-020-16
** 3-12	Delivery Tray Position	3-541 to 544
4-1	Default Auto Cycle Mode	2-020-6
4-2	Class Entry Per Orig.	2-241
4-3	Paper Width Detection	2-042-1
4-4	ADF Orig. Size Detect	2-046-2
4-5	Platen Orig. Size Detect	2-046-1
4-6	Background ON/OFF	2-031

No.	Display	Equivalent SP No.
4-7	Long Paper Mode	2-060
4-8	Auto Combine Originals	2-070
4-9	Combine Orig. Sep. Line	2-250
4-10	Default Auto Cycle Mode	2-260
4-11	Skip Feed Mode Display	2-320
4-11	Number of Skip Feeds	3-051
4-12	Manual Idling Rotation	3-090
4-13	Auto Quality Start	2-110
4-14	Quality Start Mode Settings	3-091 to 3-093
4-15	Exit Wing Position	2-120
4-16	Print Restart in Class	2-270
4-17	Job Sep. At Class Mode	2-271
4-18	Ink/Master Left	2-210
4-19	User1 Paper Type	2-400
4-19	User2 Paper Type	2-401
4-20	Auto Image Rotation	2-150
4-21	Master Cut Length	2-170
4-22	Tray Priority	2-280
** 4-23	Limitless Feeding	2-140
4-24	Tray Display	2-281
4-25	Jogger Setting	2-660-1 to 2
** 4-26	Auto Paper Selection	2-282
* 4-27	Adjusting Sharpness of Letters	2-50
5-1	Stamp Type	2-300
5-2	Default Stamp Size	2-301
5-3	Default Stamp Density	2-302
5-4	Default Stamp Position	2-303
5-4	Stamp Position Adjustments	3-120 to 3-128
5-5	User Stamp Size	2-304
5-6	User Stamp Density	2-305
5-7	Default User Stamp Position	2-306
5-7	User Stamp Position Adjustments	3-130 to 3-138
5-8	Register User Custom Stamps	8-100-1 to -4
5-9	Date Stamp Type	2-307
5-10	Default Date Stamp Position	2-308
5-11	Date Stamp Position Adjustments	3-140 to 3-143
5-12	Page Numbering Type	2-309
5-13	Default Page Stamping Positions	2-310-1 to -2
5-14	Page Stamping Position Adjustments	3-150 to 3-153
5-15	Register Makeup Pattern	8-110
6-1	Master and Print Counters for Each User Code	1-030 to 1-040
6-1	Master Counter for All User Codes	1-031-1
6-1	Print Counter for All User Codes	1-031-2
6-2	Clear Counters for Each User Code	7-020-1 to -20
6-3	Register User Code	3-110

No.	Display	Equivalent SP No.
6-4	Change User Code	3-111
6-5	Clear User Code	3-113
6-6	Key Operator Code	2-290
6-7	Register Key Operator	3-112
6-8	Restricted Access	2-291

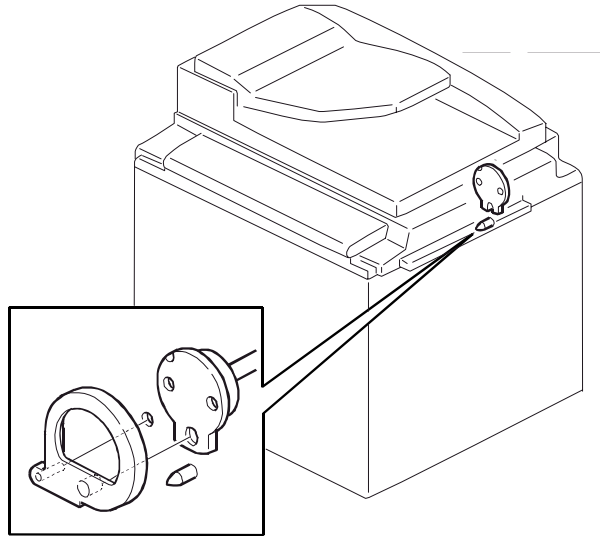
5. PREVENTIVE MAINTENANCE

There are no differences from the C229 model in this section.

6. REPLACEMENT AND ADJUSTMENT

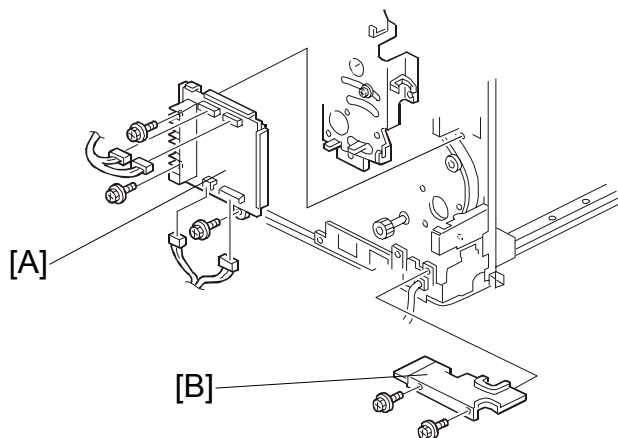
6.1 PRINTING SECTION

6.1.1 TORQUE LIMITER



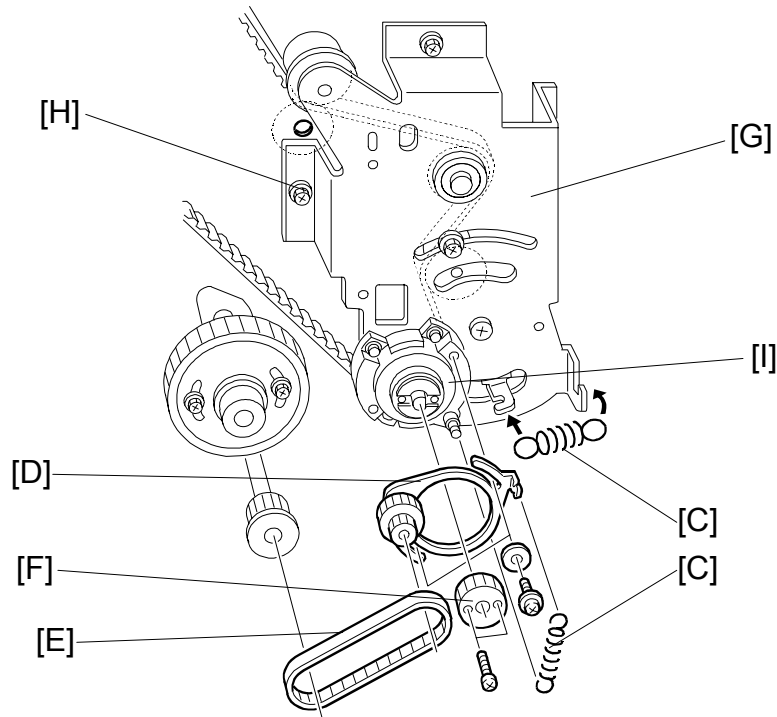
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1. Turn off the main switch and remove the drum.
2. Set the drum drive-securing tool.
3. Remove the rear cover and swing out the PSU (see the C229 service manual).



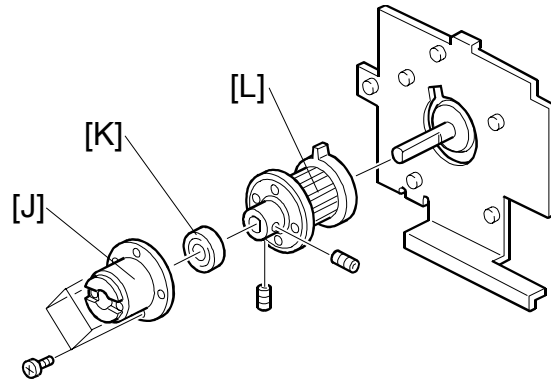
C232R503.WMF

4. Remove the main motor control board [A].
5. Remove the wire protection cover [B].



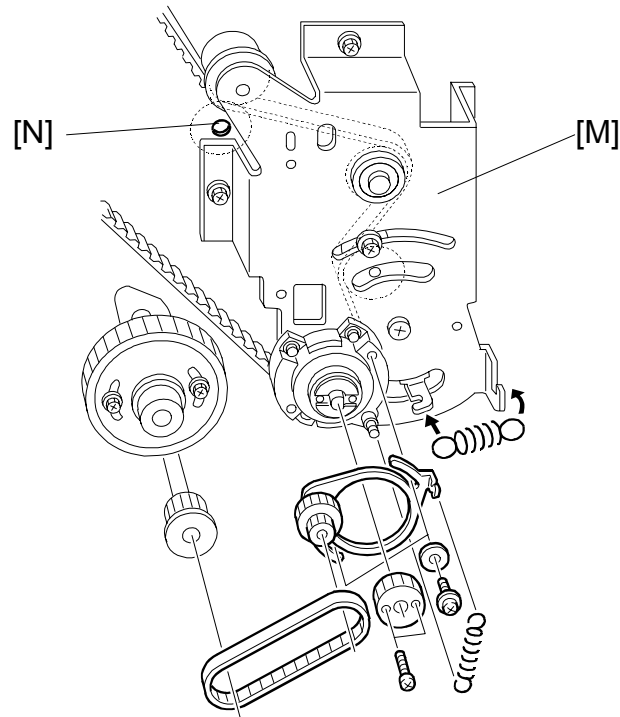
C232R506.WMF

6. Remove the 2 springs [C].
7. Remove the pulley bracket [D].
8. Remove the timing belt [E].
9. Remove the gear [F].
10. Remove the bracket [G].
 - CAUTION:** Screw [H] is located under the main wire harness. Take care not to damage the wire harness when removing it.
11. Remove the bearing [I] on the bracket.

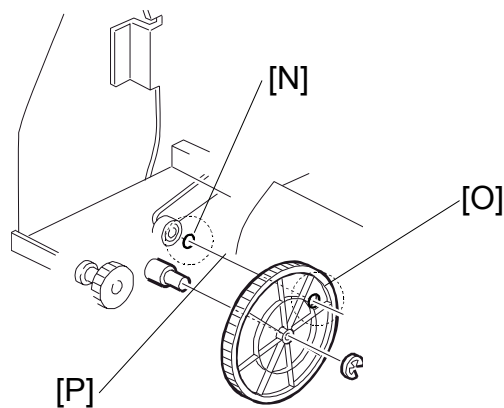


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12. Remove the bracket [J] (4 screws).
13. Remove the bearing [K].
14. Remove the torque limiter [L] (2 Allen screws).



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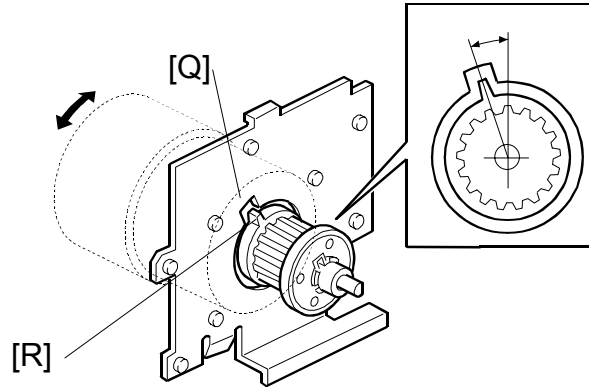


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15. Install the bracket [M]

CAUTION: Make sure that the positioning holes in the rear frame [N] and the drive gear [O] are in line [P] as shown. If the holes are in line, the paper exit pawl drive timing is OK. If they are not, make sure that the holes are in line again.

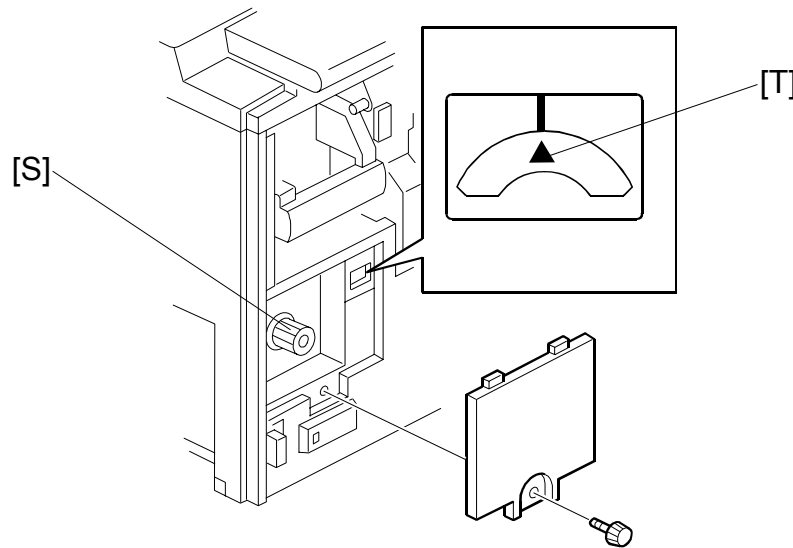
16. Install the bearing (removed in step 11) on the bracket.



C232R509.WMF

17. Align the cutout in the bracket [Q] with the pawl on the torque limiter [R] as shown.
18. Install the spring.

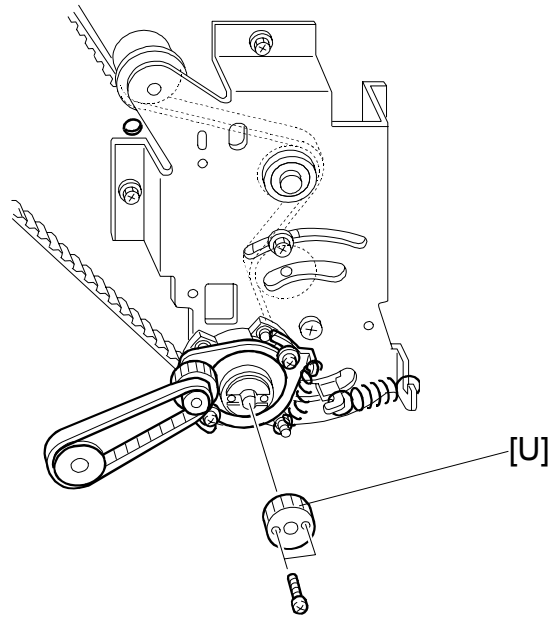
CAUTION: If the cutout and pawl are in line, the main motor drive timing is OK. If they are not, remove the spring, then make sure that the cutout and pawl are in line again.



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19. Install the timing belt and pulley bracket.

CAUTION: When you install the pulley bracket, adjust with the knob [S] until the line and arrow on the indicator disk are in line [T].



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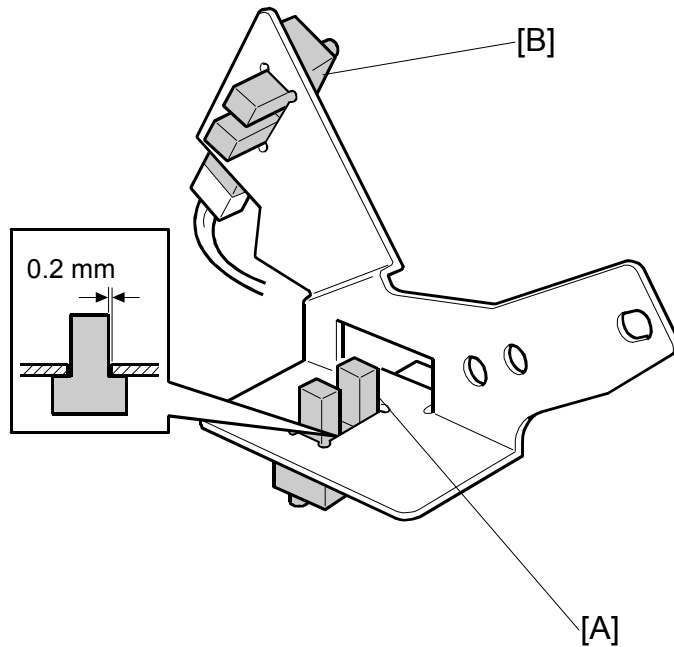
20. Install the gear [U].
21. Install the wire protection cover.
22. Install the main motor control board.
23. Install the rear cover.
24. Remove the drum drive securing tool.

6.1.2 FEED START SENSORS AND FEED ENCODER

The feed start sensor and feed encoder must be set in the correct positions to avoid paper feed trouble once they are removed. For general instructions and cautions for these sensors, refer to 6.10.2 'Feed Start Sensor and Feed Encoder' in the C229 Service Manual.

In addition, the following caution must be taken as a specific procedure for the C233 model. This is necessary because the configuration of the sensors' bracket was changed.

CAUTION: Make sure that the distance between the feed encoder sensor [A] and the sensor bracket is less than 0.2 mm.



B: Paper table feed start sensor

6.2 PAPER FEED SECTION (MAIN BODY)

6.2.1 PAPER FEED LENGTH ADJUSTMENT

CAUTION: The last digits of the SP numbers for this adjustment (SP 6-116) are different from the C229 model. Please refer to the chart below and note the changes in the numbers. Also, note that the default values are different for some items.

C229 Model			C233 Model		
SP No.	Display	Default	SP No.	Display	Default
6-116-1	Paper Clamp Timing Pulse	143	6-116-1	Paper Clamp Timing Pulse	145
6-116-2	Regist Timing Pulse	113	6-116-4	Regist Timing Pulse (Do not adjust this item.)	113
6-116-3	Feed Stop Timing Pulse	25	6-116-5	Feed Stop Timing Pulse	21
6-116-4	Regist Speed Ctl Pulse	20	6-116-6	Print Position 2 Setting (Do not adjust this item.)	103
6-116-5	Paper Clamp – Thick Paper	150	6-116-2	Paper Clamp - Thick Paper	148
6-116-6	Regist – Thick Paper	213	6-116-7	Print Position 1 Setting (Do not adjust this item.)	140
6-116-7	Paper Clamp Pls – A4 Cam	143	6-116-3	Paper Clamp Pls - A4 Cam (Do not adjust this item.)	145

Paper Feed Motor Stop Timing Adjustment

The SP mode number and its default value used in this adjustment are different from those in the C229 model. There are no other differences from the C229 model. (The adjustment procedure remains the same, except for the SP number and default value.)

Adjustment procedure

To ensure that the paper reaches the registration roller (main body) properly. Changing the paper feed motor stop timing with SP 6-116-5 changes the paper feed length for the paper feed roller.

CAUTION: Do not change SP6-110 and 6-111 (these change the paper feed start timing)

1. Turn on the main switch, then access the SP mode.
2. Enter SP6-116-5.
3. Increase or decrease the value on the display.
NOTE: 1) Before changing the value, check the current setting, in case you need to recover the previous setting. (Default for SP6-116-5: "21")
2) Changing the value by +1 increases the paper feed motor's on-time and feeds the paper an extra 0.3 mm.
4. Leave the SP mode, then check the paper feed performance. If the problem still occurs, repeat the above steps.

Paper Clamping Timing Adjustment

The SP mode numbers and their default values used in this adjustment are different from those in the C229 model. There are no other differences from the C229 model. (The adjustment procedure remains the same, except for the SP numbers and default values.)

Adjustment procedure

To ensure that the paper reaches the paper clumper on the pressure cylinder properly. Changing the paper clamping timing with SP6-116-1 (or 6-116-2) changes the paper feed length for the paper registration roller (main body).

CAUTION: Do not change SP6-112 to 6-115 (these change the registration motor start timing). In addition, do not change SP6-116-3, -4, -6 or -7.

1. Turn on the main switch, then access the SP mode.
2. Enter SP6-116-1 (or 6-116-2).

NOTE: The paper clamping timing depends on the paper type selected at the operation panel. SP6-116-1 is the adjustment for normal paper only. For thick paper, use SP6-116-2. (Note that in thick paper mode, paper clamping is not done.)
3. Increase or decrease the value on the display.

NOTE: 1) Before changing the value, check the current setting, in case you need to recover the previous setting. (The default for SP6-116-1 is "145", and for SP6-116-2 it is "148".)

2) Changing the value by +1 decreases the registration motor's on-time and feeds the paper 0.3 mm less.
4. Leave the SP mode, then check the paper feed performance. If the problem still occurs, repeat the above steps.







7. POINT TO POINT DIAGRAM

Contents

- Location Map
- Section A
- Section B
- Section C
- Section D
- Section E
- Section F

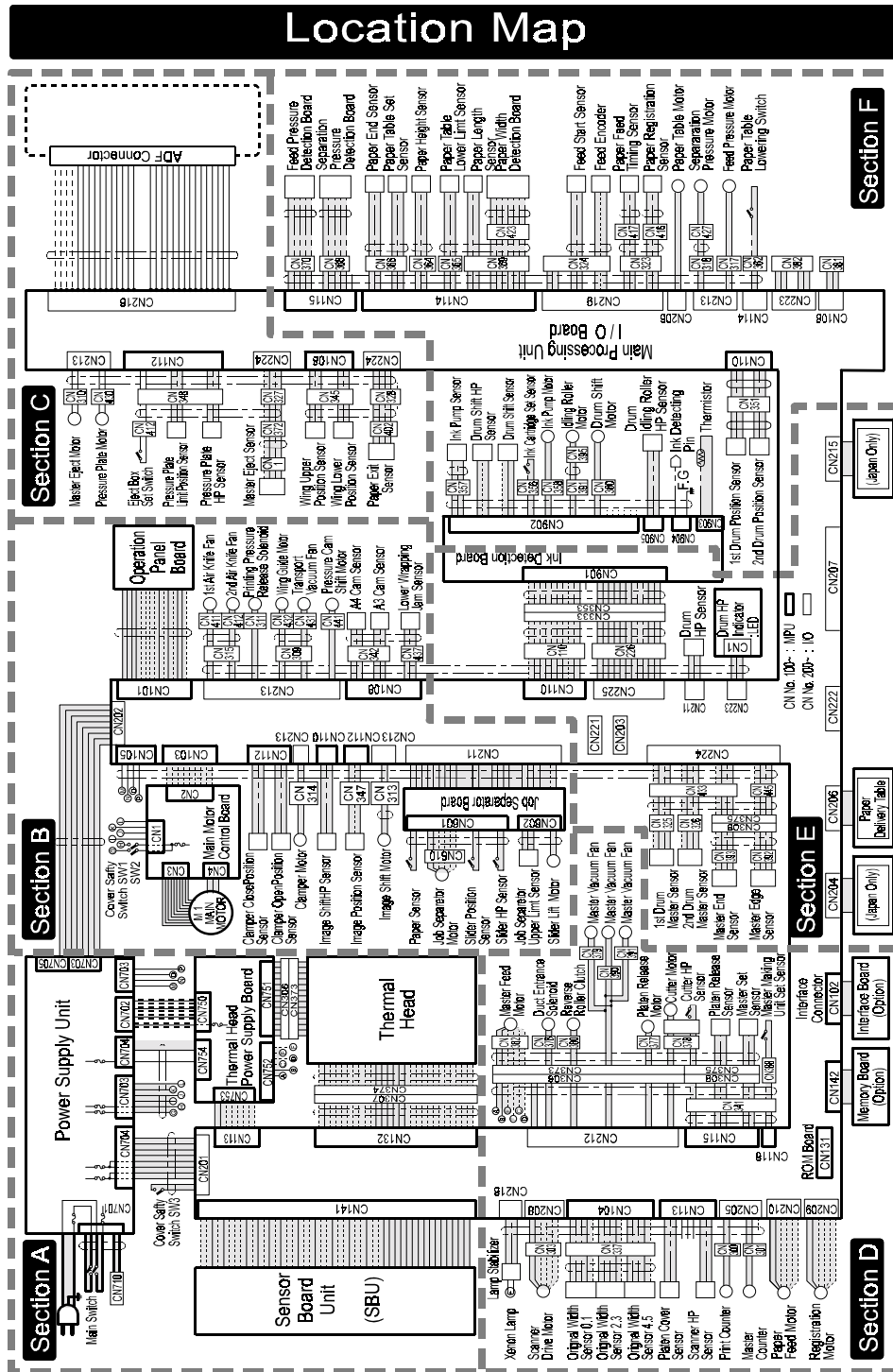
NOTE: The symbols used in the diagrams are as follows:

- SYMBOL TABLE -

	AC Line
	DC Line
	Pulse Signal Line
	Signal Direction
	Active High Signal
	Active Low Signal

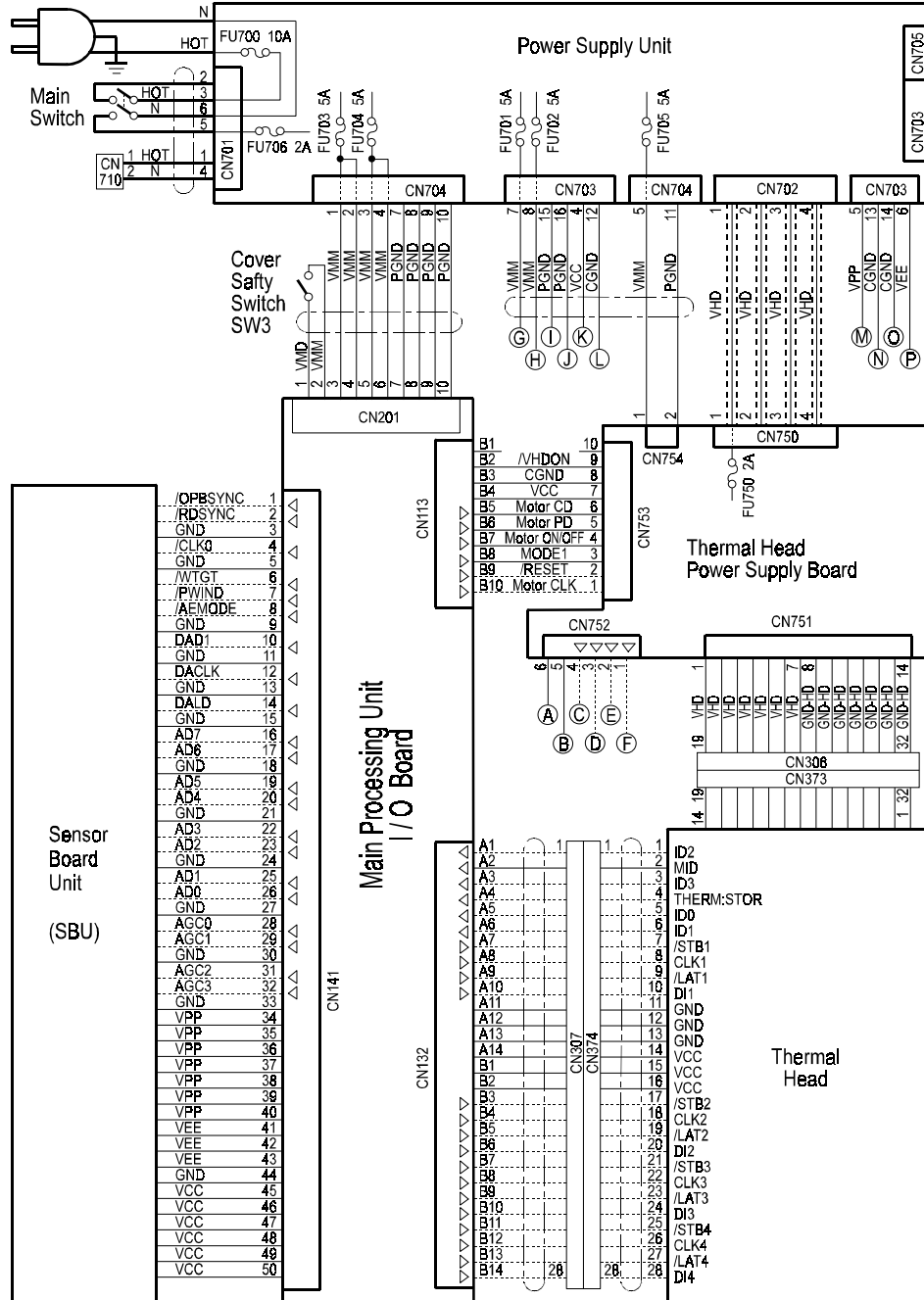
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7.1 LOCATION MAP



7.2 SECTION A

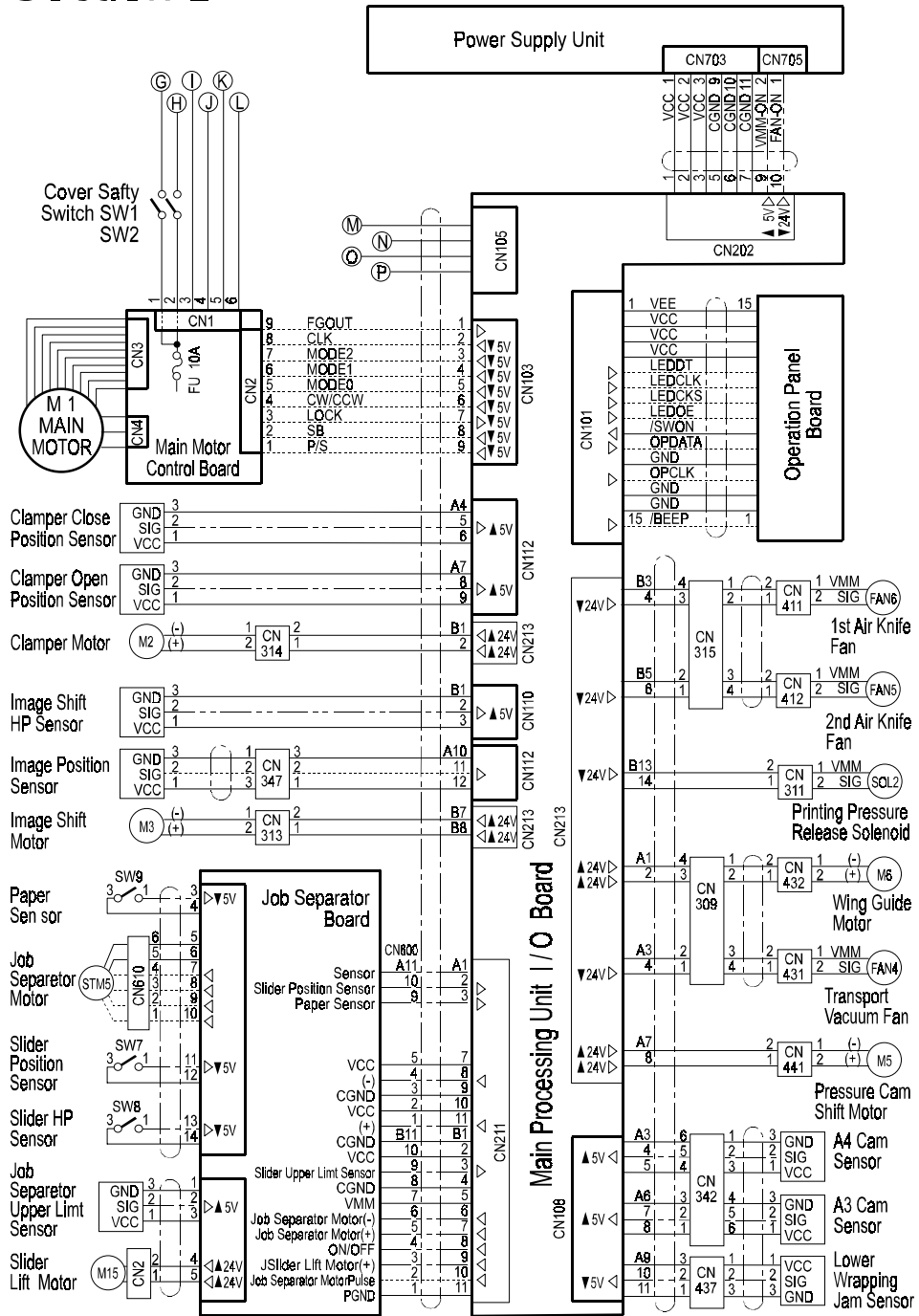
Section A



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7.3 SECTION B

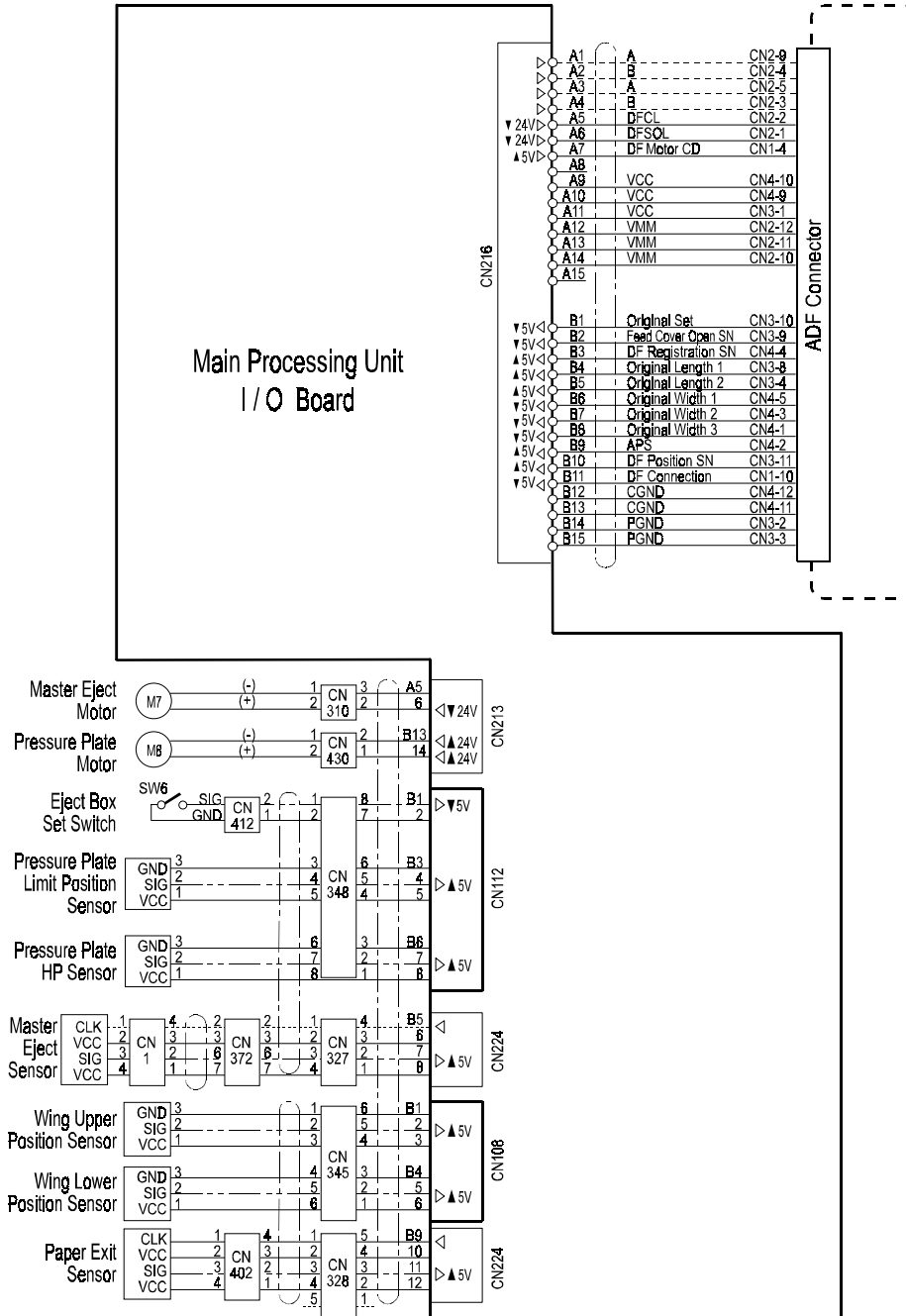
Section B



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7.4 SECTION C

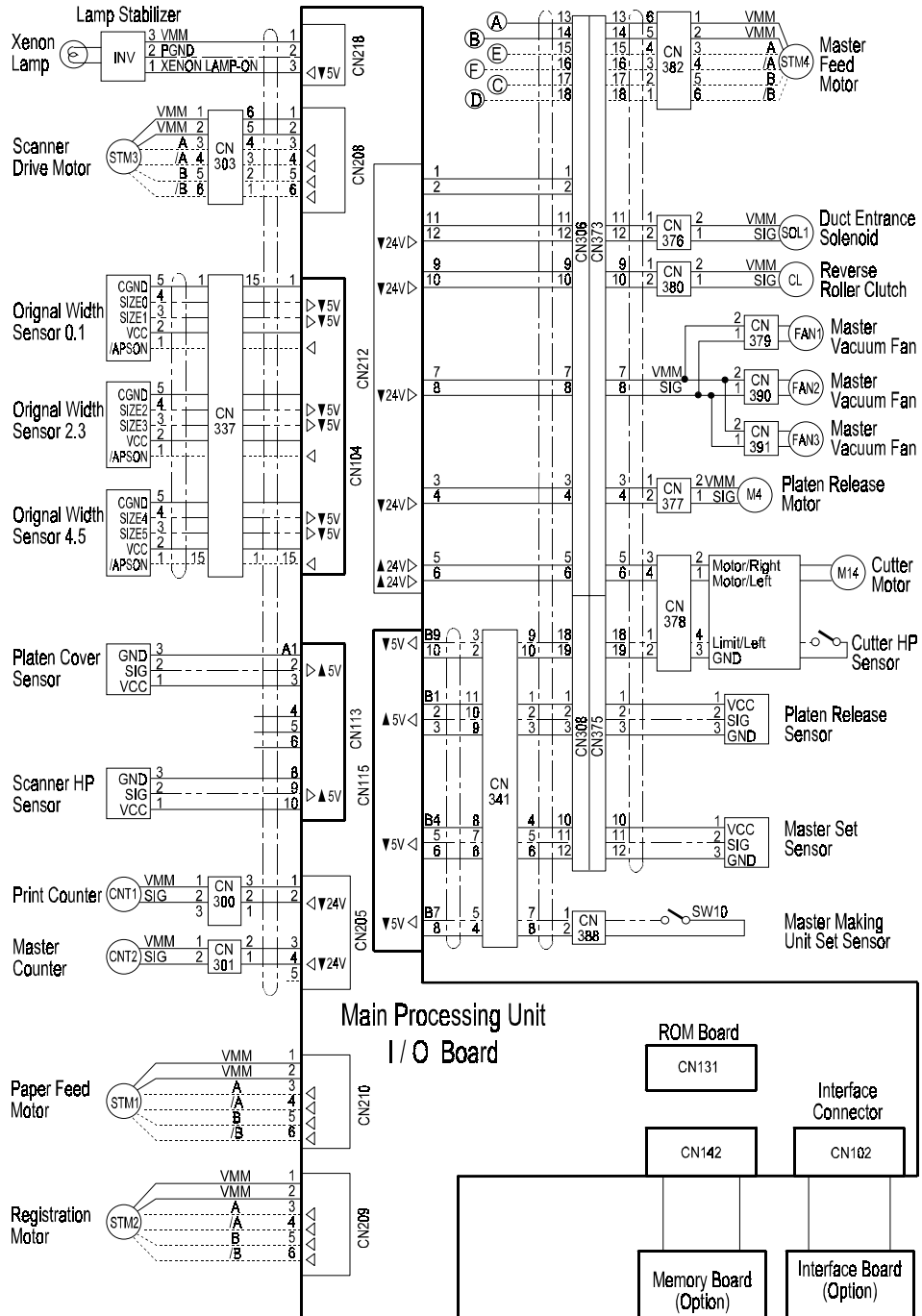
Section C



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7.5 SECTION D

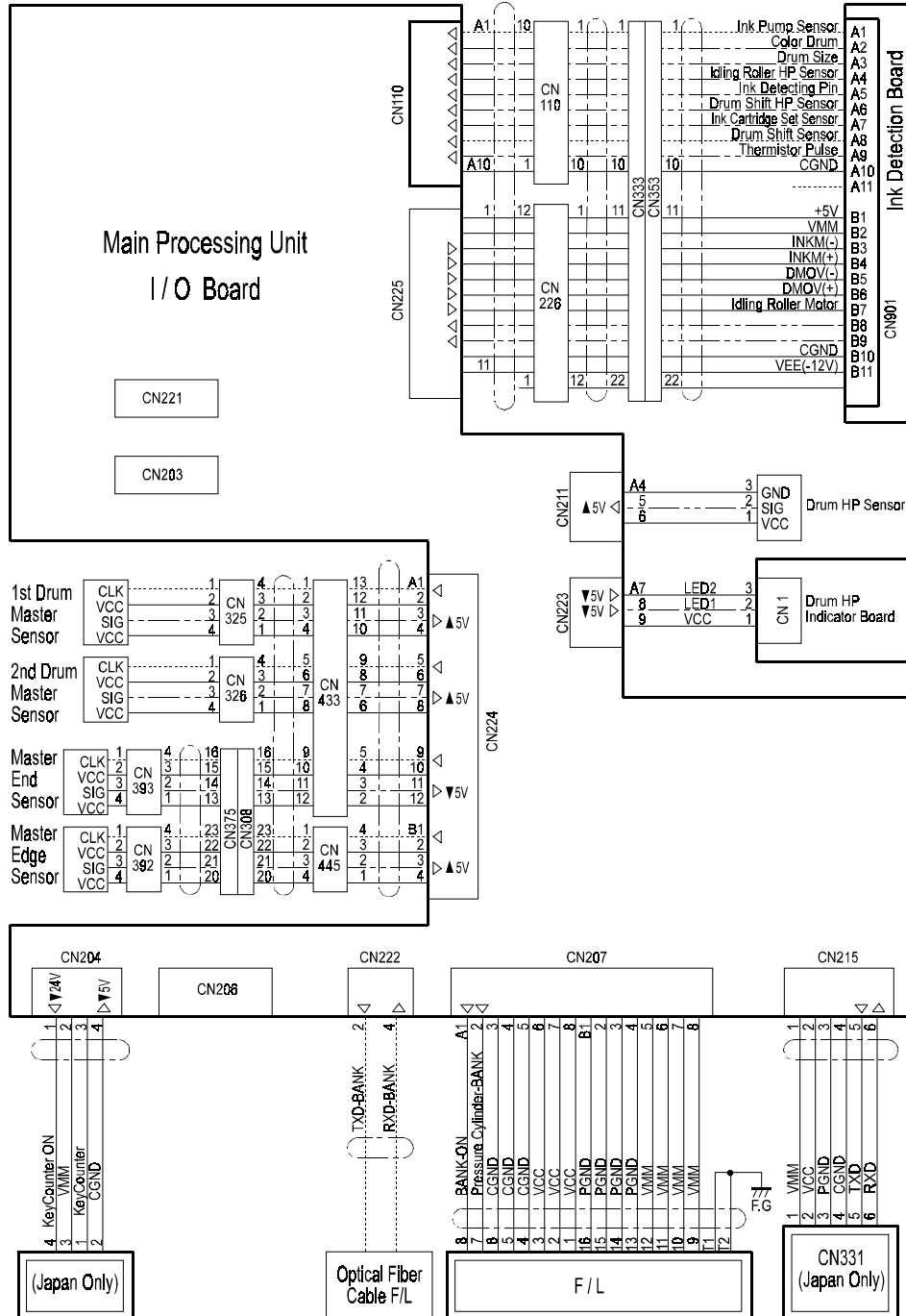
Section D



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7.6 SECTION E

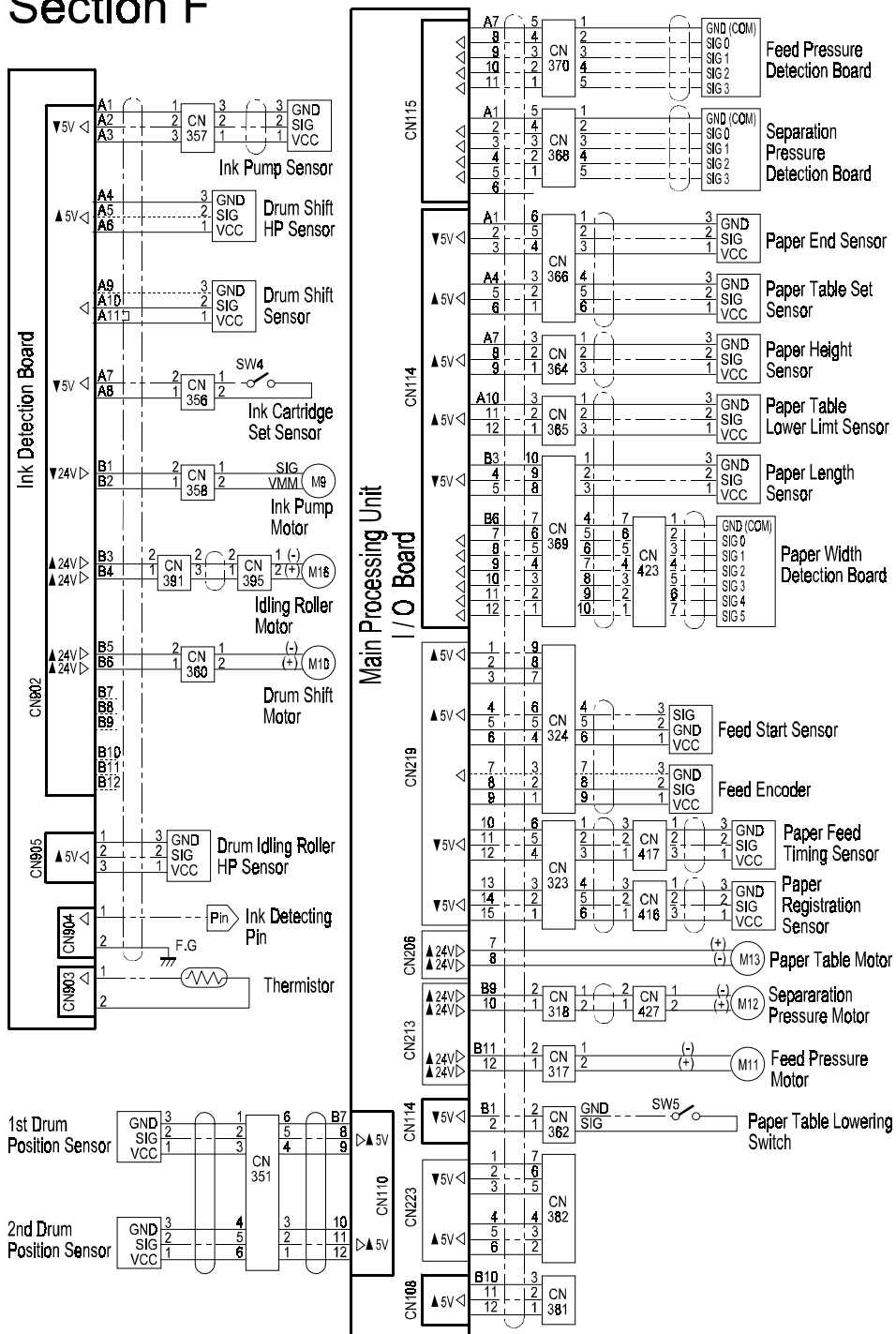
Section E



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7.7 SECTION F

Section F



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