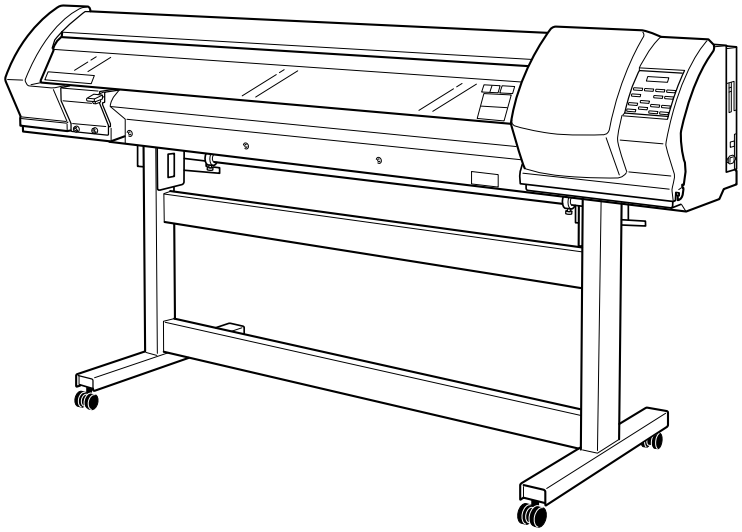
SERVICE NOTES

Roland

VersaCAMM Roland DG Corporation

SP-540V

Confidential



TERMS OF USE

Users of this Service Note shall be deemed to agree with the following Terms of Use.

1. USERS

   This Service Note is only for authorized persons with user ID and password issued by Roland DG Corporation.

2. PURPOSE

   Authorized persons can use this Service Note only for the purposes of selling and providing to the customers maintenance service of SP-540V.

3. REUSE

   Authorized persons shall not disclose, transfer, rent or distribute this Service Note to, or allow this Service Note to be used in any manner by, any third party other than authorized persons.

4. REPRODUCTION

   Authorized persons shall not copy, change or alter this Service Note without permission of Roland DG Corporation.

5. EFFECT OF VIOLATION

   Regardless of circumstances, we will vigorously respond to any violation hereof, through legal action.

Roland DG Corporation

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Revision Record

Revision No.	Date	Description of Changes	Approval	Issued
0	2004.10.14	First Edition	Inagaki	Sato
1	2004.10.25	1-7 : PINCH ROLLER Parts No. have been changed.	Inagaki	Sato
2	2005.1.6	1-3 : DRIVE UNIT, 1-4 : HEAD CARRIAGE Parts has been revised.	Inagaki	Mabuchi
3	2005.1.28	2-6 : MEINTENANCE PARTS LIST_Electrical Parts has been revised.	Inagaki	Mabuchi
4	2005.6.21	3-14 : FLEXIBLE CABLE REPLACEMENT has been added. 6-10 : MOTOR ERROR <ERROR LIST> has been revised.	Kato	Mabuchi
5	2005.7.15	1-4 : HEAD CARRIAGE Parts has been revised.	Kato	Hioki
6	2005.9.13	1-3 : DRIVE UNIT, 1-10 : WIPER Parts has been revised.	Kato	Hioki
7	2006.1.12	1-4 : HEAD CARRIAGE Parts has been revised.	Kato	Misako
8	2006.12.26	3-8 : BATTERY REPLACEMENT Procedures have been revised. 1-11: PUMP SYSTEM Parts have been revised.	Kato	Misako
9	2007.1.9	1-5 : BASE FRAME Parts have been revised.	Kato	Misako
10	2007.4.26	1-4 : HEAD CARRIAGE Parts has been revised.	Kato	Satoru
11	2007.12.7	1-3 : DRIVE UNIT, 1-4 : HEAD CARRIAGE, 1-10 : WIPER, 1-11: PUMP SYSTEM, 1-13 : ACCESSORIES & STAND Parts have been revised. Sect 3 : "WARNING" has been added. 4-2 : SERVICE MODE SYSTEM SWITCH has been revised.	Kato	Misako

To Ensure Safe Work

About ⚠WARNING and ⚠CAUTION Notices.

⚠WARNING	Used for instructions intended to alert the operator to the risk of death or severe injury should the unit be used improperly.
⚠CAUTION	Used for instructions intended to alert the operator to the risk of injury or material damage should the unit be used improperly. * material damage refers to damage or other adverse effects caused with respect to the home and all its furnishings, as well to domestic animals or pets.

About the Symbols

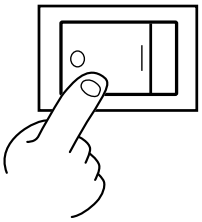
	The ⚠ symbol alerts the user to important instructions or warnings. The specific meaning of the symbol is determined by the design contained within the triangle. The symbol at left means “danger of electrocution”.
	The ⃠ symbol alerts the user to items that must never be carried out (are forbidden). The specific thing that must not be done is indicated by the design contained within the circle. The symbol at left means not to touch.
	The symbol alerts the user to things that must be carried out. The specific thing that must be done is indicated by the design contained within the circle. The symbol at left means the power-cord plug must be unplugged from the outlet.

In addition to the **⚠WARNING** and **⚠CAUTION** symbols, the symbols shown below are also used.

 : Tips and advise before the adjustment.

⚠WARNING

Turn off the primary power SWs for the Printer and Dryer before servicing.

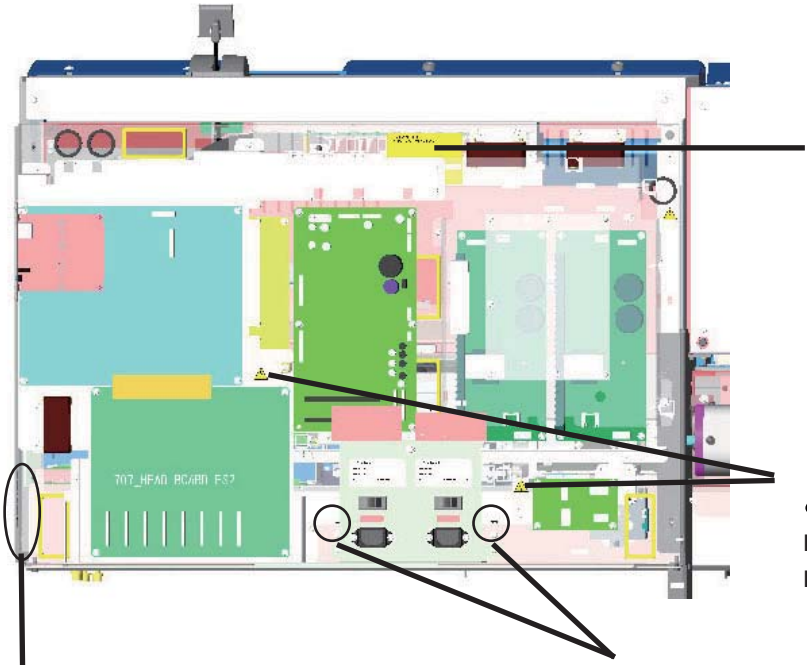


Do not recharge, short-circuit, disassemble the lithium battery, nor put it into fire.
It may cause heat, explosion and fire.

Put tape around the lithium battery for insulation for disposal or preservation.
It may cause heat, explosion and fire.

About the Labels Affixed to the Unit

These labels are affixed to the body of this product.
The following figure describes the location.



HIGH VOLTAGE,
HANDLING ATTENTION
- Do not touch during power on
  Electric shock, Compornents damage
- Do not repair. Replace power unit.
- Do not replace fuse. Can not be recovered.

高電圧、取扱注意！
・通電中接触不可。感電、部品破損あり。
・修理不可。基板交換のこと。
・ヒューズ交換不可。復元不能。

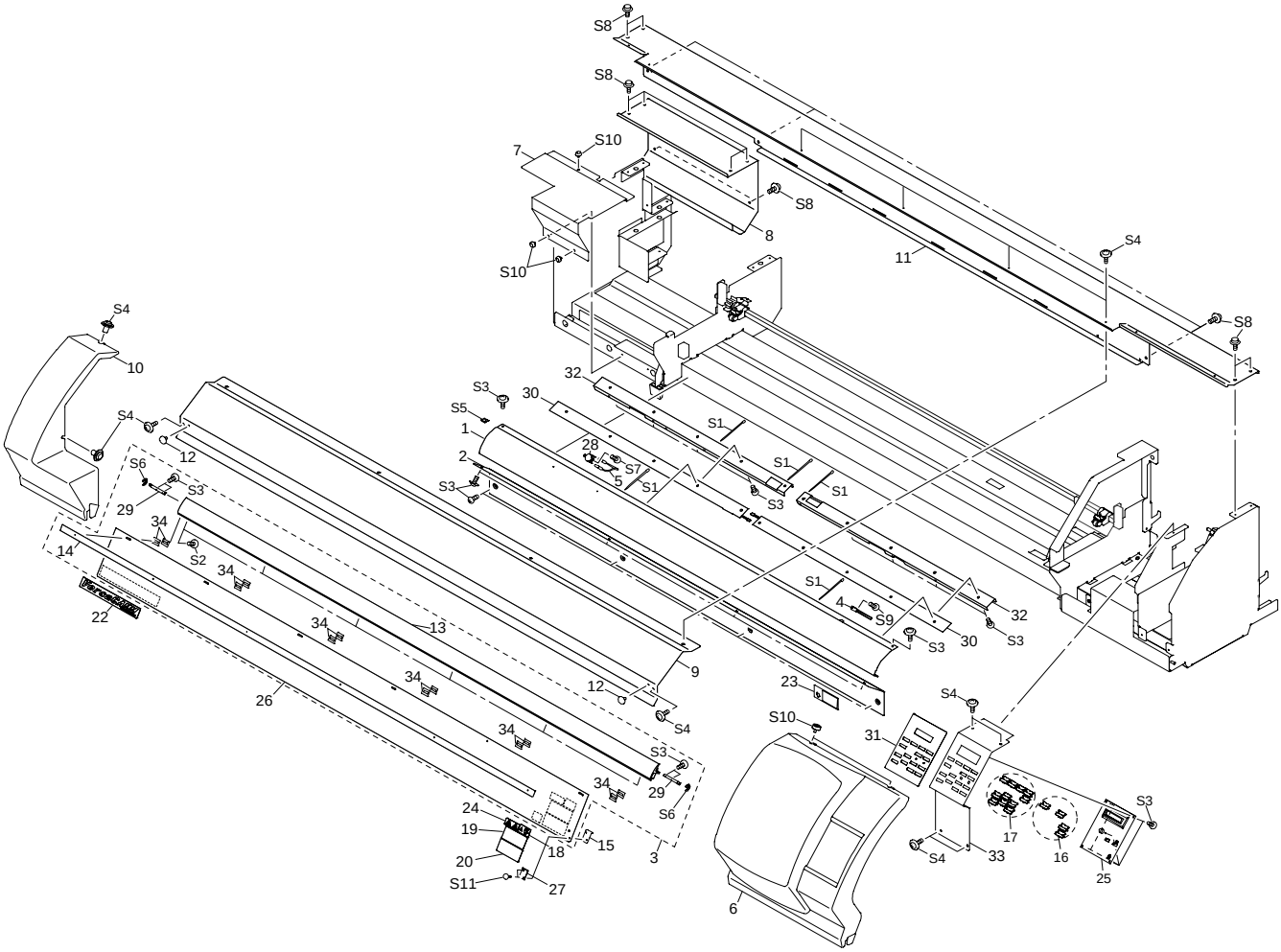
Electric charge.
Do not touch when power is on.

WARNING – FOR CONTINUED PROTECTION AGAINST RISK OF FIRE, REPLACE ONLY WITH FUSE OF THE SPECIFIED TYPE AND CURRENT RATING.

ATTENTION – AFIN D'EVITER TOUT RISQUE D'INCENDIE, N'UTILISER QUE DES FUSIBLES DE LA TAILLE ET DU TYPE SPECIFIES. F80L HS

The wiring terminal untended for connection of the protective earthing conductor associated with the supply wiring.
Do not disconnect the cable of this terminal except the time of replacement.

1-1 COVER



PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22095156-00	APRON,FRONT AL SP-540V
2	22095158-00	APRON,FRONT UNDER SP-540V
3	22805567-00	ASS'Y,FRONT COVER SP-540V
4	23415133-00	ASS'Y,THERMISTOR CABLE SP-300
5	23415112-00	ASS'Y,THERMOSTAT CABLE SP-300
6	22045135-00	COVER,INK SYSTEM SP-300
7	22045114-01	COVER,MAINTENANCE INKHEAD SP-300
8	22045371-00	COVER,INK CARTRIDGE SP-540V
9	22045376-00	COVER,RAIL F SP-540V
10	22045134-00	COVER,SIDE L SP-300
11	22045373-00	COVER,TOP SP-540V
12	12239406-00	CUSHION,TM-96-6
13	22195140-00	FRAME,COVER F SP-540V
14	21655310-00	HOLDER,COVER F SP-540V
15	21645106-00	HOOK,INT SW FJ-540
16	22495211-00	KEYTOP,DS-LD1H BLK
17	22495210-00	KEYTOP,DS-LX1H BLK
18	22535287-00	LABEL,CAUTION CARRIAGE #LA266
19	22535443-00	LABEL,MEDIA CLAMP SP-300
20	22535390-00	LABEL,EMERGENCY STOP #LA496
22	22535453-00	LABEL,VERSACAMM SP-300 #LA649
23	22535452-00	LABEL,VOLTAGE SW SP-300 #LA648
24	22535330-00	LABEL,WARNING SOL INK #LA396

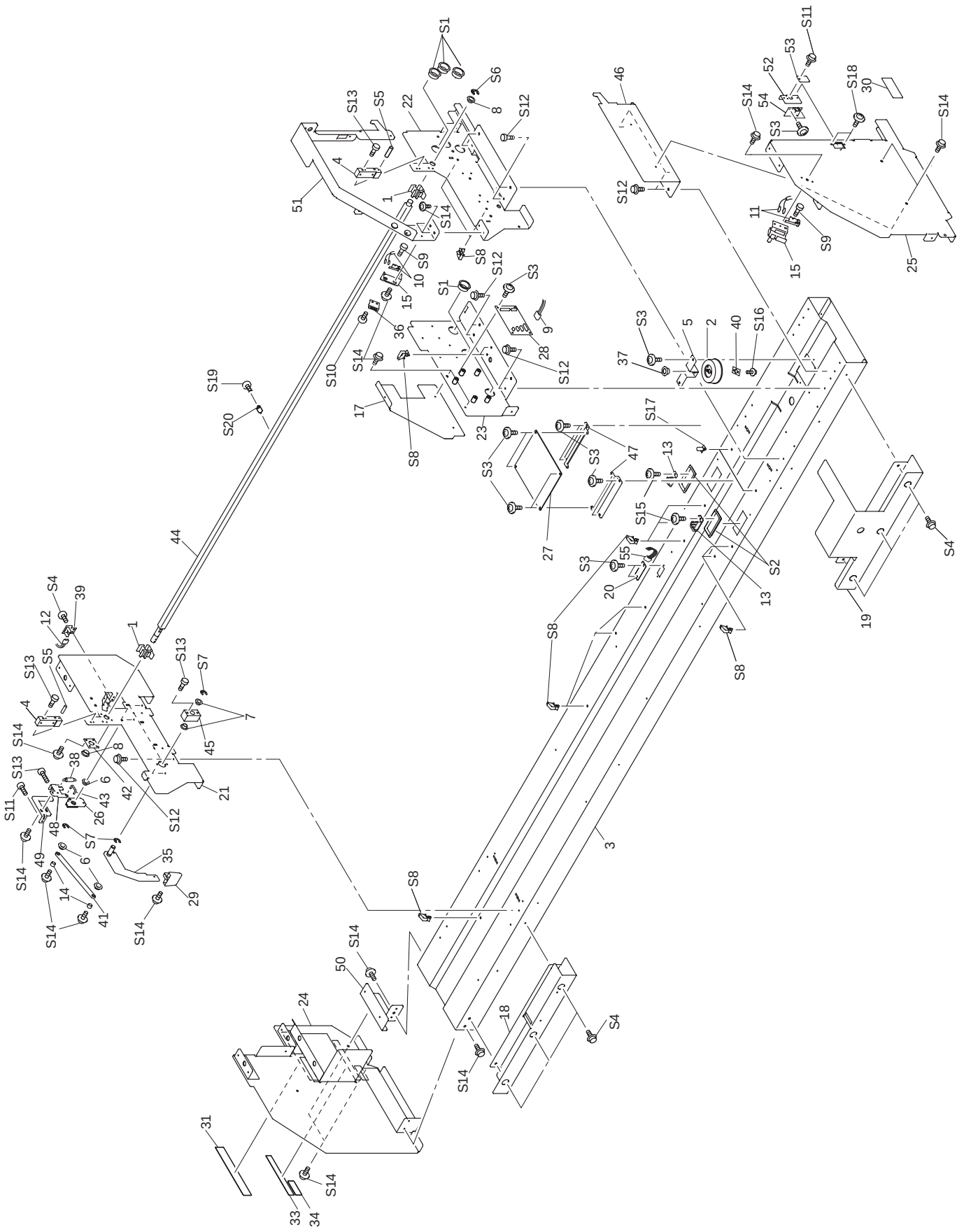
PARTS LIST -Main Parts-

	Parts No.	Parts Name
25	W840605010	PANEL BOARD SP-300
26	22055690-00	PLATE,FRONT COVER SP-540V
27	22055356-00	PLATE,F COVER CM-500
28	15099124-00	SENSOR,US-602SXTLAS 65OFF 50ON
29	22155958-00	SHAFT,COVER F FJ-540
30	21475189-00	SHEET,HEATER RUBBER SP-540V
31	21475155-00	SHEET,PANEL SP-300
32	22715468-00	STAY,HEATER HOLDER F SP-540V
33	22715355-00	STAY,PANEL SP-300
34	21425110-00	WASHER,COVER FJ-50

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31329601-00	CLAMP,INSULOK T-18S
S2	31289112-00	CUPSCREW, M3*10 NI
S3	31289102-00	CUPSCREW, M3*6 NI
S4	31289111-00	CUPSCREW, M4*6 NI
S5	31279106-00	LABEL,CAUTION HOT SURF NO.778
S6	31149703-00	RING,E-RING ETW-4 UNI-C
S7	31019148-00	SCREW,BINDING M2.6*4 C
S8	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0
S9	31089110-00	SCREW,PAN M3*4 C+PW
S10	31139103-00	SCREW,PLAPOINT M4*6 WH FE
S11	31019116-00	SCREW,BINDING M3*6 BC

1-2 FRAME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1-2 FRAME

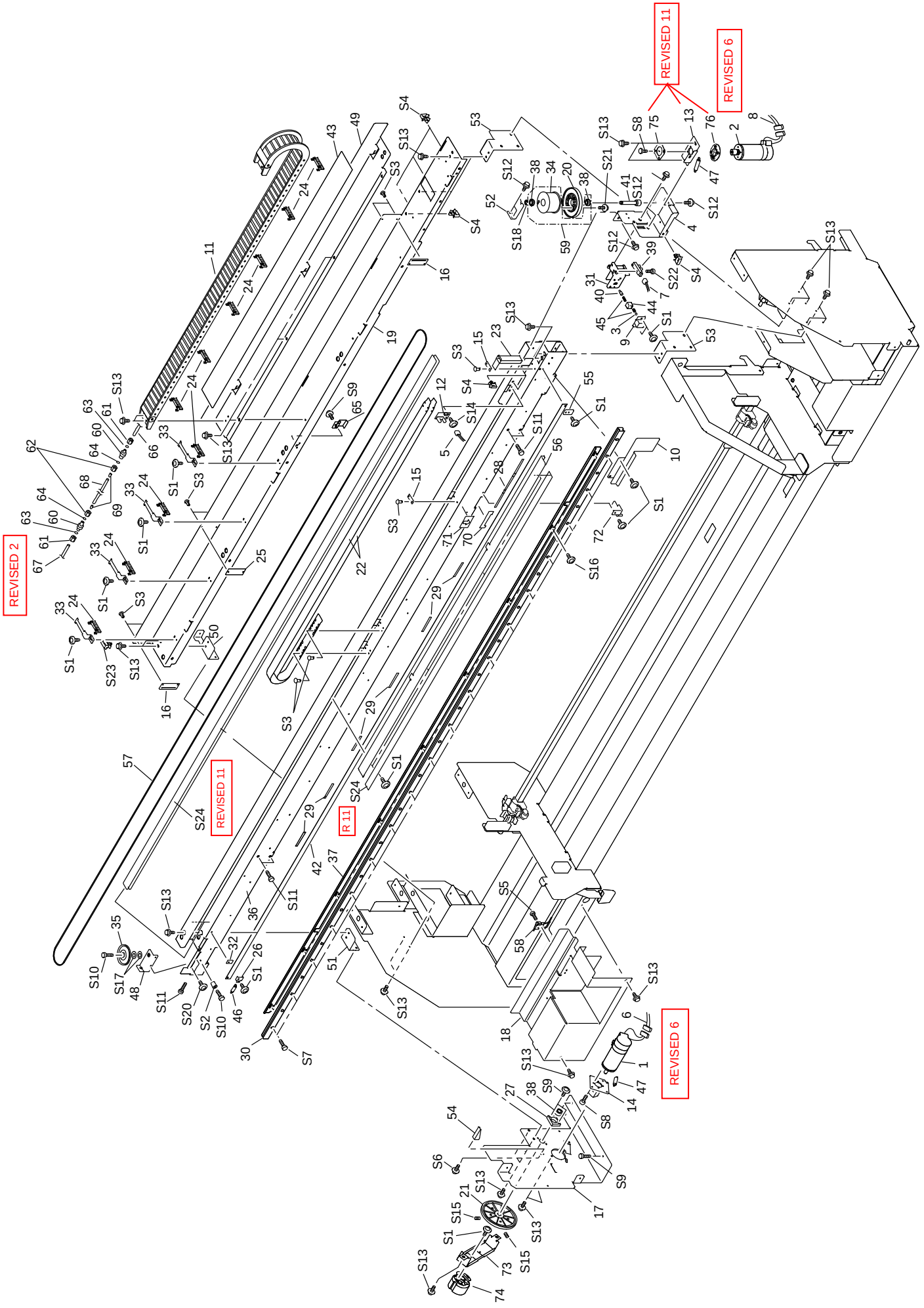
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	21905192-00	ADAPTER,MEDIA CLAMP SP-540V
2	7520501000-00	ASS'Y,CAP BOTTLE 2 FJ-52
3	22845192-00	BASE,BOTTOM SP-540V
4	22845104-00	BASE,RAIL SP-300
5	21985140-00	BRACKET,INK CATCH TANK SP-540V
6	12159573-00	BUSH,80F-0603
7	12159563-00	BUSH,80F-1006
8	12159508-00	BUSH,SHAFT OILES 80F-1206
9	23415129-00	CABLE ASS'Y,FAN SP-300
10	23415113-00	CABLE ASS'Y,FRONT COVER SW SP-300
11	23415114-00	CABLE ASS'Y,MNT. COVER SW SP-300
12	23415126-00	CABLE ASS'Y,LOADING SENSOR SP-300
13	23415271-00	CABLE-ASSY,V SELECTOR SP-540V
14	21745109-00	COLLAR,LEVER FJ-540
15	22045186-00	COVER,INK SYSTEM SW SP-300
16	22025980-00	COVER,INT SW FJ-540
17	22045372-00	COVER,SCAN MOTOR SP-540V
18	22045374-00	COVER,UNDER L SP-540V
19	22045375-00	COVER,UNDER R SP-540V
20	W876705040-00	FAN JUNCTION BOARD SP-540V
21	22195145-00	FRAME,MIDDLE L SP-540V
22	22195146-00	FRAME,MIDDLE R SP-540V
23	22195105-00	FRAME,SCAN MOTOR SP-300
24	22195148-00	FRAME,SIDE L SP-540V
25	22195149-00	FRAME,SIDE R SP-540V
26	22305101-00	GUIDE,LEVER SP-300
27	W876705020-00	HEATER POWER BOARD SP-540V
28	W840605020-00	JUNCTION BOARD 1 SP-300
29	22485104-00	KNOB FJ-50
30	22535444-00	LABEL,READ MANUAL #LA637
31	22535441-00	LABEL,SET INK SP-300 #LA634
33	22535442-00	LABEL,USE ONLY ECO-SOL #LA635
34	22535330-00	LABEL,WARNING SOL INK #LA396
35	22485108-00	LEVER,CAM PINCH SP-300
36	12399102-00	MAGNET CATCH TL-105
37	22155763-00	OILES BUSH 80F-0806
38	22175105-00	PINCH ROLL SPRING
39	W840605080-00	PINCH U/D SENS BOARD SP-300
40	22055474-00	PLATE,INK CATCH TANK FJ-52
41	22055589-00	PLATE,LEVER LINK SP-300
42	22055598-00	PLATE,SQUARE SHAFT SUPPORT SP-300
43	22145393-00	SHAFT,JOINT PNC-960
44	22295302-00	SHAFT,SQUARE SP-540V
45	22035196-00	STAND,LEVER SP-300
46	22715347-00	STAY,FRAME SIDE R SP-300
47	22715467-00	STAY,HEATER BOARD SP-540V
48	22715351-00	STAY,LEVER ADJUSTOR SP-300
49	22715350-00	STAY,PINCH LEVER SP-300
50	22715348-00	STAY,INK CARTRIDGE SUPPORT SP-300
51	22785101-00	SUPPORT,FRAME R SP-300
52	22715465-00	STAY,EXT BOARD SP-540V
53	22055644-00	PLATE,CONNECTOR TS-30
54	W876705060-00	EXT BOARD SP-540V
55	23415272-00	CABLE ASS'Y,FAN JUNCTION SP-540V

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31029101-00	BUSH,NB-19
S2	31029106-00	BUSH,SQUARE SB-6025
S3	31289102-00	CUPSCREW, M3*6 NI
S4	31289111-00	CUPSCREW, M4*6 NI
S5	31119904-00	PIN,SPRING 2.5*8 SUS STRAIGHT
S6	31149706-00	RING,E-RING ETW-10 SUS
S7	31149705-00	RING,E-RING ETW-7 SUS
S8	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S9	31019149-00	SCREW,BINDING M2.3*8 BC
S10	31019116-00	SCREW,BINDING M3*6 BC
S11	31049142-00	SCREW,CAP M3*6BC
S12	31049117-00	SCREW,CAP M4*12 BC+PW
S13	31049137-00	SCREW,CAP M4*25 BC
S14	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0.8
S15	31089110-00	SCREW,PAN M3*4 C+PW
S16	31239125-00	SCREW,W-SEMS M3*8 SUS
S17	31369102-00	SPACER,PCB SUPPORT PCB-8S
S18	31289105-00	CUPSCREW, M3*6BC
S19	31049171-00	SCREW,CAP M3*12NI
S20	31129101-00	PIPE,POLYCA3*6*8

1-3 DRIVE UNIT



1-3 DRIVE UNIT

PARTS LIST -Main Parts-

	Parts No.	Parts Name	
1	7876709020	ASS'Y, FEED MOTOR SP-540V REVISED 6	*1
2	7876709010	ASS'Y,SCAN MOTOR SP-540V REVISED 6	
3	11869103-00	BALL,4MM	
4	22845111-00	BASE,SCAN MOTOR SP-300	
5	23415123-00	CABLE ASS'Y,CUT CAR.ORG. SP-300	
6	23415124-00	CABLE ASS'Y,GRIT MOTOR SP-300	
7	23415127-00	CABLE ASS'Y,PRI. CAR. ORG. SP-300	
8	23415125-00	CABLE ASS'Y,SCAN MOTOR SP-300	
9	21365103-00	CASE,LOCK CJ-70	
10	22045130-00	COVER,CAP MOTOR SP-300	
11	12049377-00	COVER,TKPO180-2B R50-63	
12	W840605070-00	CUT ORIGIN BOARD SP-300	
13	1000003824	FRANGE,MOTOR SCAN SP-540V REVISED11	
14	21995122-00	FLANGE,MOTOR FJ-540	
15	W8406050C0-00	FLEX1 SP-300	
16	W8406050D0-00	FLEX2 SP-300	
17	22195144-00	FRAME,FEED MOTOR SP-540V	
18	22195108-01	FRAME,SUPPORT AUTO CUTTER SP-300	
19	22195150-00	FRAME,RAIL SUPPORT SP-540V	
20	21685149-00	GEAR,H235S20(B8)T2	
21	21685128-00	GEAR,H300 S10(B6C16POM)	
22	22305109-00	GUIDE,CABLE FLEX-CUT SP-540V	
23	22305103-00	GUIDE,CABLE CARD SP-300	
24	22135559-00	GUIDE,TUBE 8 FJ-500	
25	W876705060-00	FLEX3 SP-540V	
26	21655131-00	HOLDER,LINEAR SCALE CJ-70	
27	22115121-00	HOUSING,R-BEARING FRAME FJ-540	
28	22535388-00	LABEL,G-ROLLER 170 CJ-540 #LA487	
29	22535387-00	LABEL,G-ROLLER 50 CJ-540 #LA486	
30	21895169-00	L-BEARING,LWES15C3R2160QE	
31	21345111-00	LOCK,STAY SP-540V	
32	22055316-00	PLATE,LINEAR SCALE CJ-70	
33	22055591-00	PLATE,TUBE GUIDE SP-300	
34	21975157-00	PULLEY,HD48.46S16(B35C39.5 F53)	
35	21975154-00	PULLEY,UD49.2S4(B4.6C6.6)	
36	22645127-00	RAIL,GUIDE SP-540V	
37	22645129-00	RAIL,LINEAR SCALE SP-540V	
38	22175815-00	BEARING F8-1622	
39	15229506-00	SENSOR INTERRUPTER,GP1A05A5	
40	22295117-00	SHAFT,LOCK CJ-70	
41	22155963-00	SHAFT,PULLEY FJ-540	
42	21475188-00	SHEET,LINEAR SCALE SP-540V	
43	21475187-00	SHEET,RAIL CABLE SP-540V	
44	22185101-00	SLIDER,LOCK CJ-70	
45	22175134-00	SPRING,A CJ-70	
46	22175122-00	SPRING,BACKUP PNC-960	
47	22175157-00	SPRING,C P-ROLLER CM-500	
48	22035172-00	STAND,PULLEY SP-300	
49	22715462-00	STAY,COVER FLEX CABLE SP-540V	
50	22715361-00	STAY,GUIDE RAIL LB SP-300	
51	22715379-00	STAY,GUIDE RAIL LF SP-300	
52	22715363-00	STAY,PULLEY SHAFT SP-300	
53	22715356-00	STAY,GUIDE RAIL SUPPORT SP-300	
54	22135346-00	STOPPER,CAM CM-500	
55	22135441-00	STOPPER,LINEAR SCALE FJ-540	
56	22785115-00	SUPPORT,CABLE SP-540V	
57	21945149-00	WIRE,SCAN DRIVE SP-540V	
58	23415114-00	CABLE-ASS'Y,MAINT-COVER SW SP-300	
59	22805471-00	ASS'Y,PULLEY HD48.46S16 FJ-540	
60	11909168	ADAPTER,TUBE 2-3FAI FJ-540	
61	11909133	ADAPTER,SCREW 2FAI FJ-50	
62	11909167-00	ADAPTER,SCREW 3FAI FJ-540	
63	11659149	HOLDER,RING O 2FAI FJ-50	
64	11659249-00	HOLDER,RING O 3FAI FJ-540	
65	22055697-00	PLATE,SHAFT SQUARE SP-540V	
66	22805555-00	ASS'Y,TUBING 2*1600MM SP-540V	
67	22805479-00	ASS'Y,TUBING 2*100MM FJ-540 REVISED 2	

PARTS LIST -Main Parts-

	Parts No.	Parts Name
68	22805578-00	ASS'Y TUBING 3*1000MM SP-540V
69	22805478-00	ASS'Y TUBING 2*20MM FJ-540
70	22535517-00	LABEL,PINCH ROLL SP-540V #LA740
71	22535518-00	LABEL,PINCH ARROW SP-50V #LA739
72	22715469-00	STAY,HOLD SHAFT SQUARE SP-540V
73	22715466-00	STAY,FA-CODER SP-540V
74	25095120-00	GRIT ENCODER TS5217N561 FJ-540
75	1000003821	SPACER,FLANGE VP-540 REVISED11
76	1000003822	BASE,FLANGE VP-540

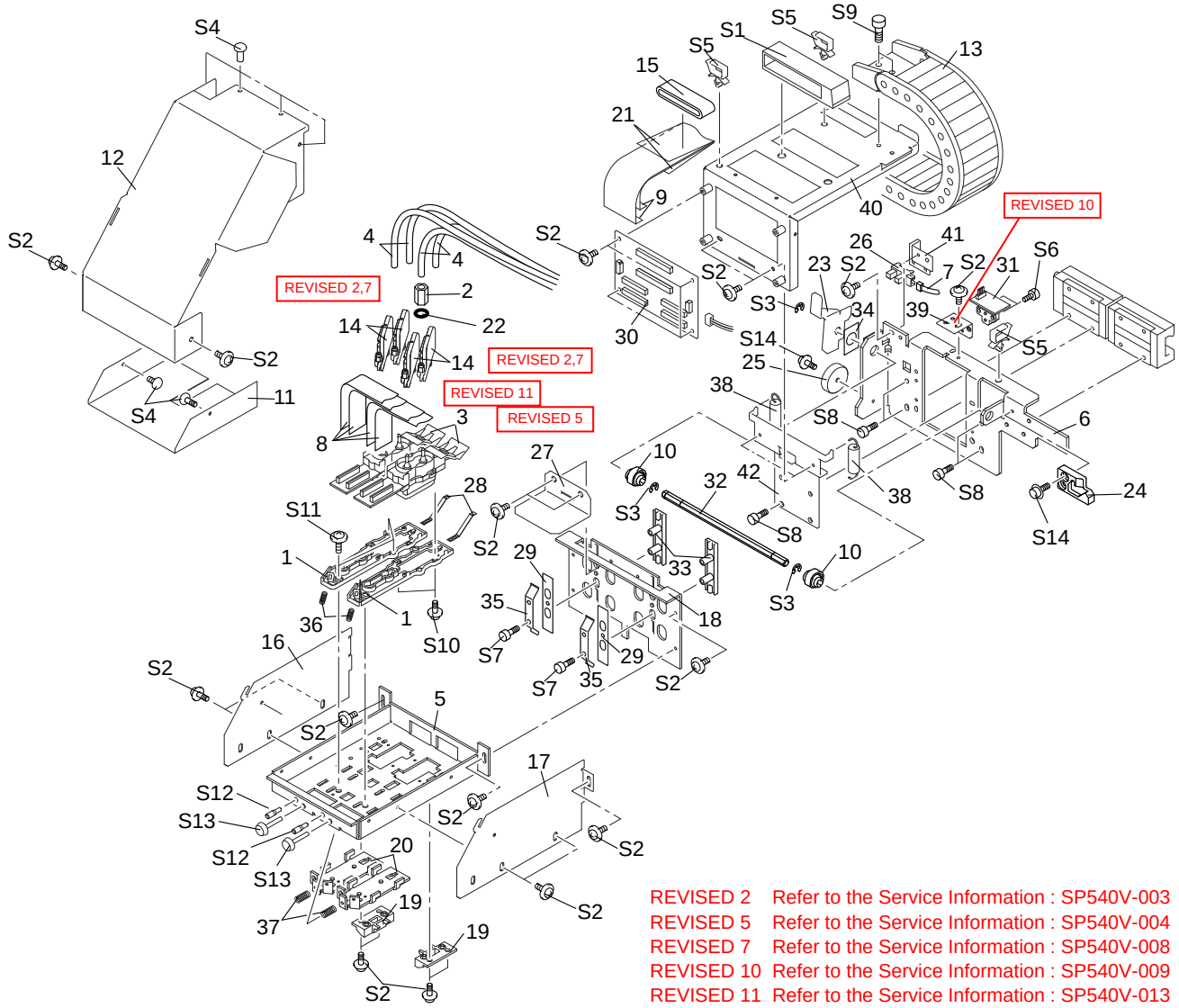
PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31289102-00	CUPSCREW, M3*6 NI
S2	31129102-00	PIPE,POLYCA 4*8*10
S3	31299102-00	RIVET,NYLON P2655B
S4	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S5	31019149-00	SCREW,BINDING M2.3*8 BC
S6	31019703-00	SCREW,BINDING P-TIGHT 3*8 BC
S7	31049155-00	SCREW,CAP M3*12 BC WSH 3*6*0.5
S8	31049170-00	SCREW,CAP M3*8 NI
S9	31049117-00	SCREW,CAP M4*12 BC+PW
S10	31049174-00	SCREW,CAP M4*15 NI
S11	31049137-00	SCREW,CAP M4*25 BC
S12	31069104-00	SCREW,CAP M4*6+FL C
S13	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0.8
S14	31089110-00	SCREW,PAN M3*4 C+PW
S15	31199701-00	SCREW,SET WP M3*3 C
S16	31239103-00	SCREW,W-SEMS M3*8 BC+PW12*1
S17	31249217-00	WASHER,PLAIN 4*8*1 C
S18	31149704-00	RING,E ETW-6 SUS
S20	31289108-00	CUPSCREW, M3*8 NI
S21	31289107-00	CUPSCREW, M3*12 NI
S22	31049112-00	SCREW,CAP M4*10 BC
S23	31409811-00	SADDLE,LOCKING WIRE LWS-1211Z
S24	3000000096	TAPE,UHMW-PE 3965 19MM*30M REVISED11

*1 Revised 6 Refer to the Service Information SP-540V-007.

*REVISED 11:No.13,75,76 Refer to the Service Information SP540V-017.
*REVISED 11:No.S24 Refer to the Service Information SP540V-019.

1-4 HEAD CARRIAGE



REVISED 2 Refer to the Service Information : SP540V-003
REVISED 5 Refer to the Service Information : SP540V-004
REVISED 7 Refer to the Service Information : SP540V-008
REVISED 10 Refer to the Service Information : SP540V-009
REVISED 11 Refer to the Service Information : SP540V-013

PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	21905166-00	ADAPTER,HEAD FJ-540
2	11909133-00	ADAPTER,SCREW 2FAI FJ-50
3	1000002201	ASSY,HEAD INKJET SOL XC-540 REVISED 11
4	22805555-00	ASS'Y,TUBING 2*1600MM SP-540V
5	22845193-00	BASE,CARRIAGE AL SP-540V
6	22845194-00	BASE,CARRIAGE HOLDER SP-540V
7	23415274-00	CABLE-ASSY,HEAD U/D SENS SP-540V
8	23475214-00	CABLE-CARD,21P1 180L BB
9	23475240-00	CABLE-CARD,36P1 2670L BB
10	21775103-00	CAM,CARRIAGE FJ-540
11	22045140-00	COVER,HEAD BOARD SP-300
12	22045365-00	COVER,PRINTING CARRIAGE SP-540V
13	12049138-00	COVER,TKPO180-2B R50-44
14	6081181200	ASSY,INK DAMPER 3 2FAI SJ-540 REVISED 2,7
15	12399352-00	FILTER(E) FRC-45-12-6.5
16	22195141-00	FRAME,CARRIAGE SIDE L SP-540V
17	22195142-00	FRAME,CARRIAGE SIDE R SP-540V
18	22195143-00	FRAME,CARRIAGE U/D SP-540V
19	22135618-00	GUIDE,CARRIAGE CAP FJ-540
20	22135440-00	GUIDE,HEAD AL FJ-540
21	21655311-00	HOLDER,CABLE SP-540V
22	11659149-00	HOLDER,RING O 2FAI FJ-50
23	22485111-00	LEVER,CARRIAGE SP-540V
24	21345105-00	LOCK,CJ-500
25	22395108-00	MAGNET,CJ-500
26	15229705-00	PHOTO INTERRUPTER GP1A71A1
27	1000000134	PLATE,DAMPER SP-540V REVISED 5
28	22055547-00	PLATE,GND FJ-540
29	22055548-00	PLATE,SLIDER CARRIAGE FJ-540
30	W8406050F0-00	PRINT CARRIAGE BOARD SP-300

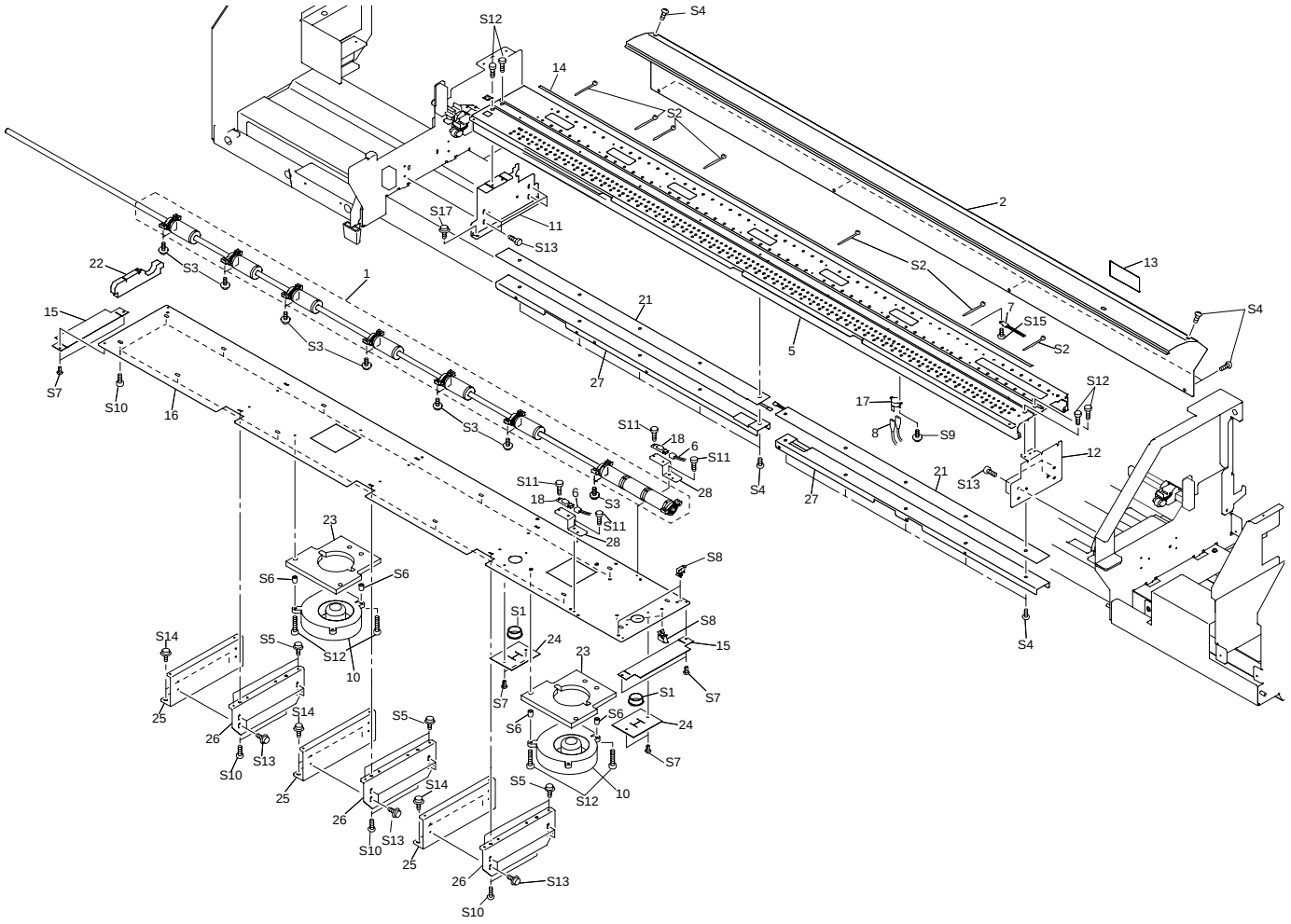
PARTS LIST -Main Parts-

	Parts No.	Parts Name
31	W840605050-00	PRINT LINEAR ENCORDER BOARD SP-300
32	22295303-00	SHAFT,HEXAGON CARRIAGE SP-540V
33	22185127-00	SLIDER,CARRIAGE FJ-540
34	22165216-00	SPACER,U/D LEVER FJ-540
35	22175159-00	SPRING,CARRIAGE SIDE FJ-50
36	22175520-00	SPRING,HEAD ADJUST 500 FJ-540
37	22175519-00	SPRING,HEAD PLESS 500 FJ-540
38	22625109-00	SPRING,PULL CARRIAGE 3500 FJ-540
39	1000000417	STAY,ENCORDER SENSOR SP-540V REVISED 10
40	22715362-00	STAY,HOLDER CARRIAGEBOARD SP-540V
41	22715472-00	STAY,SENSOR CARRIAGE SP-540V
42	22785116-00	SUPPORT,CARRIAGE BOARD SP-540V

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31379101-00	CLAMP,FLAT CABLE FCS-50P
S2	31289102-00	CUPSCREW, M3*6 NI
S3	31149703-00	RING,E-RING ETW-4 UNI-C
S4	31299102-00	RIVET,NYLON P2655B
S5	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S6	31019148-00	SCREW,BINDING M2.6*4 C
S7	31799103-00	SCREW,CAP M3*15 NI
S8	31069104-00	SCREW,CAP M4*6+FL C
S9	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0.8
S10	31679902-00	SCREW,C-SEMS M2*8 C
S11	31089121-00	SCREW,PAN M2.3*8 NI +PW2*6*0.4
S12	31199905-00	SCREW,SET CONE M3*16 BC
S13	31179908-00	SCREW,UREA N-1 M3*20 WH
S14	31239114-00	SCREW,W-SEMS M3*8 C

1-5 BASE FRAME Revised 9



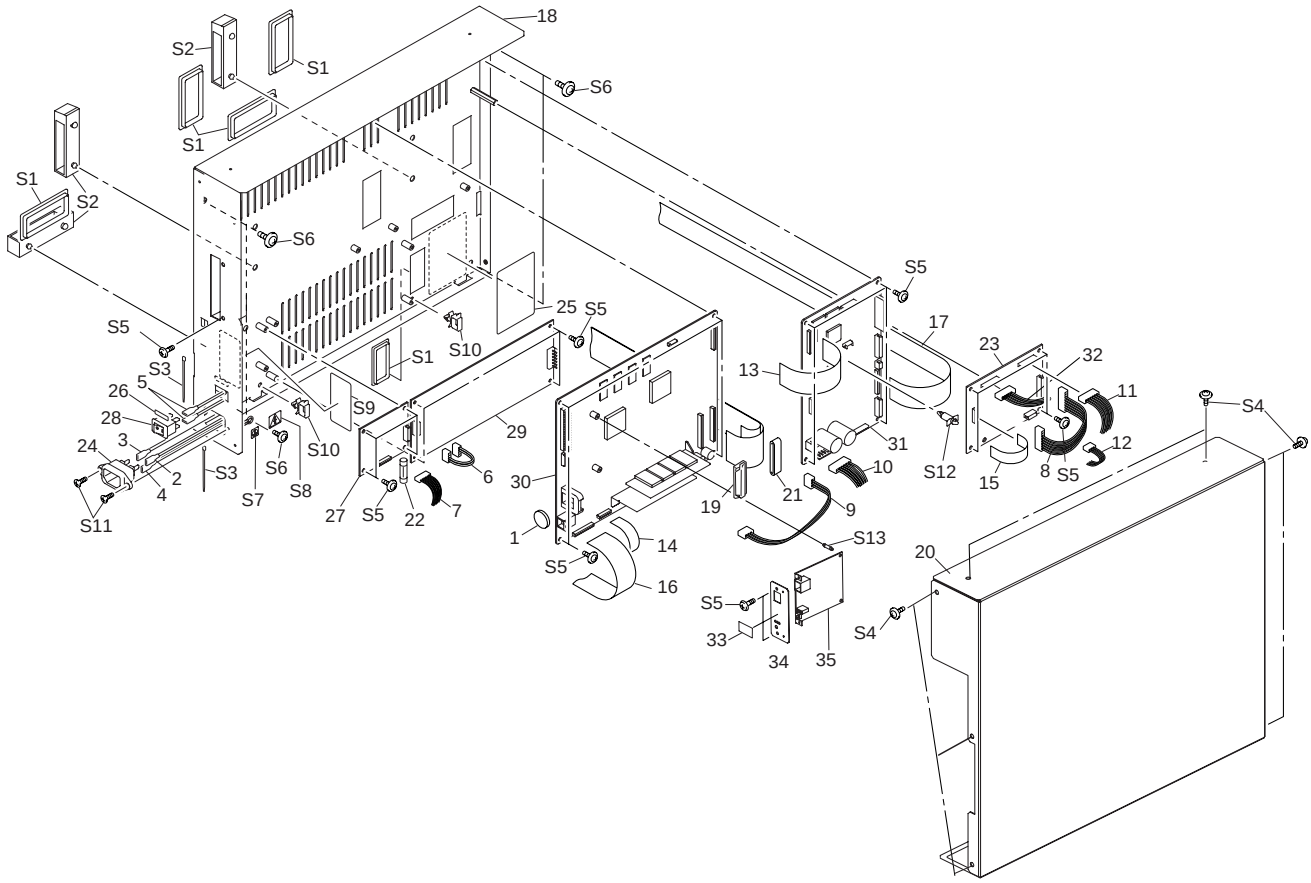
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22805570-00	ASS'Y, GRIT ROLLER SP-540V
2	22095157-00	APRON,B SP-540V
~~3~~	~~22115106-00~~	~~BEARING HOUSING A 211-106~~
~~4~~	~~22175870-00~~	~~BEARING 10-19ZZ~~
5	22005144-00	BED,SP-540V
6	23415118-00	CABLE ASS'Y,PAPER SENSOR SP-300
7	23415133-00	CABLE-ASS'Y,THERMISTOR SP-300
8	23415112-00	CABLE-ASS'Y,THERMOSTAT SP-300
9	22165165-00	COLLAR
10	21715110-00	FAN SCBD24H7-016
11	22195147-00	FRAME,SIDE BED L SP-540V
12	22195110-00	FRAME,SIDE BED R SP-300
13	22535452-00	LABEL,VOLTAGE SW SP-300 #LA648
14	21545137-00	PAD,CUTTER CM-500
15	22055599-00	PLATE,SHUTTER END SP-300
16	22055698-00	PLATE,SHUTTER SP-540V
17	15099124-00	SENSOR,US-602SXTLAS 65OFF 50ON
18	15099115-00	SENSOR-INTERRUPTER GP2A25NJ
~~19~~	~~22075126-00~~	~~SET,GRIT ROLLER CJ-540 *include 9 Rollers~~
~~20~~	~~22295301-00~~	~~SHAFT,FEED SP-540V~~
21	21475189-00	SHEET,HEATER RUBBER SP-540V
22	21625106-00	SHUTTER,BED SP-540V
23	22125432-00	SHUTTER,FAN FJ-540
24	21625103-00	SHUTTER,HEATER CORD SP-300
25	22165229-00	SPACER,BED LOWER SP-540V
26	22165230-00	SPACER,BED UPPER SP-540V
27	22715468-00	STAY,HEATER HOLDER SP-540V
28	22715352-00	STAY,PAPER SENSOR SP-300

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31029101-00	BUSH,NB-19
S2	31329601-00	CLAMP,INSULOK T-18S
S3	31289112-00	CUPSCREW, M3*10 NI
S4	31289102-00	CUPSCREW, M3*6 NI
S5	31179106-00	SCREW,JACK UP SP-540V
S6	31129102-00	PIPE,POLYCA 4*8*10
S7	31299102-00	RIVET,NYLON P2655B
S8	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S9	31019148-00	SCREW,BINDING M2.6*4 C
S10	31019703-00	SCREW,BINDING P-TIGHT 3*8 BC
S11	31049170-00	SCREW,CAP M3*8 NI
S12	31049137-00	SCREW,CAP M4*25 BC
S13	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0.8
S14	31049117-00	SCREW,CAP M4*12 BC+PW
S15	31089110-00	SCREW,PAN M3*4 C+PW
~~S16~~	~~31199704-00~~	~~SCREW,SET WP M3*8 BC~~
S17	31329501-00	CLAMP,PUSH MOUNT RT30SSF5

1-6 CHASSIS



PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	15009101-00	BATTERY CR2032
2	23505631-00	CABLE-ASS'Y JUNBI A PC-600
3	23505632-00	CABLE-ASS'Y JUNBI B PC-600
4	23415268-00	CABLE-ASSY AC GROUND GREEN SP-540V
5	23415116-00	CABLE ASS'Y,JUNBI D SP-300
6	23415269-00	CABLE-ASSY,AC SWPS POWER SP-540V
7	23415270-00	CABLE-ASSY POWER H AC SP-540V
8	23415111-00	CABLE ASS'Y,POWER H DC SP-300
9	23415117-00	CABLE ASS'Y,POWER MAIN SP-300
10	23415115-00	CABLE ASS'Y,POWER SERVO SP-300
11	23415109-00	CABLE ASS'Y,RELAY JUNCTION SP-300
12	23415132-00	CABLE ASS'Y,THERMO JUNC. SP-300
13	23475197-00	CABLE-CARD 25P1 105L BB
14	23475211-00	CABLE-CARD,14P1 350L BB
15	23475217-00	CABLE-CARD,18P1 80L BB
16	23475212-00	CABLE-CARD,24P1 600L BB
17	23475112-00	CABLE-CARD,26P1 700L BB
18	22815156-00	CHASSIS,SP-540V
19	11769118-00	CLAMP,FCM2-S6-14
20	22045369-00	COVER,CHASSIS SP-540V
21	12399352-00	FILTER(E) FRC-45-12-6.5
22	12559105-00	FUSE,5X20 21706.3 6.3A/250V
23	W876705010-00	HEATER CONTROL BOARD SP-540V
24	13429702-00	INLET AC-P01CF01 15A250V
25	22535257-00	LABEL,CAUTION VOLTAGE #LA167
26	22535117-00	LABEL,POWER CM-500 NO.893
27	W876705030-00	POWER JUNCTION BOARD SP-540V
28	13129170-00	POWER SW AJ7201B
29	12429114-00	POWER UNIT,ZWS150PAF-36/J
30	7876705100-00	SP-540V MAIN BOARD ASS'Y
31	7840605600-00	SP-300 SERVO BOARD
32	23415273-00	CABLE-ASSY,EXT JUNCTION SP-540V

PARTS LIST -Main Parts-

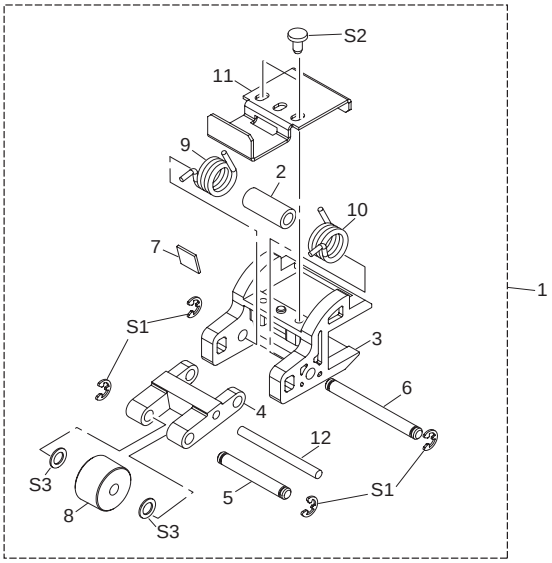
	Parts No.	
33	21475147-00	SHEET,COATING SEAL FJ-540
34	22055695-00	PLATE,NET CARD SP-540V
35	22805353-00	ASS'Y,NETWORK BOARD FJ-500

PARTS LIST -Supplemental Parts-

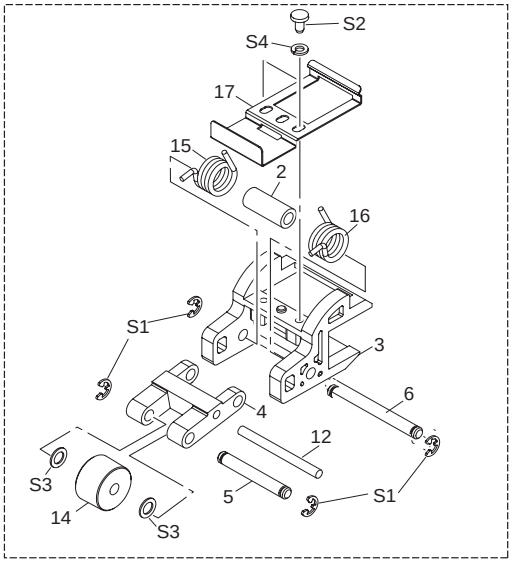
	Parts No.	Parts Name
S1	31029106-00	BUSH,SQUARE SB-6025
S2	31379101-00	CLAMP,FLAT CABLE FCS-50P
S3	31329601-00	CLAMP,INSULOK T-18S
S4	31289105-00	CUPSCREW, M3*6 BC
S5	31289102-00	CUPSCREW, M3*6 NI
S6	31289111-00	CUPSCREW, M4*6 NI
S7	31279116-00	LABEL,EARTH MARK-1 NO.E-580
S8	31279121-00	LABEL,FLASH-LIGHTING NO.E-582
S9	31279191-00	LABEL,WARNING FUSE REPLACE #347
S10	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S11	31169103-00	SCREW,FLAT M3*6 BC
S12	31369101-00	SPACER,PCB SUPPORT PCB-8L
S13	31209118-00	SPACER,WPCS-12S-4.0

1-7 PINCH ROLLER

<Right/Left Pinch Roller> REVISED 1



<Center Pinch Roller>



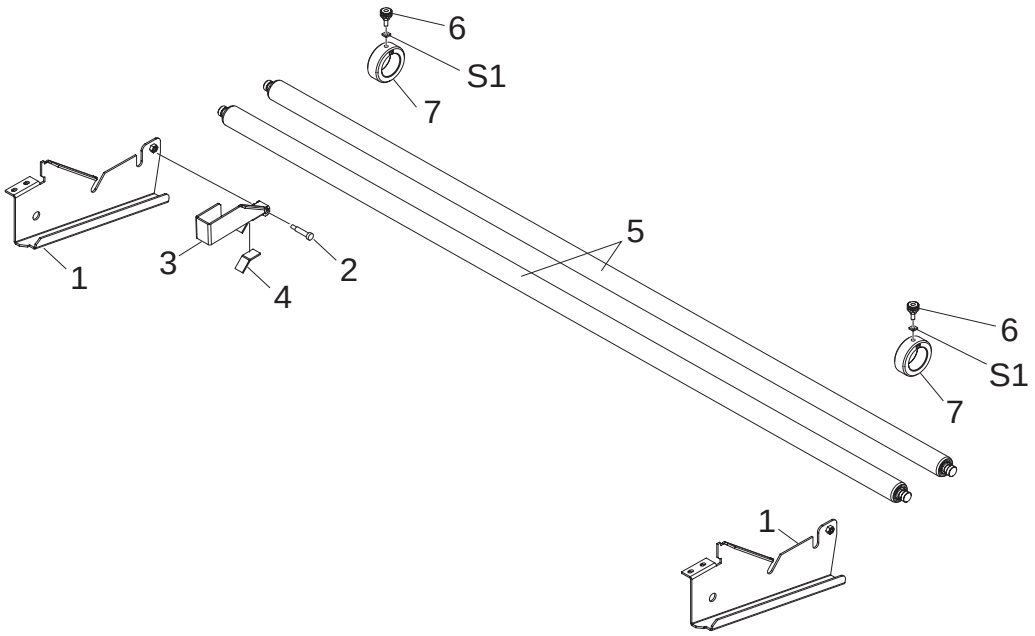
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22805581-00	ASS'Y, PINCH ROLLER L/R SP-540V REVISED 1
2	21745101-00	COLLAR,P-ROLLER PNC-960
3	22195153-00	FRAME,PINCH ROLL SP-540V
4	22145416-00	LEVER,P-ROLLER PNC-960
5	22145831-00	PIN NO.1 (214-831)
6	22145832-00	PIN NO.2 (214-832)
7	22055264-00	PLATE,GUIDE P PNC-960
8	21565102-00	P-ROLLER TD16S4(B10) TYPE2
9	22625101-00	SPRING,PINCH LEFT SP-300
10	22625102-00	SPRING,PINCH RIGHT SP-300
11	22715471-00	STAY,PINCH SENSOR SP-540V
12	11539104-00	PIN 3*35 SUS M6
13	7876701500-0(	ASS'Y, PINCH ROLLER C SP-540V
14	21565103-00	P-ROLLER FD16S4(B10) TYPE2
15	22625120-00	SPRING,PINCH CENTER LEFT SP-540V
16	22625121-00	SPRING,PINCH CENTER RIGHT SP-540V
17	22715461-00	STAY,PINCH CENTER SP-540V

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31149702-00	RING,E-RING ETW-3 UNI-C
S2	31019702-00	SCREW,BINDING P-TIGHT 3*6 BC
S3	31249211-00	WASHER,PLAIN 4.3*7*0.5 C
S4	31249303-00	WASHER,SPRING M3 C

1-8 STAY ROLL



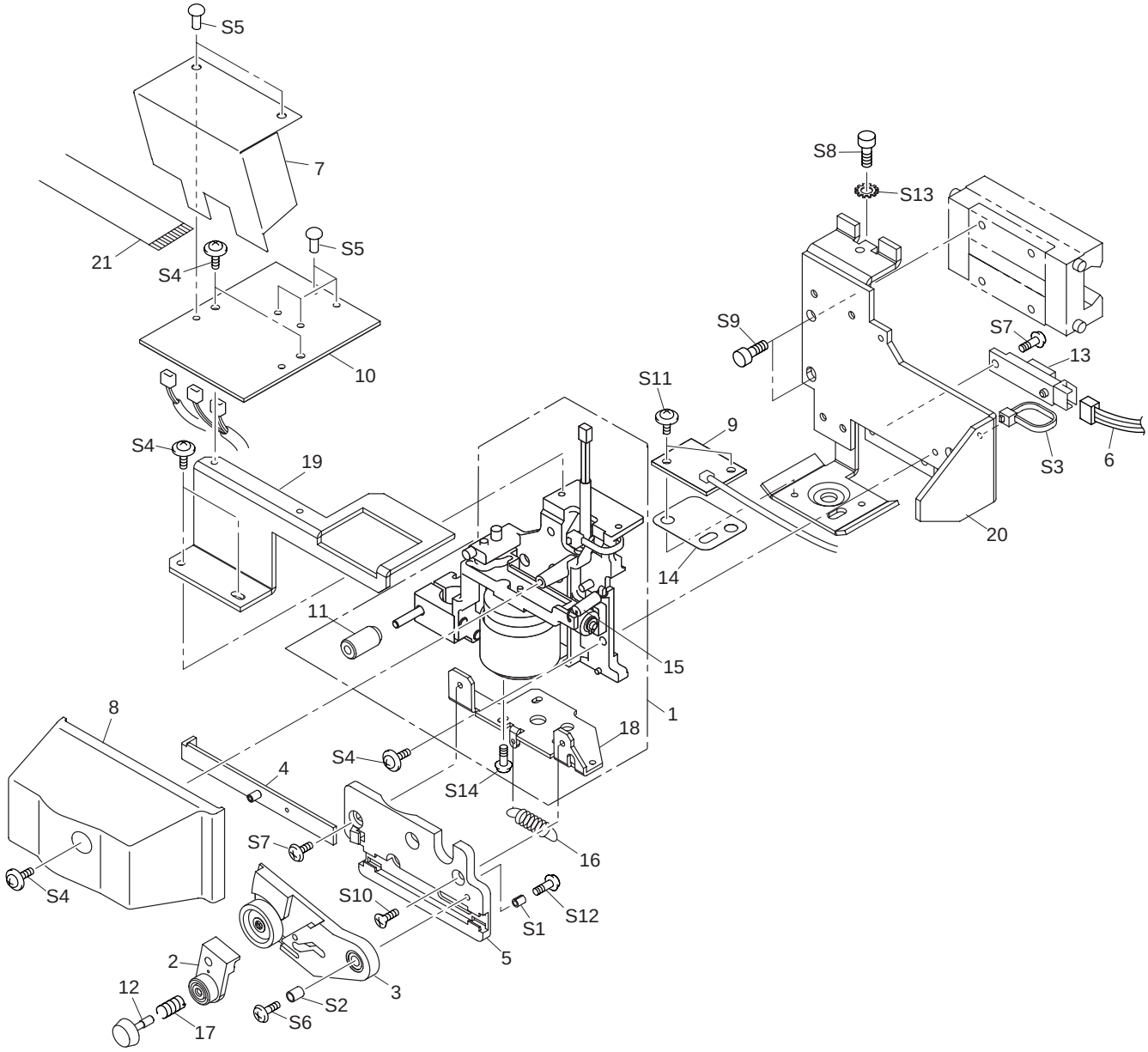
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22145200-00	ARM,SP-300
2	21815106-00	BOLT,SHOULDER PNS-501
3	22485107-00	LEVER,BRAKE SP-300
4	21545139-00	PAD,BRAKE PNS-501
5	22295309-00	SHAFT,SHEET SP-540V
6	7498805000-00	ASS'Y, STOPPER SCREW PNS-501
7	22135362-00	STOPPER PNS-501

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31109603-00	NUT, SQUARE M5

1-9 TOOL CARRIAGE



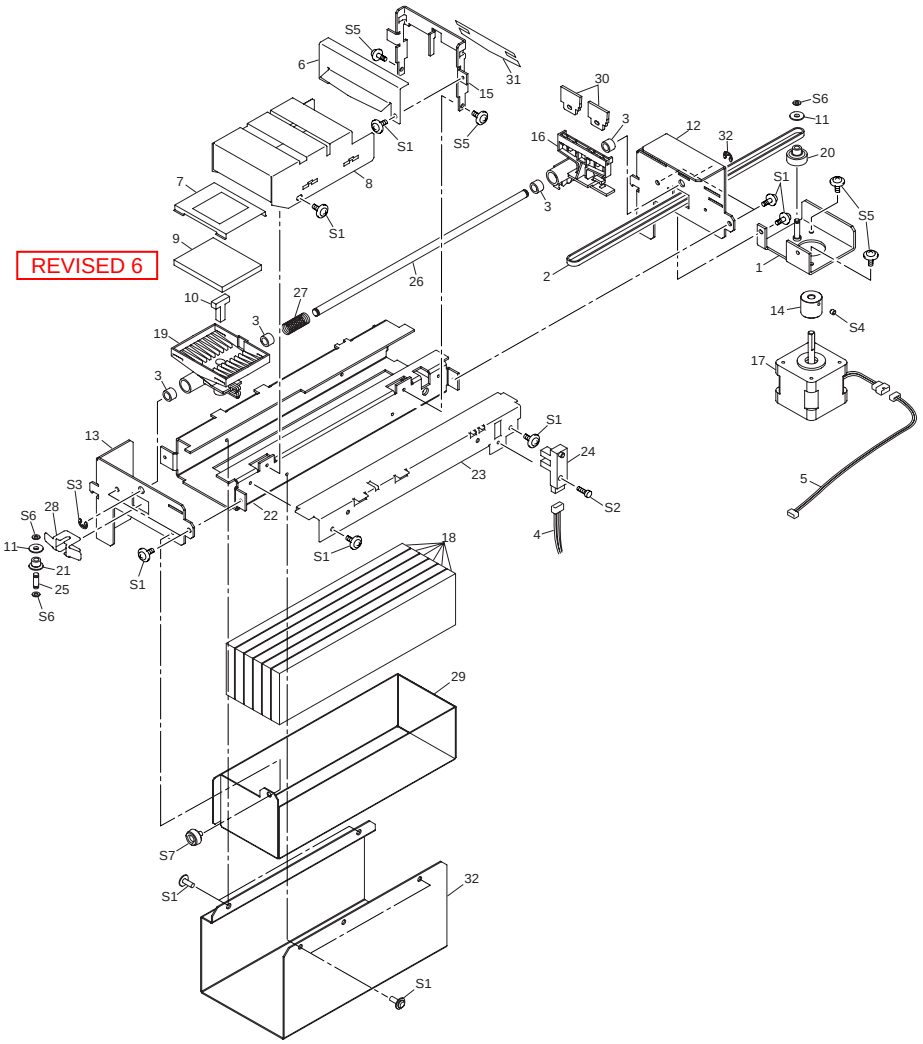
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22805571-00	ASS'Y CARRIAGE SP-300
2	22805292-00	ASS'Y, CLAMP BLADE CM-500
3	22805291-00	ASS'Y, HOLDER BLADE CM-500
4	22805287-00	ASS'Y, PLATE CAM SLIDE CM-500
5	7488739000-00	BASE CUTTER CJ-500
6	23415119-00	CABLE ASS'Y,PINCH SENSOR SP-300
7	22045137-00	COVER,CARRIAGE BOARD SP-300
8	22025269-00	COVER,CARRIAGE CM-500
9	W840605060-00	CROP MARK BOARD SP-300
10	W8406050E0-00	CUT CARRIAGE BOARD SP-300
11	22285503-00	NUT,PENHOLDER
12	21495115-00	SCREW,BLADE SET CM-500
13	15099115-00	SENSOR-INTERRUPTER GP2A25NJ
14	21475148-00	SHEET,FILTER CROP CJ-500
15	22175122-00	SPRING,BACKUP PNC-960
16	22175154-00	SPRING,BLADE UP CM-500
17	22175155-00	SPRING,SCREW CM-500
18	22715168-00	STAY,AUTO CUTTER 2 CM-500
19	22715463-00	STAY,CUT CARRIAGE BOARD SP-540V
20	22715464-00	STAY,CUT CARRIAGE HOLDER SP-540V
21	23475238-00	CABLE-CARD,15P1 2570L BB

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31029801-00	BUSH,ROLL 2*4
S2	31029803-00	BUSH,ROLL 3*5
S3	31329601-00	CLAMP,INSULOK T-18S
S4	31289102-00	CUPSCREW, M3*6 NI
S5	31299102-00	RIVET,NYLON P2655B
S6	31019118-00	SCREW,BINDING M3*10 BC
S7	31019116-00	SCREW,BINDING M3*6 BC
S8	31049117-00	SCREW,CAP M4*12 BC+PW
S9	31049169-00	SCREW,CAP M4*8 BC+PW4*10*0.8
S10	31169103-00	SCREW,FLAT M3*6 BC
S11	31089110-00	SCREW,PAN M3*4 C+PW
S12	31229103-00	SCREW,TRUSS M2*6 BC
S13	31249402-00	WASHER,EXTERNAL TOOTH M4 C
S14	31019112-00	SCREW,BINDING M2.6*4 BC

1-10 WIPER SYSTEM



* REVISED 6 Refer to Service Information : SP540-006

PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	22845107-00	BASE,WIPER MOTOR SP-300
2	11929139-00	BELT,520P2M4-530
3	12159536-00	BUSH,B-S6-17
4	23415128-00	CABLE ASS'Y,WIPER SENOR SP-300
5	23415120-00	CABLE ASS'Y,WIPER MOTOR SP-300
6	22045141-00	COVER,SCRAPER SP-300
7	22045129-00	COVER,SERGE MIST SP-300
8	22045128-00	COVER,WIPER SP-300
9	1000000416	FILTER(M),SERGE MIST 2 SP-300 REVISED 6
10	22275120-00	FILTER(M),SERGE MIST UNDER SP-300
11	21995104-00	FLANGE,PULLEY STX-7
12	22195113-00	FRAME,WIPER B SP-300
13	22195151-00	FRAME,WIPER F SP-540V
14	21685144-00	GEAR,S53S5(B15)
15	21655263-00	HOLDER,SCRAPER SP-300
16	21655245-00	HOLDER,WIPER FJ-540
17	22435106-00	MOTOR,103-593-1041
18	21545195-00	PAD,WIPER UNDER TYPE2 SP-300
19	22055601-00	PLATE,SERGE MIST SP-300
20	21975124-00	PULLEY,T14P2S4 + GEAR,S53
21	21975123-00	PULLEY,WD6.94S9
22	22645128-00	RAIL,WIPER GUIDE SP-540V
23	22645115-00	RAIL,WIPER R SP-300
24	15229506-00	SENSOR INTERRUPTER,GP1A05A5
25	22295132-00	SHAFT,IDLE PULLEY STX-7
26	22295267-00	SHAFT,WIPER SP-300
27	22625105-00	SPRING,SET SERGE MIST SP-300
28	22175140-00	SPRING,TENSHONER STX-7
29	21445114-00	TRAY,WIPER UNDER SP-540V
30	11379105-00	WIPER,HEAD ASP FJ-50
31	21375107-00	WIPER,SCRAPER FJ-540
32	21985139-00	BRACKET, WIPE UNDER SP-540V

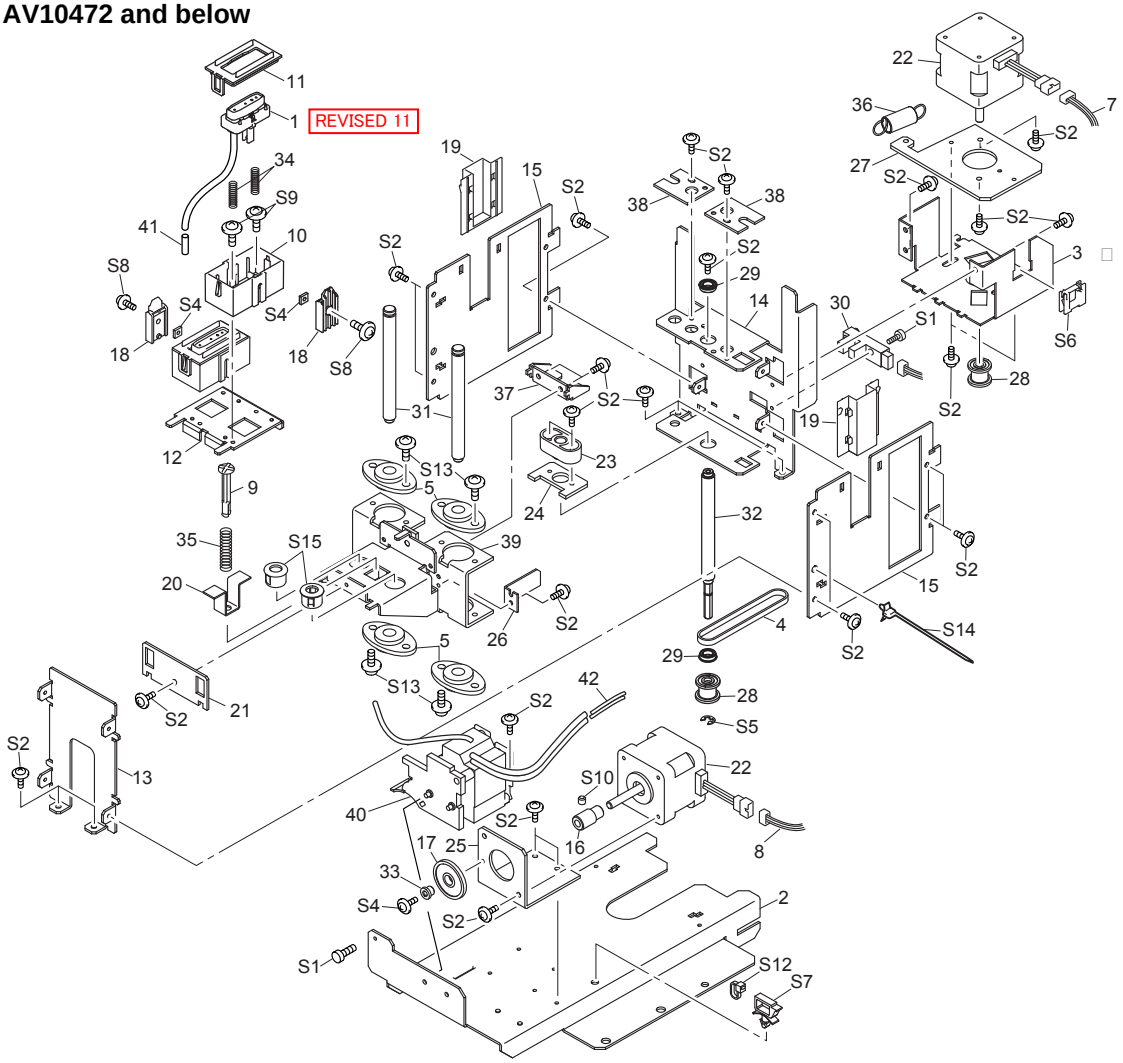
PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31289108-00	CUPSCREW, M3*8 NI
S2	31049107-00	SCREW,CAP M3*12 BC
S3	31149703-00	RING,E-RING ETW-4 UNI-C
S4	31199701-00	SCREW,SET WP M3*3 C
S5	31239101-00	SCREW SET, W-SEMS M3*6 3CBC 100PCS
S6	31249952-00	WASHER,POLYSLIDER 2.6*5*.5 CUT
S7	31139103-00	SCREW,PLAPOINT M4*6 WH FE

REVISED 11

1-11 PUMP SYSTEM_Old type

S/No. AV10472 and below



PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	1000002794	ASSY,CAP-TOP XC-540 REVISED 11
2	22845109-00	BASE,BOTTOM CAP SP-300
3	22845108-00	BASE,TABLE MOTOR CAP SP-300
4	21925137-00	BELT,166P2M4-530
5	12529101-00	BUSH,80FL-08
7	23415121-00	CABLE ASS'Y,CAP MOTOR SP-300
8	23415122-00	CABLE ASS'Y,PUMP MOTOR SP-300
9	22335146-00	CAP,T-SPRING FJ-540
10	21365121-00	CASE,CAP-TOP FJ-540
11	22025671-00	COVER,CAP-CASE FJ-540
12	22195152-00	FRAME,BACKUP CAP TYPE2 SP-300
13	22195116-00	FRAME,FRONT CAP SP-300
14	22195114-00	FRAME,MAIN CAP SP-300
15	22195115-00	FRAME,SIDE CAP SP-300
16	21685122-00	GEAR,S10S20
17	21685120-00	GEAR,S34S4.3
18	22135616-00	GUIDE,CAP-CASE FJ-540
19	22135614-00	GUIDE,SIDE FRAME FJ-540
20	21655264-00	HOLDER,T-SPRING SP-300
21	21645109-00	HOOK,CAP CASE TYPE2 SP-300
22	22435106-00	MOTOR,103-593-1041
23	21575126-00	NUT,TABLE FJ-540
24	22055602-00	PLATE,NUT SP-300
25	22055596-00	PLATE,PUMP MOTOR CAP SP-300
26	22055597-00	PLATE,SHUTTER TABLE SP-300
27	22055595-00	PLATE,TABLE MOTOR CAP SP-300
28	22565406-00	PULLEY T20S5(B7)
29	11889107-00	R-BEARING,D10S6(B3FL)
30	15229506-00	SENSOR INTERRUPTER,GP1A05A5

PARTS LIST -Main Parts-

	Parts No.	Parts Name
31	22295268-00	SHAFT,TABLE GUIDE SP-300
32	22155957-00	SHAFT,SCREW M8 FJ-540
33	22165178-00	SPACER,6FAI FJ-50
34	22175334-00	SPRING,CAP-HEAD FJ-540
35	22175326-00	SPRING,TABLE FJ-540
36	22175324-00	SPRING,T-MOTOR FJ-540
37	22715364-00	STAY,NUT SP-300
38	22245104-00	STOPPER,GUIDE SHAFT SP-300
39	21965137-00	TABLE,CAP CASE SP-300
40	7576340000-03	SC-500 PUMP ASS'Y FOR SOL INK
41	22805477-00	ASS'Y,TUBING 1.4*30MM FJ-540
42	22805572-00	ASS'Y, TUBING 2*80MM SP-540V

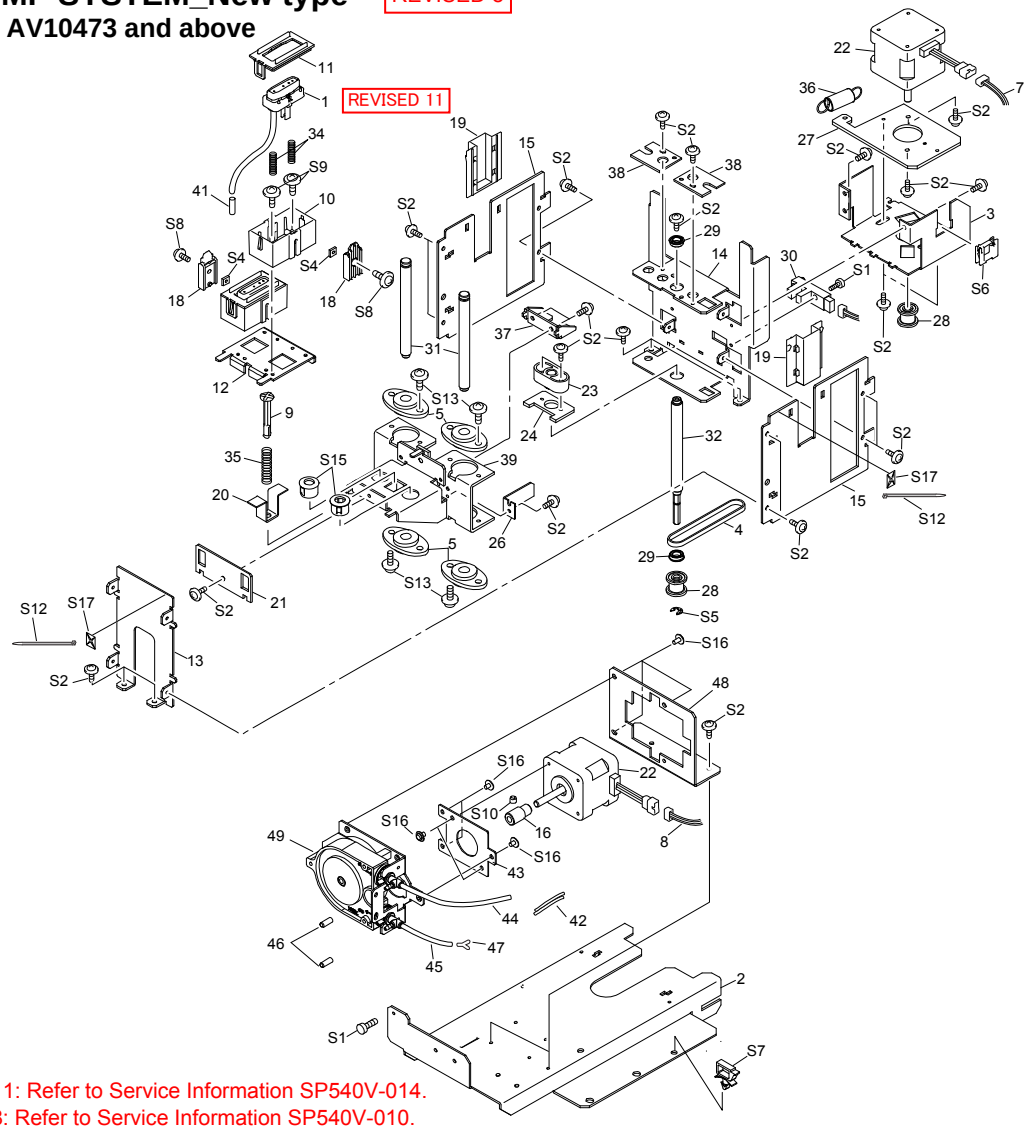
PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31049171-00	SCREW, CAP M3*12 NI
S2	31289102-00	CUPSCREW, M3*6 NI
S3	31289108-00	CUPSCREW, M3*8 NI
S4	31109601-00	NUT,SQUARE M3 FE CC
S5	31149703-00	RING,E-RING ETW-4 UNI-C
S6	31409702-00	SADDLE,LOCKING EDGE LES-1010
S7	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S8	31019116-00	SCREW,BINDING M3*6 BC
S9	31019115-00	SCREW,BINDING M3*4 BC
S10	31199701-00	SCREW,SET WP M3*3 C
S12	31329601-00	CLAMP,INSULOK T-18S
S13	31289110-00	CUPSCREW,4*8 BC
S14	31329501-00	CLAMP,PUSH MOUNT RT30SSF5
S15	31029105-00	BUSH,NB-8

*REVISED 11: Refer to Service Information SP540V-014.

1-11 PUMP SYSTEM_New type REVISED 8

S/No. AV10473 and above



*REVISED 11: Refer to Service Information SP540V-014.
*REVISED 8: Refer to Service Information SP540V-010.

PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	1000002794	ASSY,CAP-TOP XC-540 REVISED 11
2	22845109-00	BASE,BOTTOM CAP SP-300
3	22845108-00	BASE,TABLE MOTOR CAP SP-300
4	21925137-00	BELT,166P2M4-530
5	12529101-00	BUSH,80FL-08
7	23415121-00	CABLE ASS'Y,CAP MOTOR SP-300
8	23415122-00	CABLE ASS'Y,PUMP MOTOR SP-300
9	22335146-00	CAP,T-SPRING FJ-540
10	21365121-00	CASE,CAP-TOP FJ-540
11	22025671-00	COVER,CAP-CASE FJ-540
12	22195152-00	FRAME,BACKUP CAP TYPE2 SP-300
13	22195116-00	FRAME,FRONT CAP SP-300
14	22195114-00	FRAME,MAIN CAP SP-300
15	22195115-00	FRAME,SIDE CAP SP-300
16	21685122-00	GEAR,S10S20
18	22135616-00	GUIDE,CAP-CASE FJ-540
19	22135614-00	GUIDE,SIDE FRAME FJ-540
20	21655264-00	HOLDER,T-SPRING SP-300
21	21645109-00	HOOK,CAP CASE TYPE2 SP-300
22	22435106-00	MOTOR,103-593-1041
23	21575126-00	NUT,TABLE FJ-540
24	22055602-00	PLATE,NUT SP-300
26	22055597-00	PLATE,SHUTTER TABLE SP-300
27	22055595-00	PLATE,TABLE MOTOR CAP SP-300
28	22565406-00	PULLEY T20S5(B7)
29	11889107-00	R-BEARING,D10S6(B3FL)
30	15229506-00	SENSOR INTERRUPTER,GP1A05A5
31	22295268-00	SHAFT,TABLE GUIDE SP-300
32	22155957-00	SHAFT,SCREW M8 FJ-540
34	22175334-00	SPRING,CAP-HEAD FJ-540
35	22175326-00	SPRING,TABLE FJ-540

PARTS LIST -Main Parts-

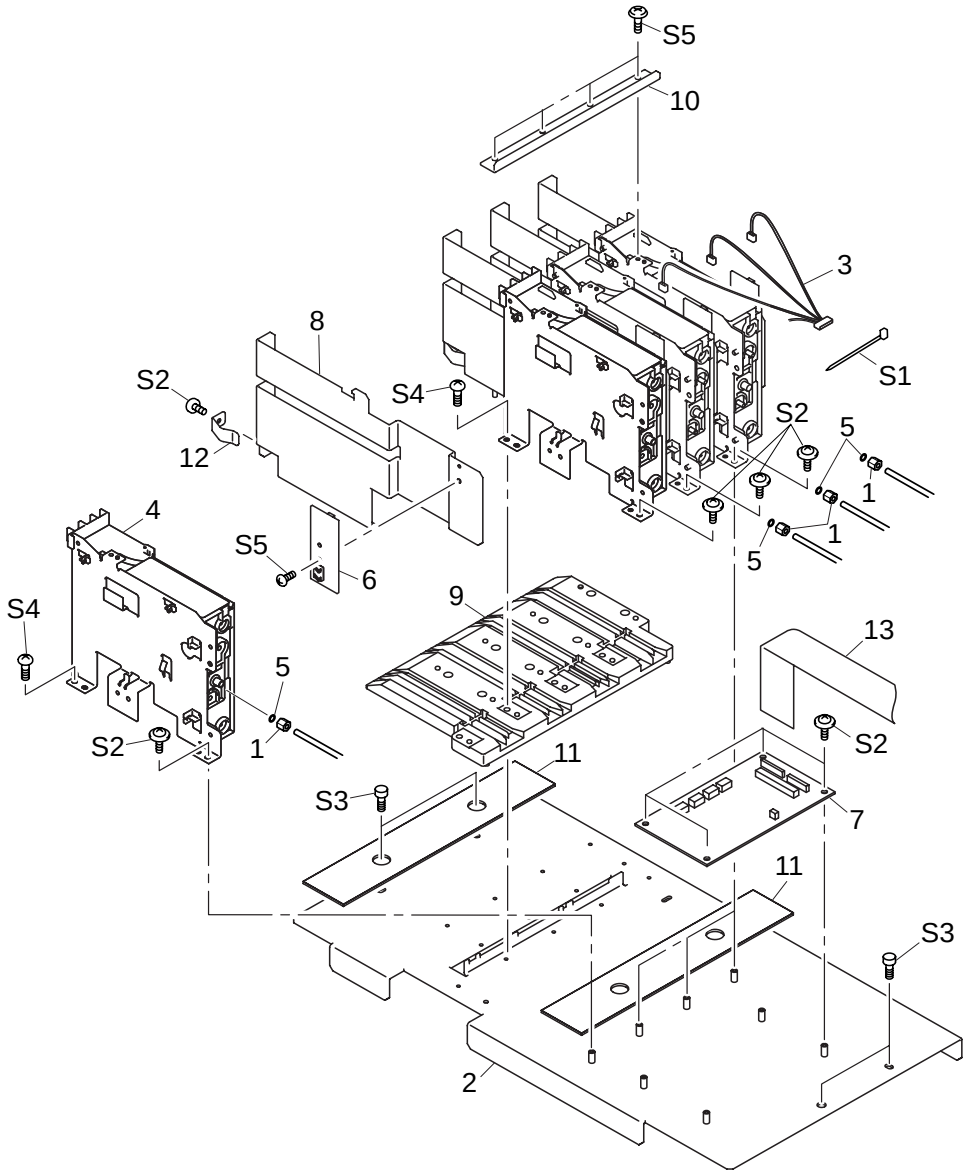
	Parts No.	Parts Name
36	22175324-00	SPRING,T-MOTOR FJ-540
37	22715364-00	STAY,NUT SP-300
38	22245104-00	STOPPER,GUIDE SHAFT SP-300
39	21965137-00	TABLE,CAP CASE SP-300
41	22805477-00	ASS'Y,TUBING 1.4*30MM FJ-540
42	22805572-00	ASS'Y, TUBING 2*80MM SP-540V
43	1000001585	PLATE,P-MOTOR XC-540
44	1000002119	TUBE,EPDM ID2-OD4 310MM
45	1000002122	TUBE,EPDM ID2-OD4 100MM
46	1000002019	STOPPER,PUMP XC-540
47	1000002095	FITTING,TUBE PP VFY206
48	1000002094	BASE,PUMP ASSY SP-540V
49	6700319010	ASSY,PUMP SUB XC-540

REVISED 8

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31049171-00	SCREW, CAP M3*12 NI
S2	31289102-00	CUPSCREW, M3*6 NI
S4	31109601-00	NUT,SQUARE M3 FE CC
S5	31149703-00	RING,E-RING ETW-4 UNI-C
S6	31409702-00	SADDLE,LOCKING EDGE LES-1010
S7	31409801-00	SADDLE,LOCKING WIRE LWS-0711Z
S8	31019116-00	SCREW,BINDING M3*6 BC
S9	31019115-00	SCREW,BINDING M3*4 BC
S10	31199701-00	SCREW,SET WP M3*3 C
S12	31329601-00	CLAMP,INSULOK T-18S
S13	31289110-00	CUPSCREW,4*8 BC
S15	31029105-00	BUSH,NB-8
S16	31289109	CUPSCREW SET,M3*4 NI 100 PCS.
S17	31499102	CLAMP,BASE KNP-20

1-12 INK SYSTEM



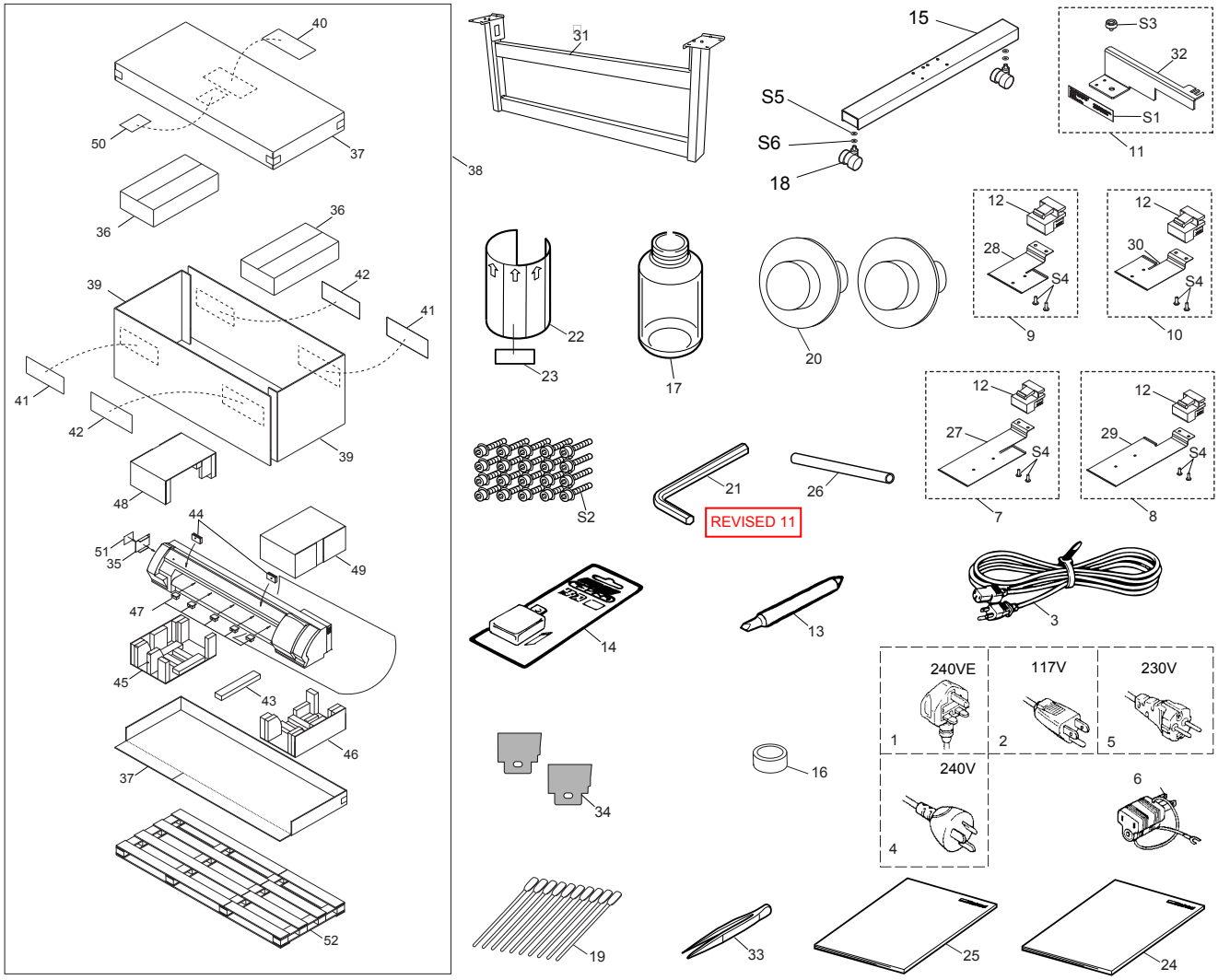
PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	11909133-00	ADAPTER,SCREW 2FAI FJ-50
2	22845106-00	BASE,INK CARTRIDGE SP-300
3	23415134-00	CABLE ASS'Y,INK JUNCTION SP-300
4	11659218-00	HOLDER,I/C SC-500
5	11659149-00	HOLDER,RING O 2FAI FJ-50
6	W8406050B0-00	INK JUNCTION BOARD SP-300
7	W8406050A0-00	JUNCTION BOARD 2 SP-300
8	22055594-00	PLATE,INK CARTRIDGE HOLDER SP-300
9	22055435-00	PLATE,INK FJ-500
10	22055593-00	PLATE,INK JOINT SP-300
11	21475153-00	SHEET,INK CARTRIDGE SP-300
12	22625103-00	SPRING,PRESS CARTRIDGE SP-300
13	23475216-00	CABLE CARD,40P1 1400L BB SP-300

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31329601-00	CLAMP,INSULOK T-18S
S2	31289102-00	CUPSCREW, M3*6 NI
S3	31289111-00	CUPSCREW, M4*6 NI
S4	31019120-00	SCREW,BINDING M3*15 BC
S5	31019803-00	SCREW,BINDING S-TIGHT M3*6 BC

1-13 ACCESSORY & STAND



PARTS LIST -Main Parts-

	Parts No.	Parts Name
1	13499111-00	AC CORD H05VV-F 240VE 10A S
2	13499109-00	AC CORD SJT 117V 10A 3PVC
3	23495117-00	CABLE-AC,VCTF 100V 12A 3P-S
4	23495124-00	AC-CORD 3ASL/100 240VA 10A SAA
5	23495125-00	AC-CORD H05VV 230V 10A S
6	13499209-00	ADAPTER PLUG (100V)
7	22805573-00	ASS'Y, LONG MEDIA CLAMP L SP-540V
8	22805574-00	ASS'Y, LONG MEDIA CLAMP R SP-540V
9	22805575-00	ASS'Y, SHORT MEDIA CLAMP L SP-540V
10	22805576-00	ASS'Y, SHORT MEDIA CLAMP R SP-540V
11	22805507 -00	ASS'Y,CARRIAGE RETAINER SP-300
12	22845112-00	BASE,MEDIA CLAMP SP-300
13	21845104-00	BLADE,NAG-5025LC
14	11849102-00	BLADE,OLFA AUTO CUTTER XB10
15	22035194-00	BASE,STAND FJ-540
16	22335143-00	CAP,EPDM
17	11369115-00	CASE,PP BOTTLE
18	12329505-00	CASTER,BWS-50BN
19	ST-037	CLEANER,STICK TX712A
20	21995112-00	FLANGE,GUIDE PNS-501
21	22565682	HEXAGONAL WRENCH 5 REVISED 11
22	22535144-00	LABEL,DRAIN BOTTLE #LA29
23	22535330-00	LABEL,WARNING SOL INK #LA396
24	26015492-00	MANUAL,USE JP SP-500 COMMON
	26015494-00	MANUAL,USE EN SP-500 COMMON
25	26015493-00	MANUAL,INS JP SP-500 ECO-SOL
	26015499-00	MANUAL,INS EN SP-500 ECO-SOL
26	22155133-00	PIPE,TOOL D9*L150 FJ-540
27	22055691-00	PLATE,LONG CLAMP MEDIA L SP-540V
28	22055692-00	PLATE,SHORT CLAMP MEDIA L SP-540V
29	22055693-00	PLATE,LONG CLAMP MEDIA R SP-540V
30	22055694-00	PLATE,SHORT CLAMP MEDIA R SP-540V

PARTS LIST -Main Parts-

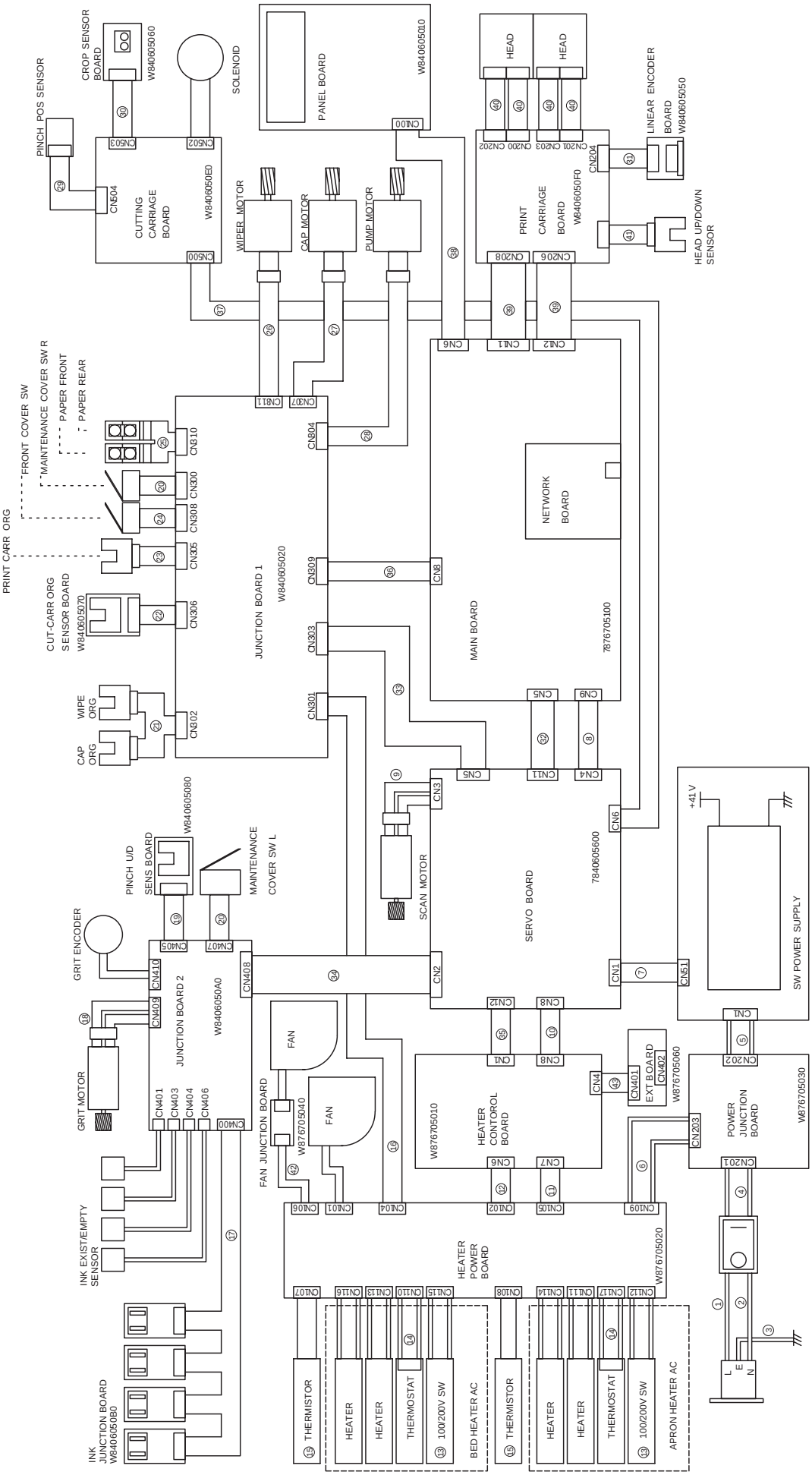
	Parts No.	Parts Name
31	22805577-00	ASS'Y STAND SP-540V
32	22245103-00	RETAINER,CARRIAGE SP-300
33	12569656-00	TWEEZERS PTS-01
34	11379105-00	WIPER,HEAD ASP FJ-50
35	22605305-00	CARTON,COVER INK SP-300
36	22605351-00	CARTON,ACCESSORY SP-540V
37	22605418-00	CARTON,COVER SP-540V
38	22605450-00	CARTON,SET SP-540V
39	22605419-00	CARTON,SLEEVE SP-540V
40	22535532-00	LABEL,CARTON CARE#LA762
41	22535516-00	LABEL,CARTON SP-540V #LA743
42	22535357-00	LABEL,USE FORKLIFT #LA435
43	21545229-00	PAD,CENTER SP-540V
44	22635128-00	PAD,COVER FRONT FJ-540
45	21545219-00	PAD,L-LEFT SP-540V
46	21545220-00	PAD,L-RIGHT SP-540V
47	21545178-00	PAD,SPACER RAIL SP-300
48	21545226-00	PAD,U-LEFT SP-540V
49	21545227-00	PAD,U-RIGHT SP-540V
50	22735136-00	STICKER,REP JP/EN SP-540V
51	22735135-00	STICKER,SUP JP/EN SP-300
52	21445113-00	TRAY,SKID SP-540V

PARTS LIST -Supplemental Parts-

	Parts No.	Parts Name
S1	31279201-00	LABEL,REPACKAGE #LA16
S2	31049157-00	SCREW,CAP M6*20 BC+PW+SW
S3	31139103-00	SCREW,PLAPOINT M4*6 WH FE
S4	31229103-00	SCREW,TRUSS M2*6 BC
S5	31249221-00	WASHER,8*18*1.6 C
S6	31249310-00	WASHER,SP M8 C

2 Electrical Section

2-1 WIRING MAP

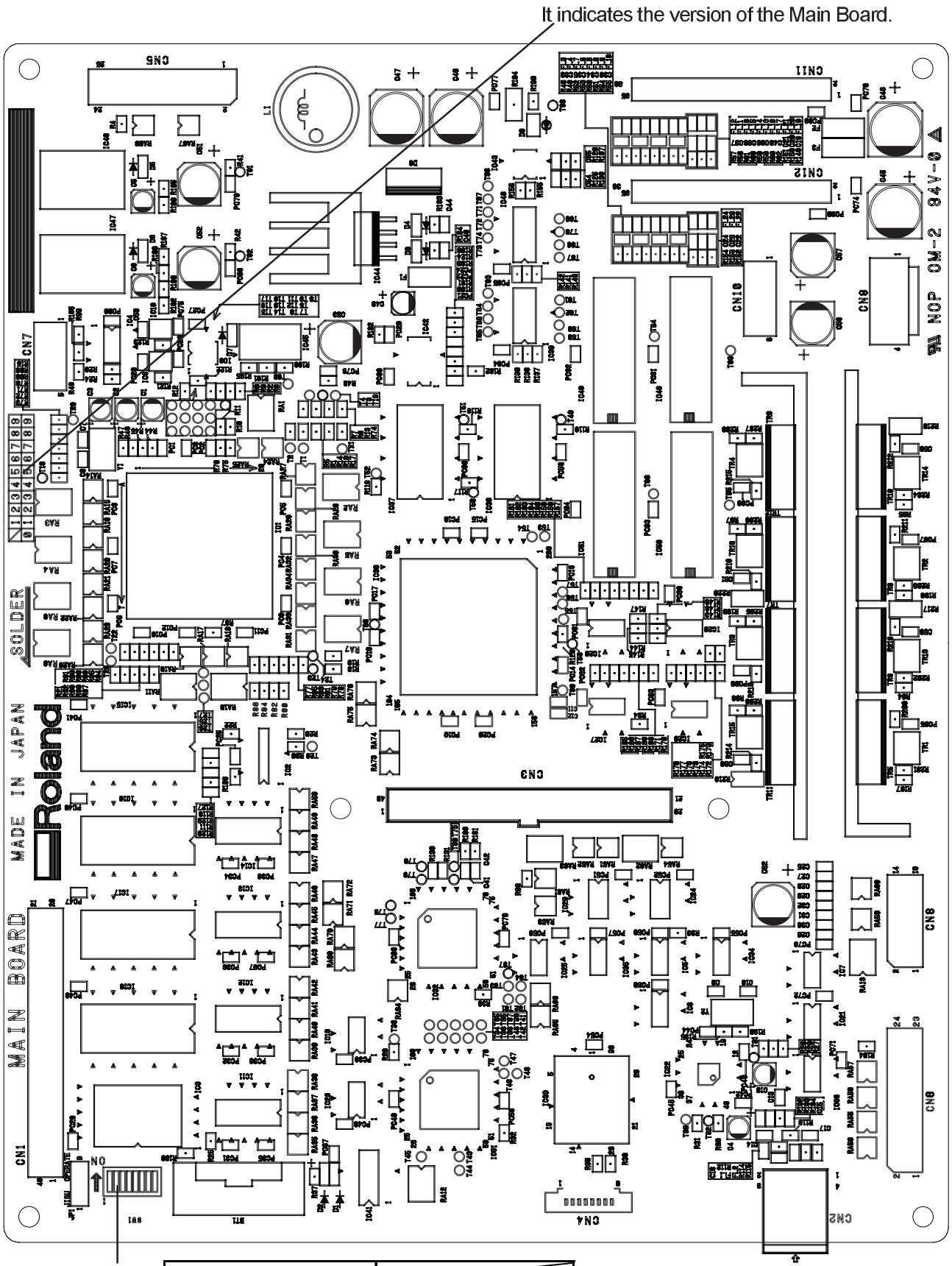


SP-540V WIRING MAP

No	Parts No.	Parts Name
1	23505631	CABLE-ASSY AC LIVE BROWN PC-600
2	23505632	CABLE-ASSY AC NEUTRAL BLUE PC-600
3	23415268	CABLE-ASSY AC GROUND GREEN SP-540V
4	23415116	CABLE-ASSY AC POWER SP-300
5	23415269	CABLE-ASSY AC SWPS POWER SP-540V
6	23415270	CABLE-ASSY POWER H AC SP-540V
7	23415115	CABLE-ASSY POWER SERVO SP-300
8	23415117	CABLE-ASSY POWER MAIN SP-300
9	23415125	CABLE-ASSY SCAN MOTOR SP-300
10	23415111	CABLE-ASSY POWER H DC SP-300
11	23415109	CABLE-ASSY RELAY JUNCTION SP-300
12	23415132	CABLE-ASSY THERM JUNCTION SP-300
13	23415271	CABLE-ASSY V SELECTOR SP-540V
14	23415112	CABLE-ASSY THERMOSTAT SP-300
15	23415133	CABLE-ASSY THERMISTOR SP-300
16	23415129	CABLE-ASSY FAN SP-300
17	23415134	CABLE-ASSY INK JUNCTION SP-300
18	23415124	CABLE-ASSY G-MOTOR SP-300
19	23415126	CABLE-ASSY PINCH U/D SENS SP-300
20	23415114	CABLE-ASSY MAIN-COVER SW SP-300
21	23415128	CABLE-ASSY WIPER CAP SEN SP-300
22	23415123	CABLE-ASSY CUT-CAR ORG SP-300
23	23415127	CABLE-ASSY PRI-CAR ORG SP-300
24	23415113	CABLE-ASSY FRONT-COVER SW SP-300
25	23415118	CABLE-ASSY PAPER-SENS SP-300
26	23415120	CABLE-ASSY WIPER MOTOR SP-300
27	23415121	CABLE-ASSY CAP MOTOR SP-300
28	23415122	CABLE-ASSY PUMP MOTOR SP-300
29	23415119	CABLE-ASSY PINCH-SENS SP-300
30	23415107	CABLE-ASSY CROP SENS SP-300
31	23415108	CABLE-ASSY LINEAR-ENC SP-300
32	23475197	CABLE-CARD 25P1 105L BB
33	23475112	CABLE-CARD 26P1 700L BB
34	23475237	CABLE-CARD 40P1 2070L BB HIGH-V
35	23475217	CABLE-CARD 18P1 80L BB
36	23475211	CABLE-CARD 14P1 350L BB
37	23475238	CABLE-CARD 15P1 2570L BB HIGH-V
38	23475212	CABLE-CARD 24P1 600L BB
39	23475240	CABLE-CARD 36P1 2670L BB HIGH-V
40	23475214	CABLE-CARD 21P1 180L BB
41	23415274	CABLE-ASSY HEAD U/D SENS SP-540V
42	23415272	CABLE-ASSY FAN JUNCTION SP-540V
43	23415273	CABLE-ASSY EXT JUNCTION SP-540V

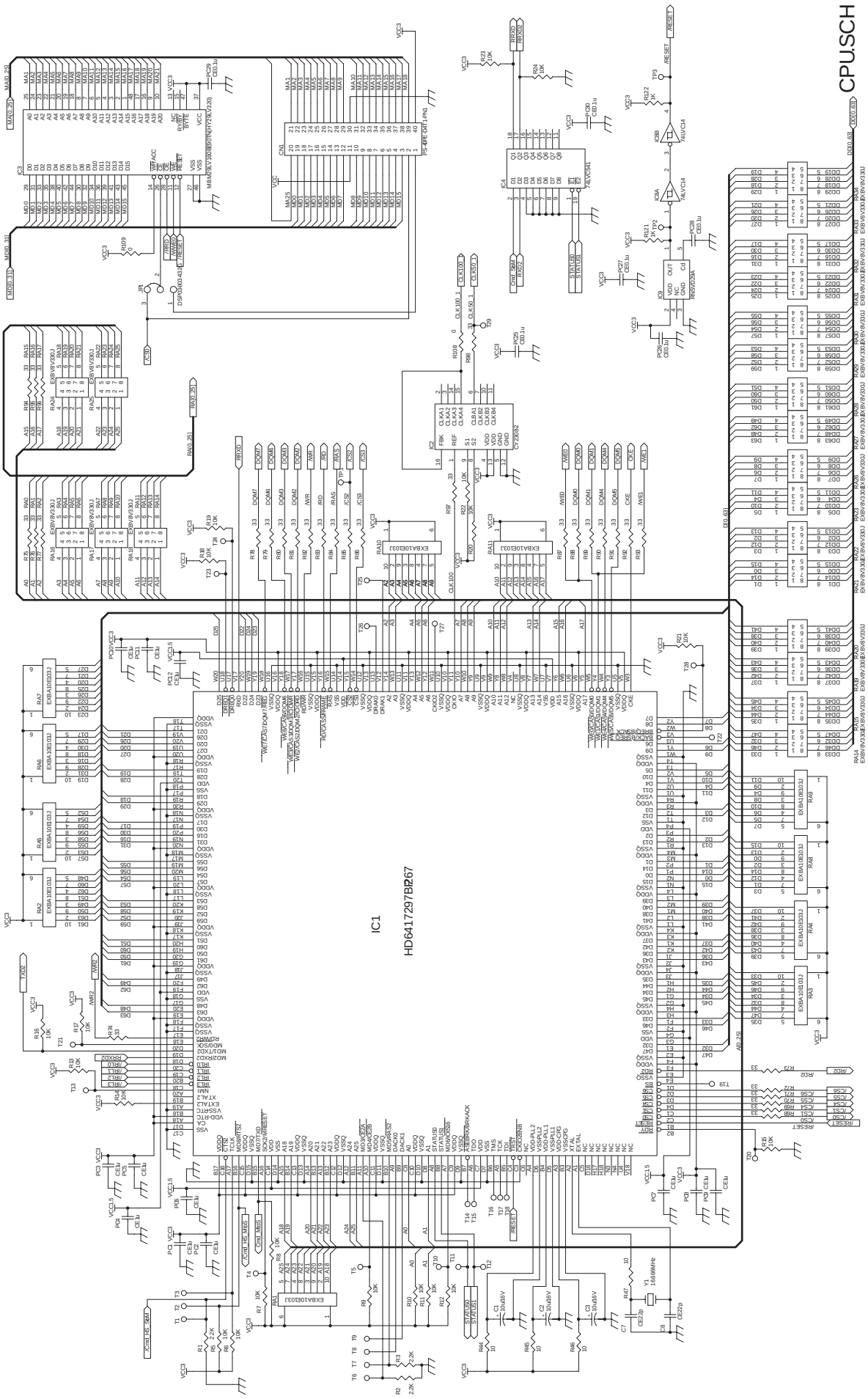
2-2 MAIN BOARD

Arrangement Diagram_Component Side

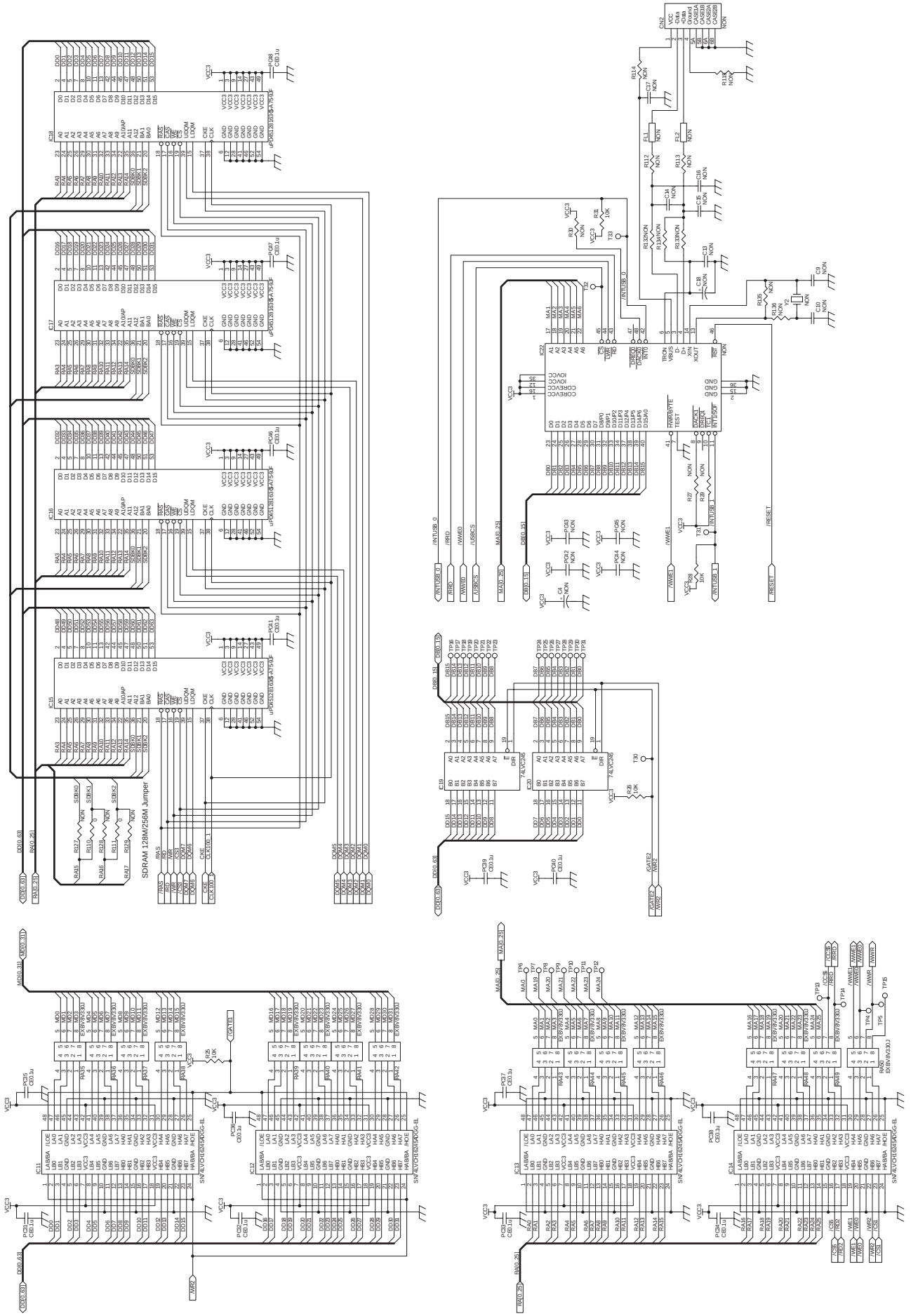


DIP SW	
bit 1 ~ bit 2	Always OFF
bit 3	ON
bit 4 ~ bit 8	Always OFF

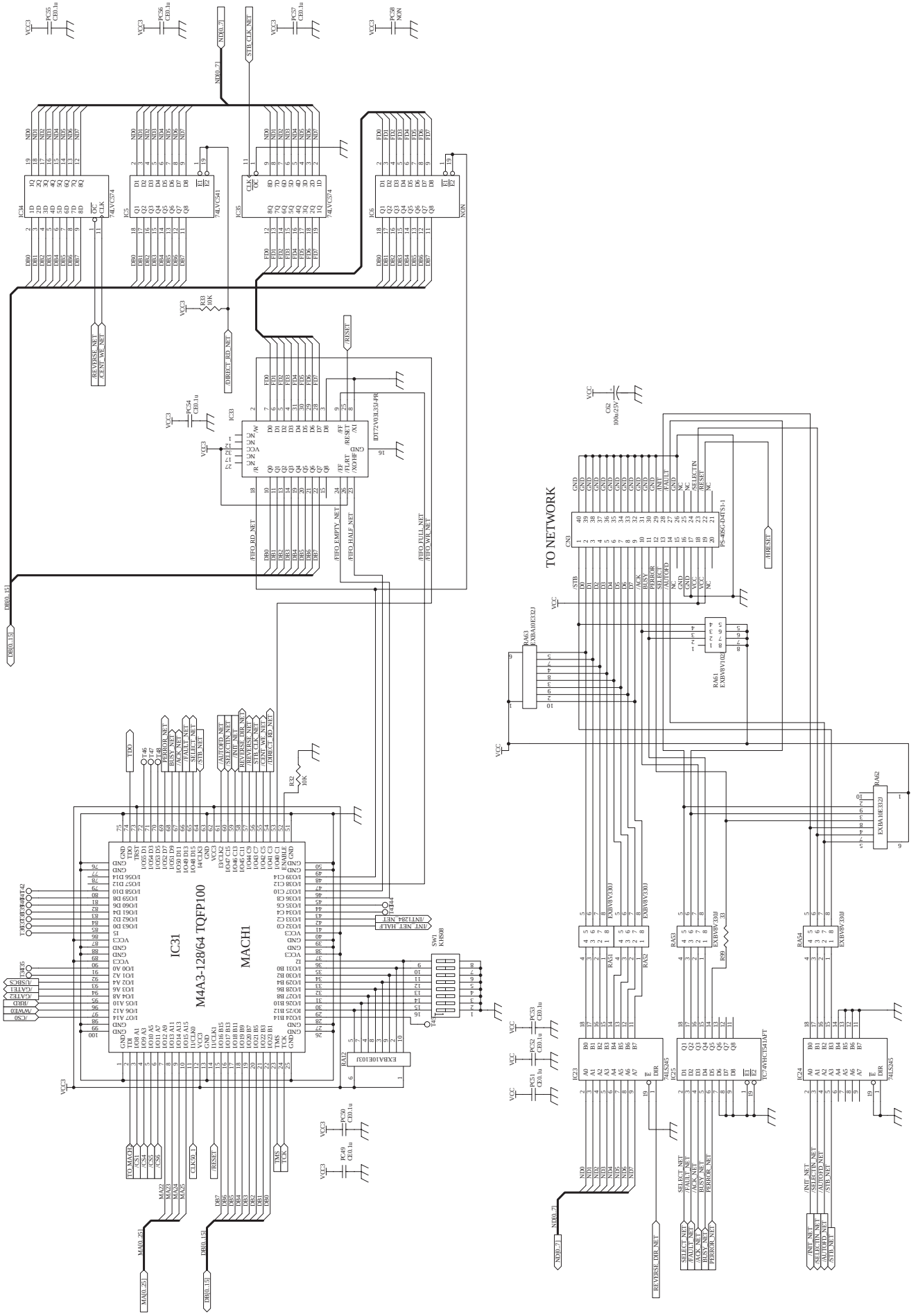
Main Board 1/6 Circuit



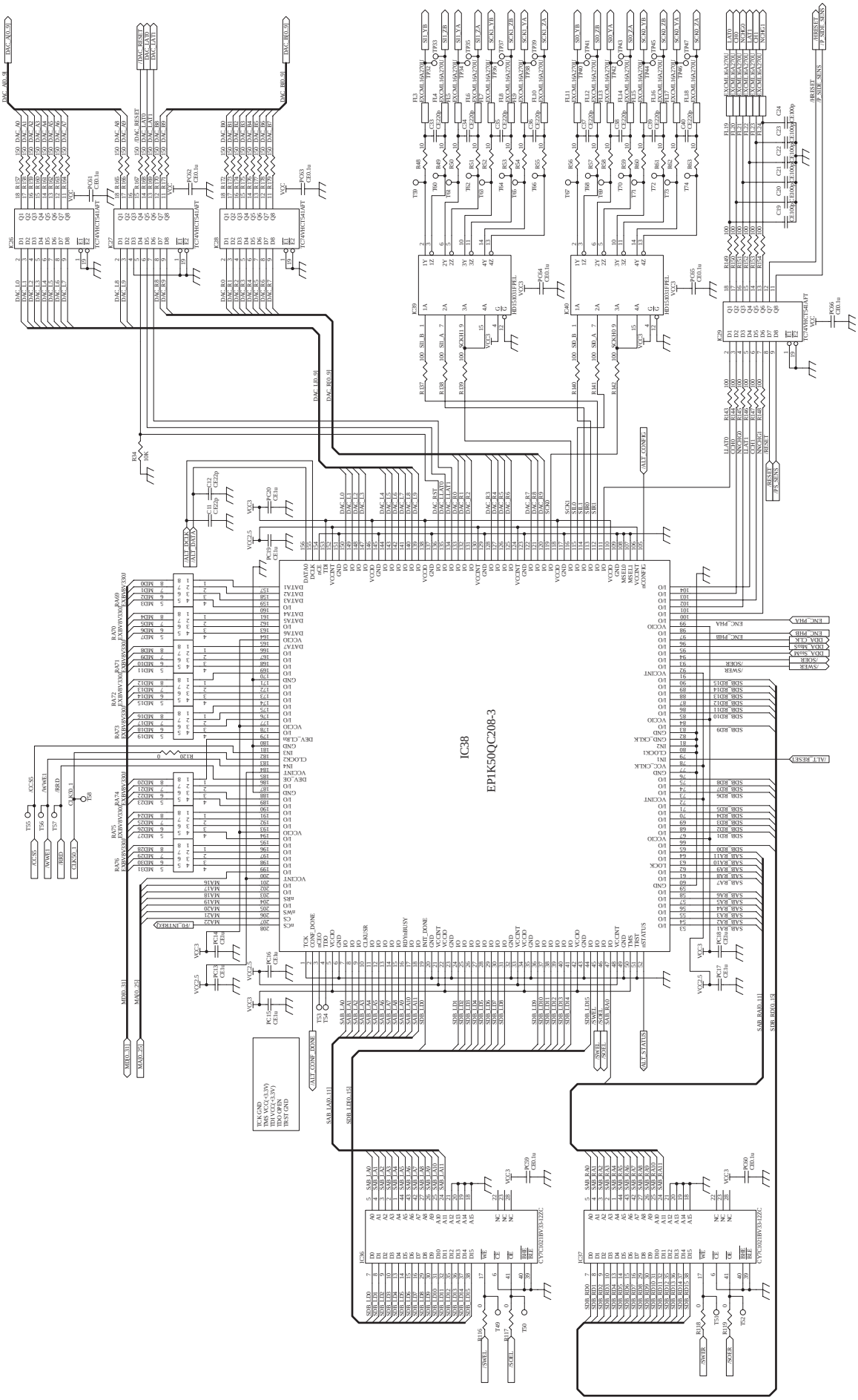
Main Board 2/6 Circuit



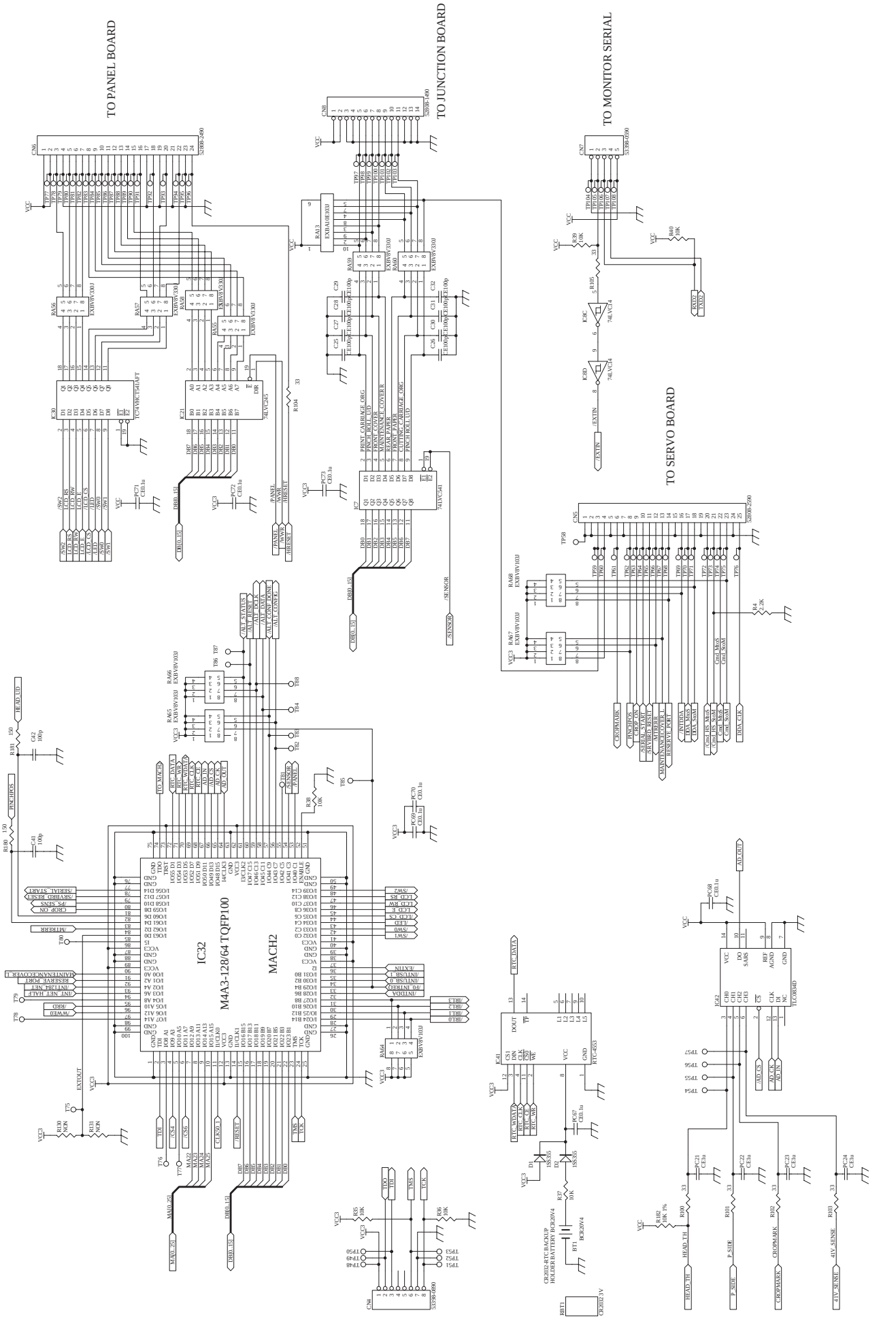
Main Board 3/6 Circuit



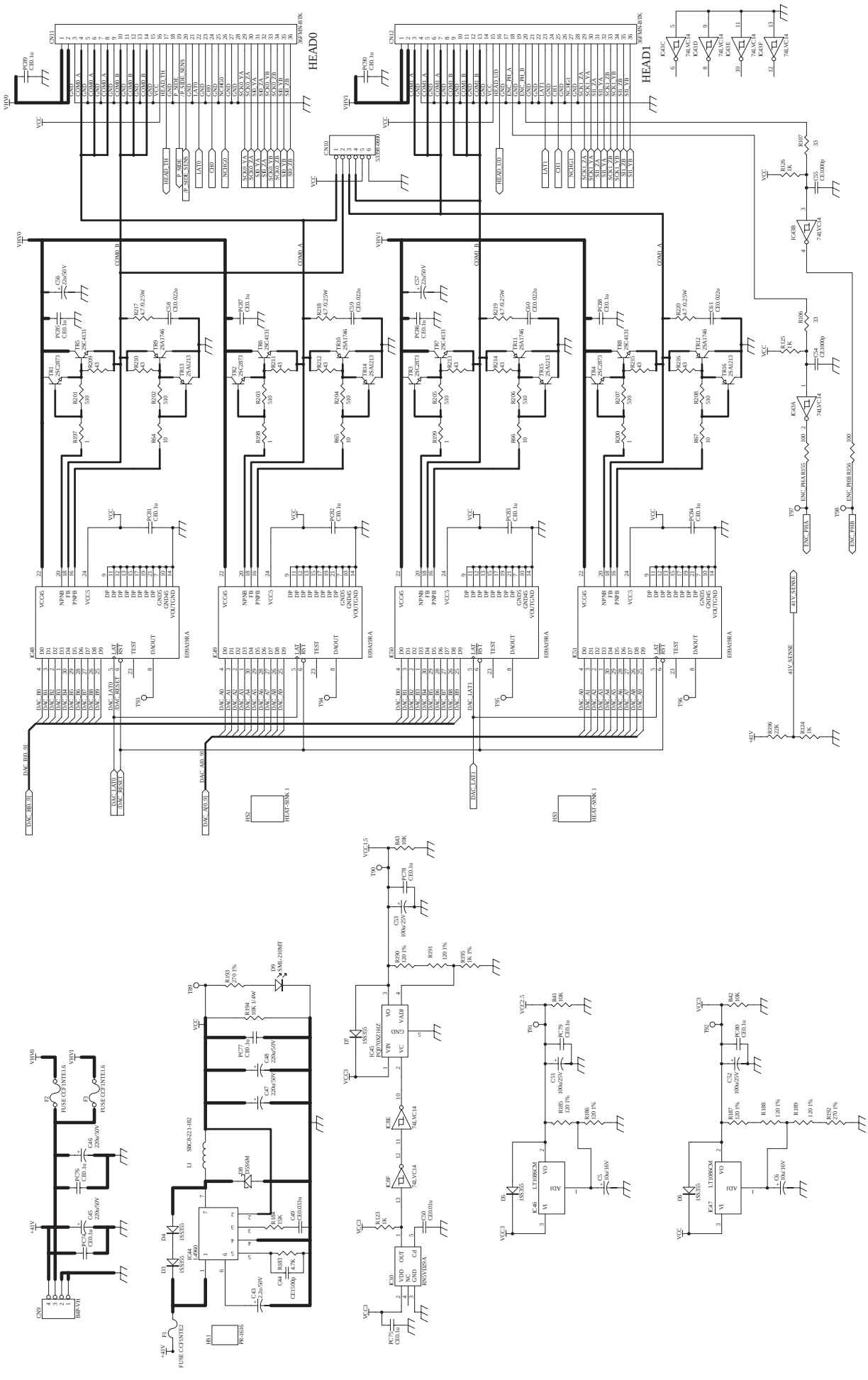
Main Board 4/6 Circuit



Main Board 5/6 Circuit

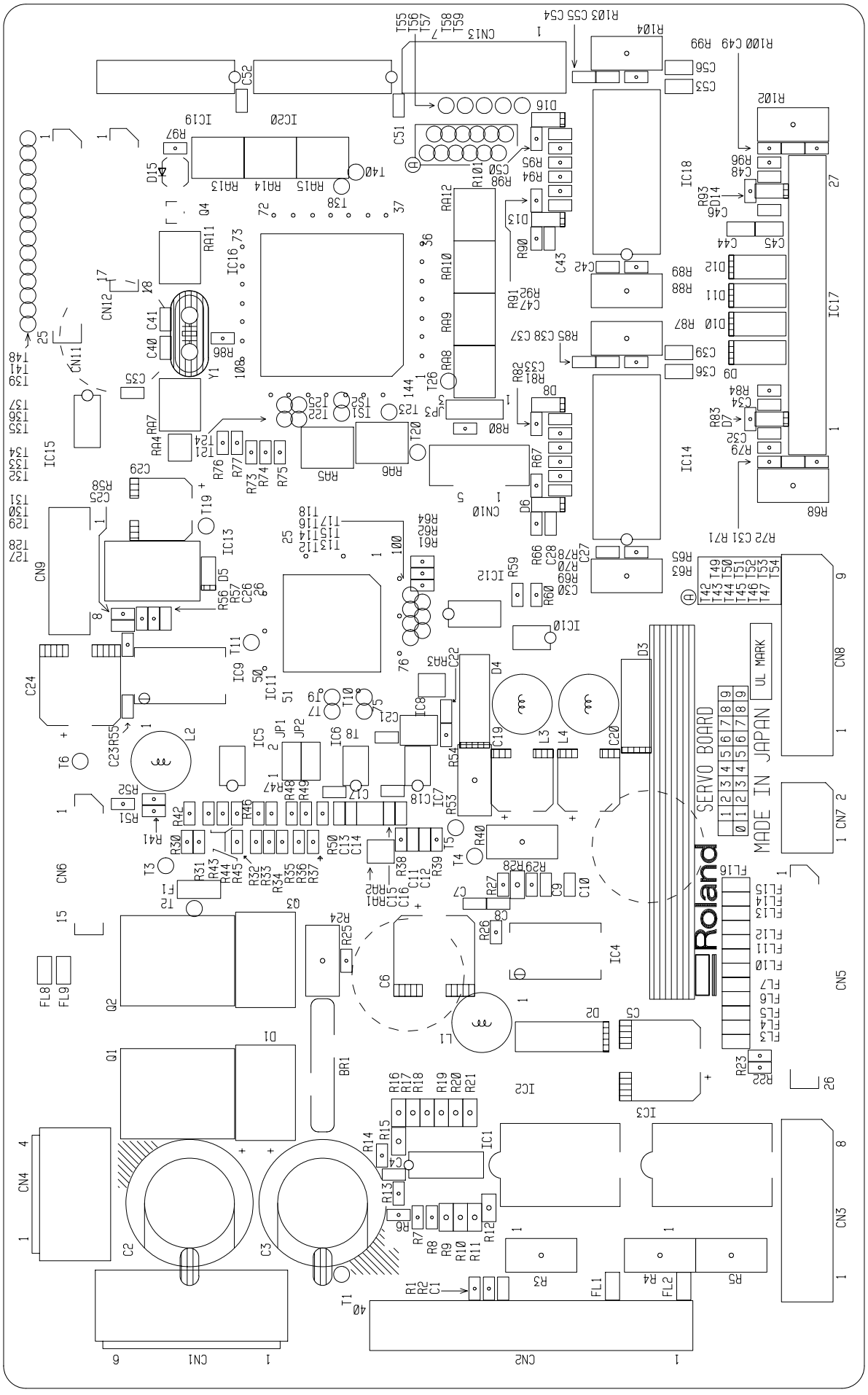


Main Board 6/6 Circuit

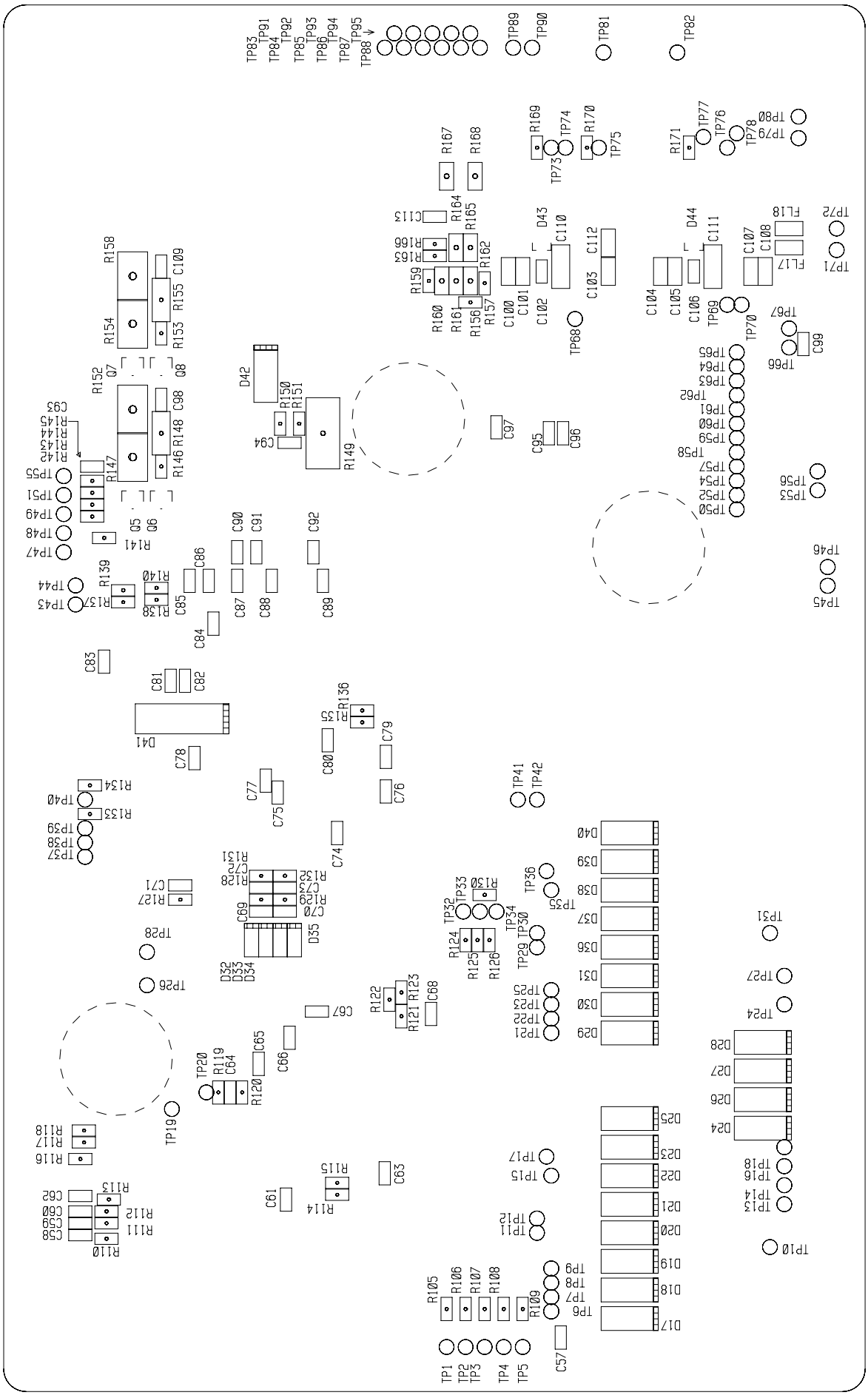


2-3 SERVO BOARD

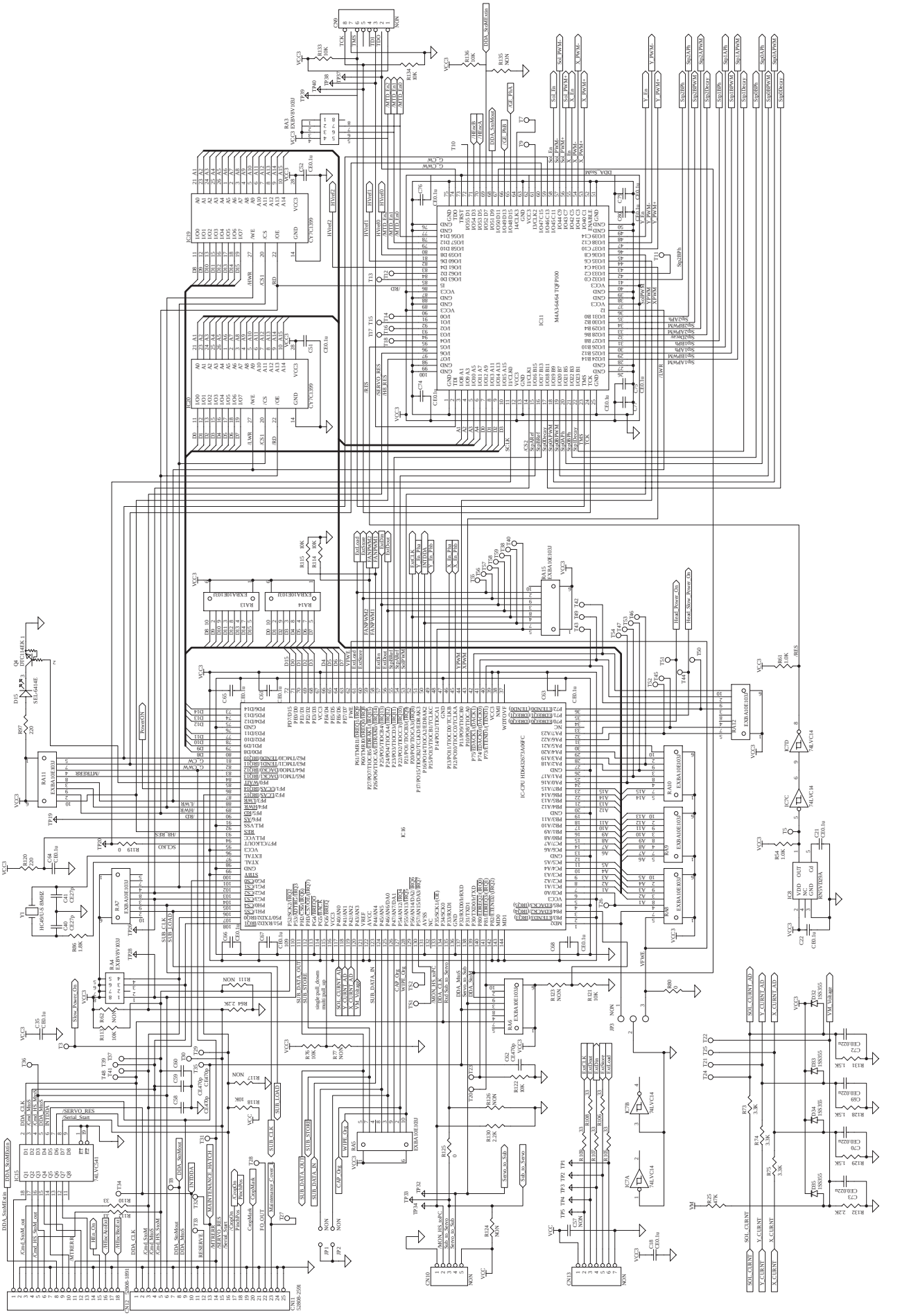
Arrangement Diagram Component Side



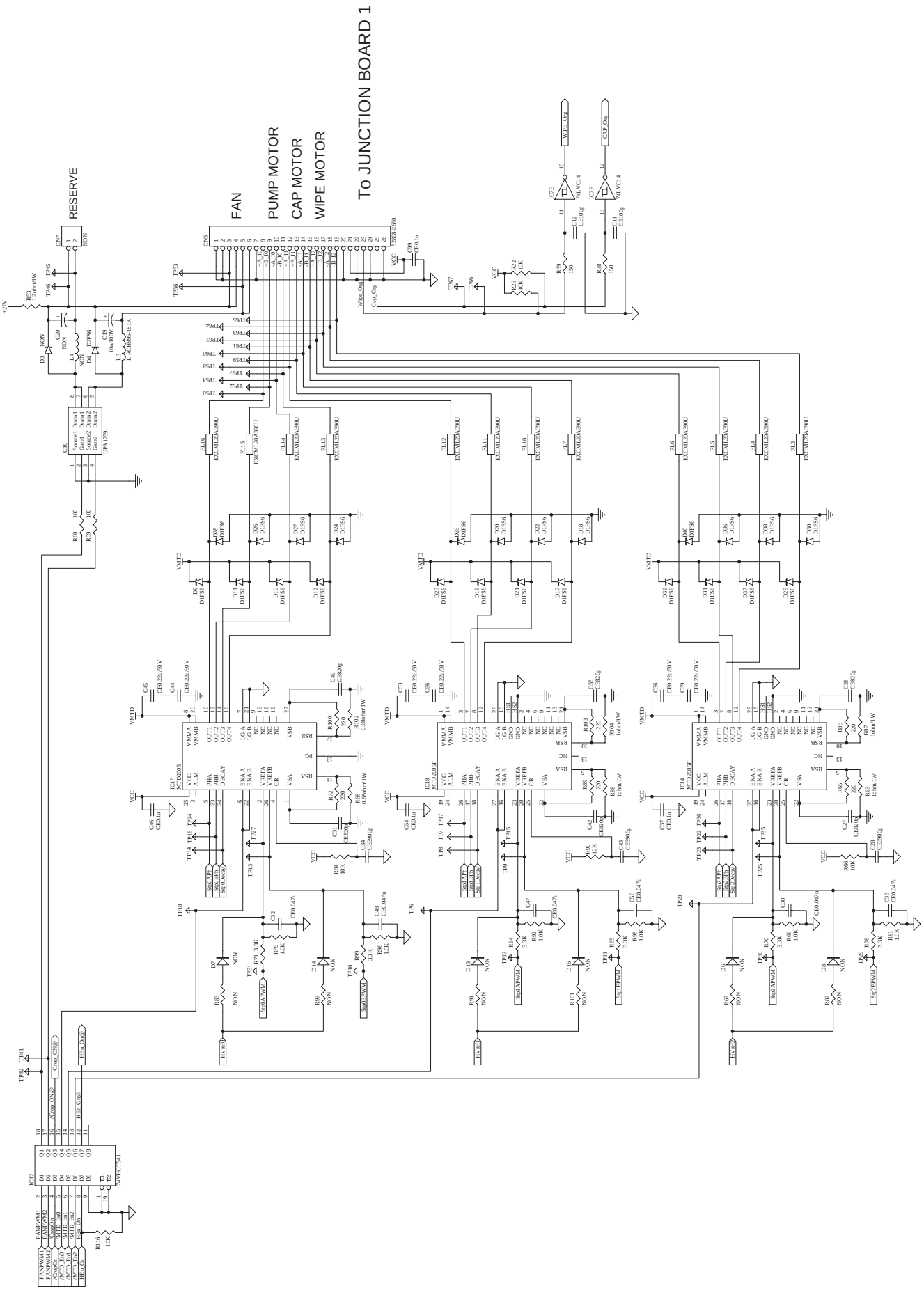
Arrangement Diagram Soldering Side



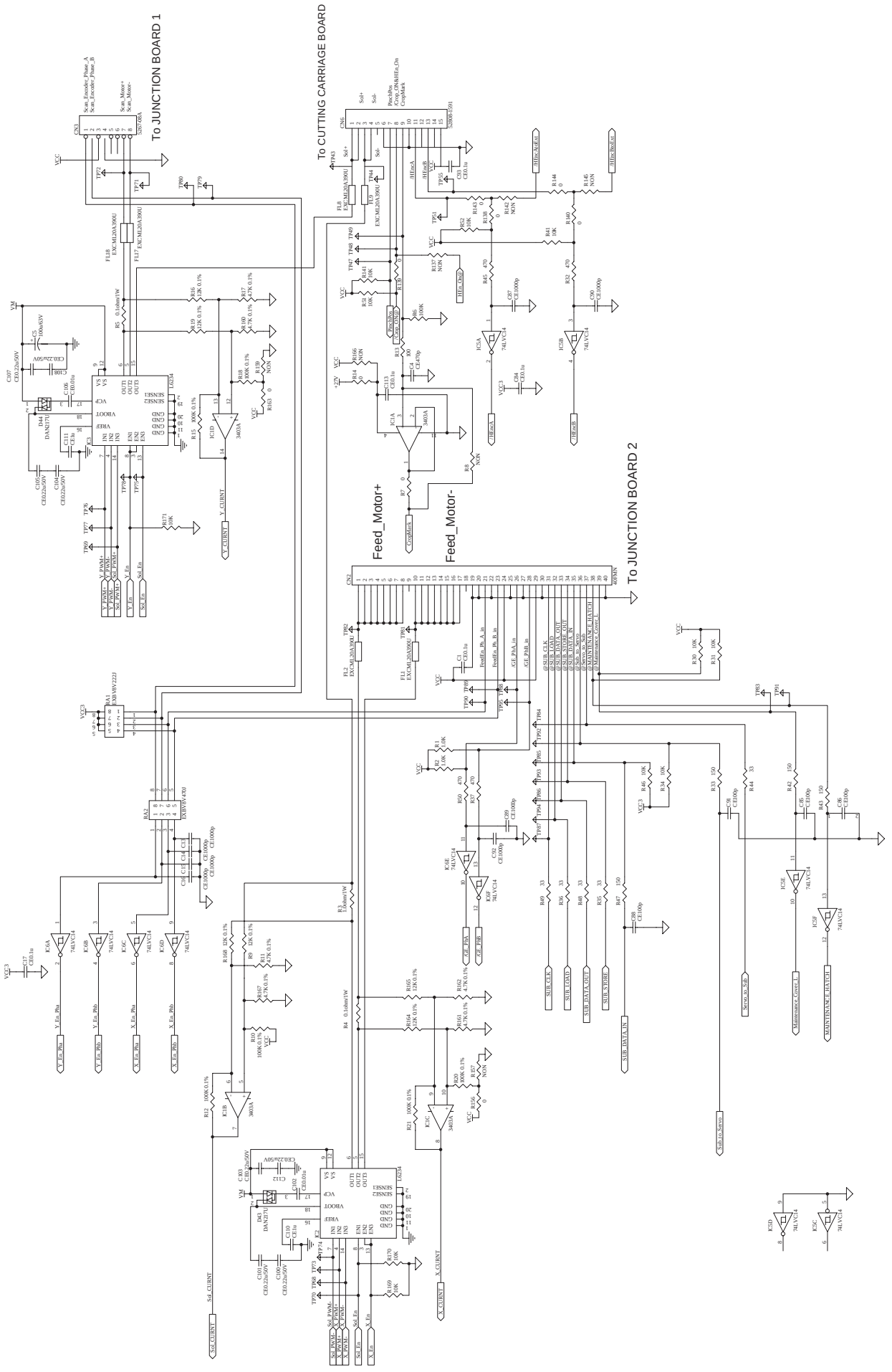
Servo Board 1/4 Circuit Diagram



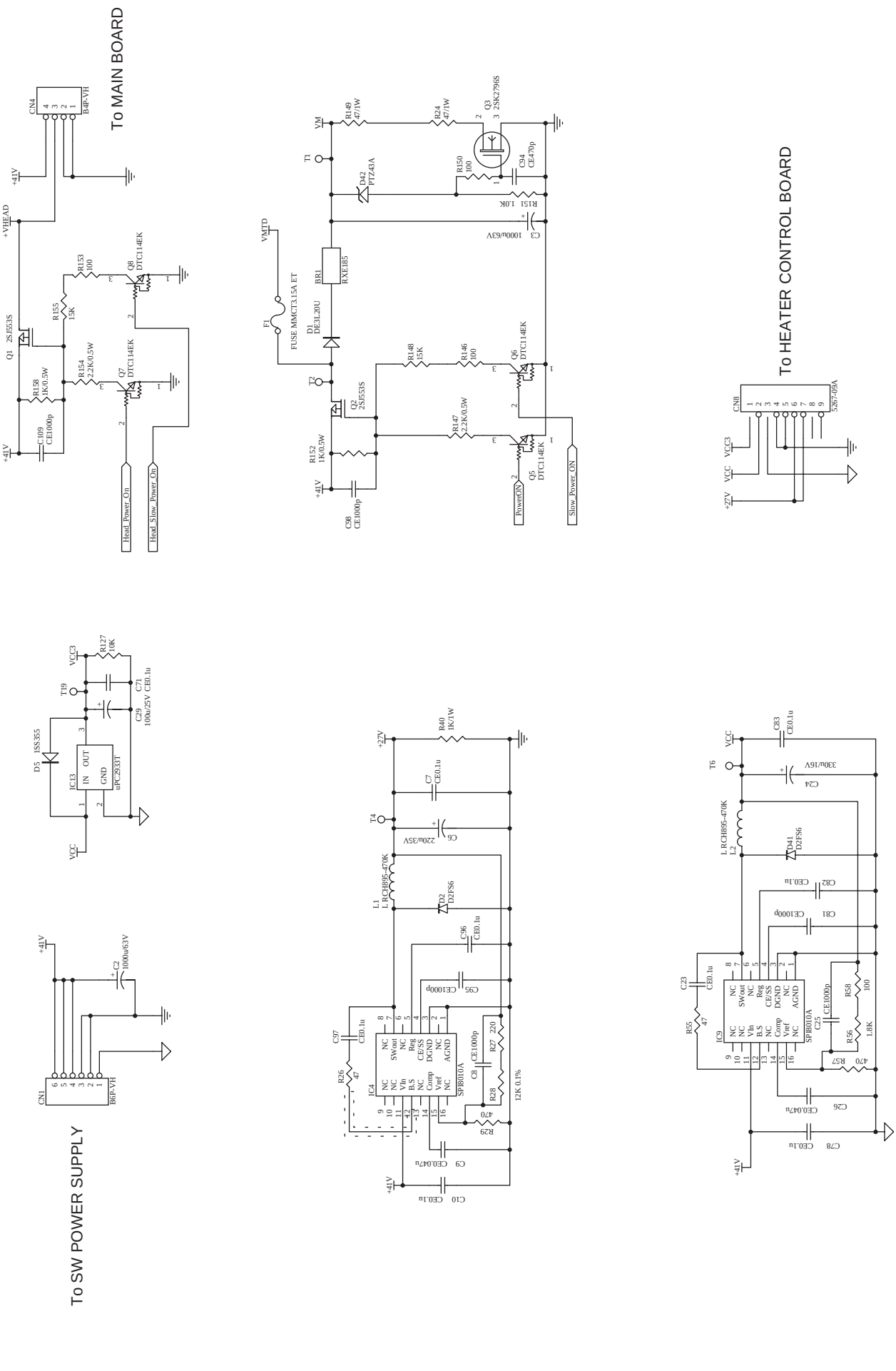
Servo Board 2/4 Circuit Diagram



Servo Board 3/4 Circuit Diagram

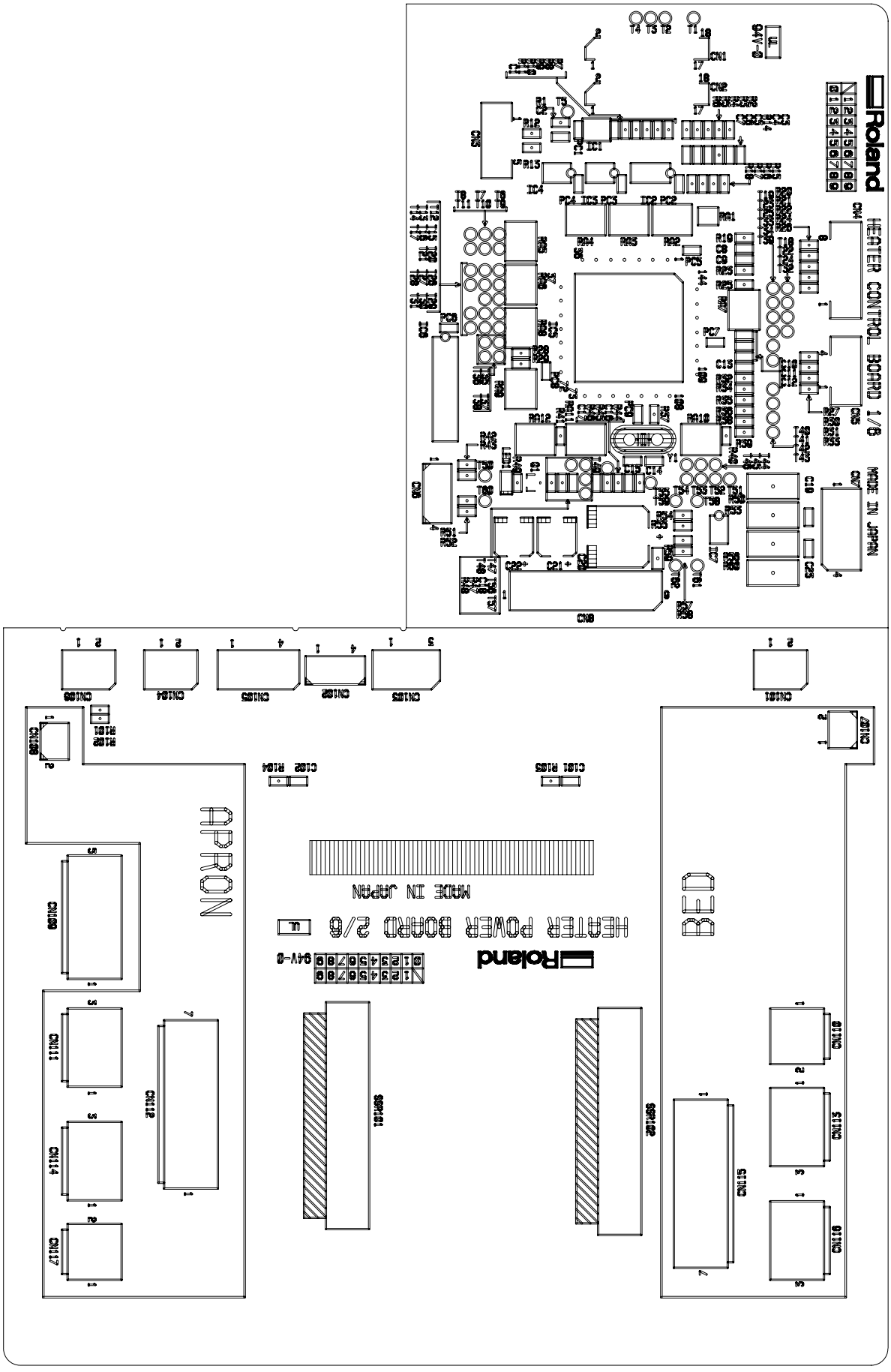


Servo Board 4/4 Circuit Diagram

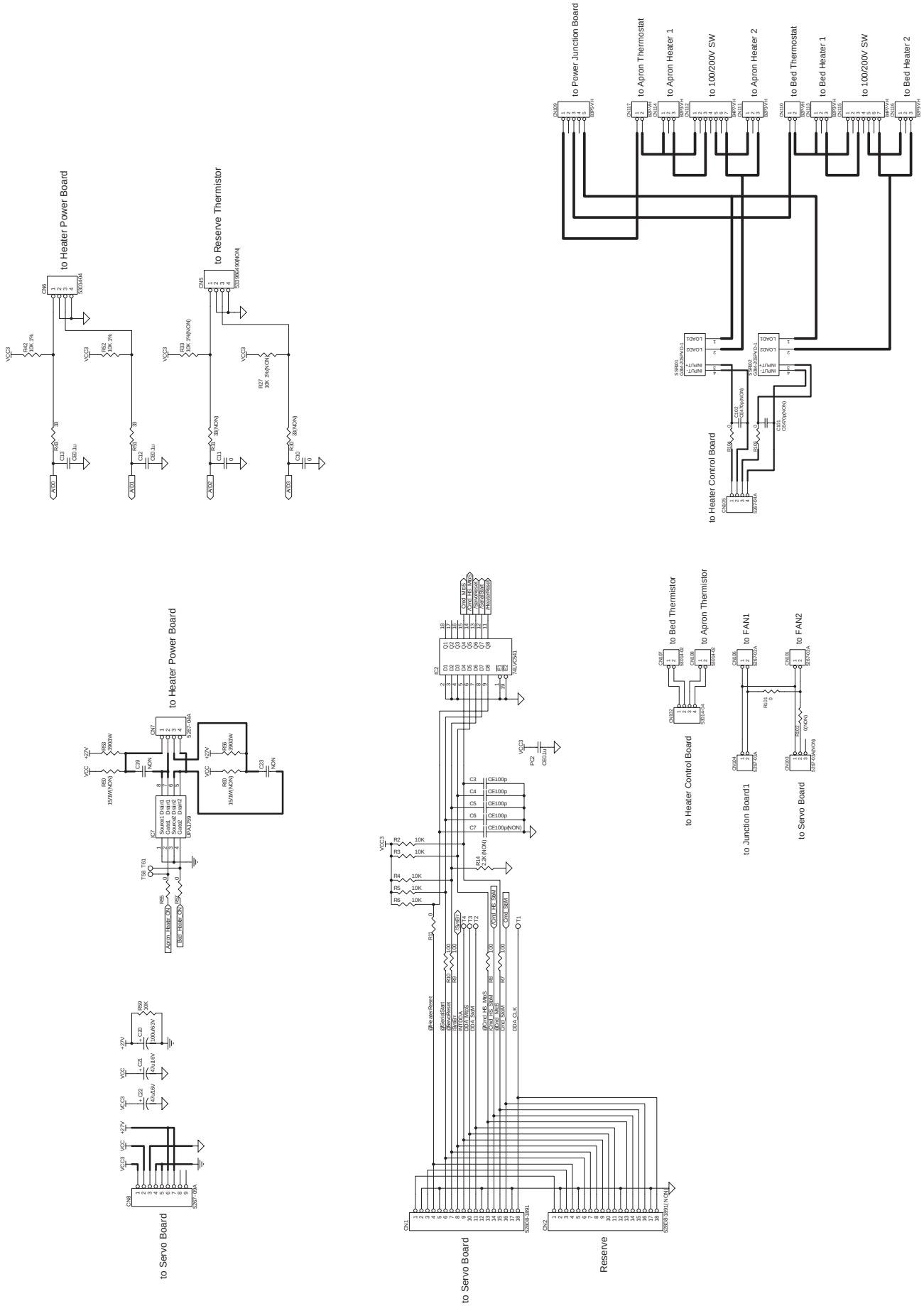


2-4 HEATER BOARD

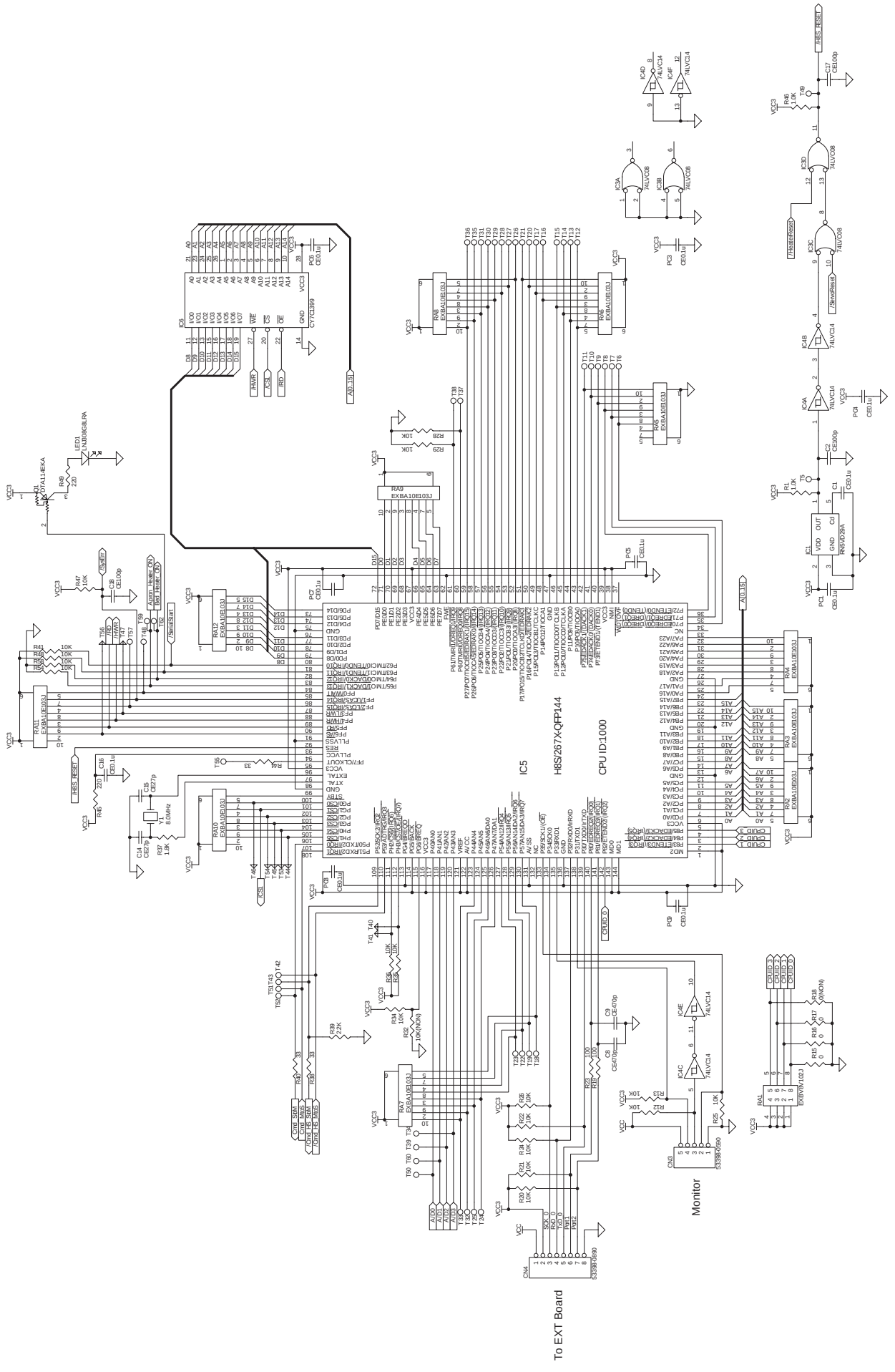
Arrangement Diagram Component Side



Heater Board 1/2 Circuit Diagram

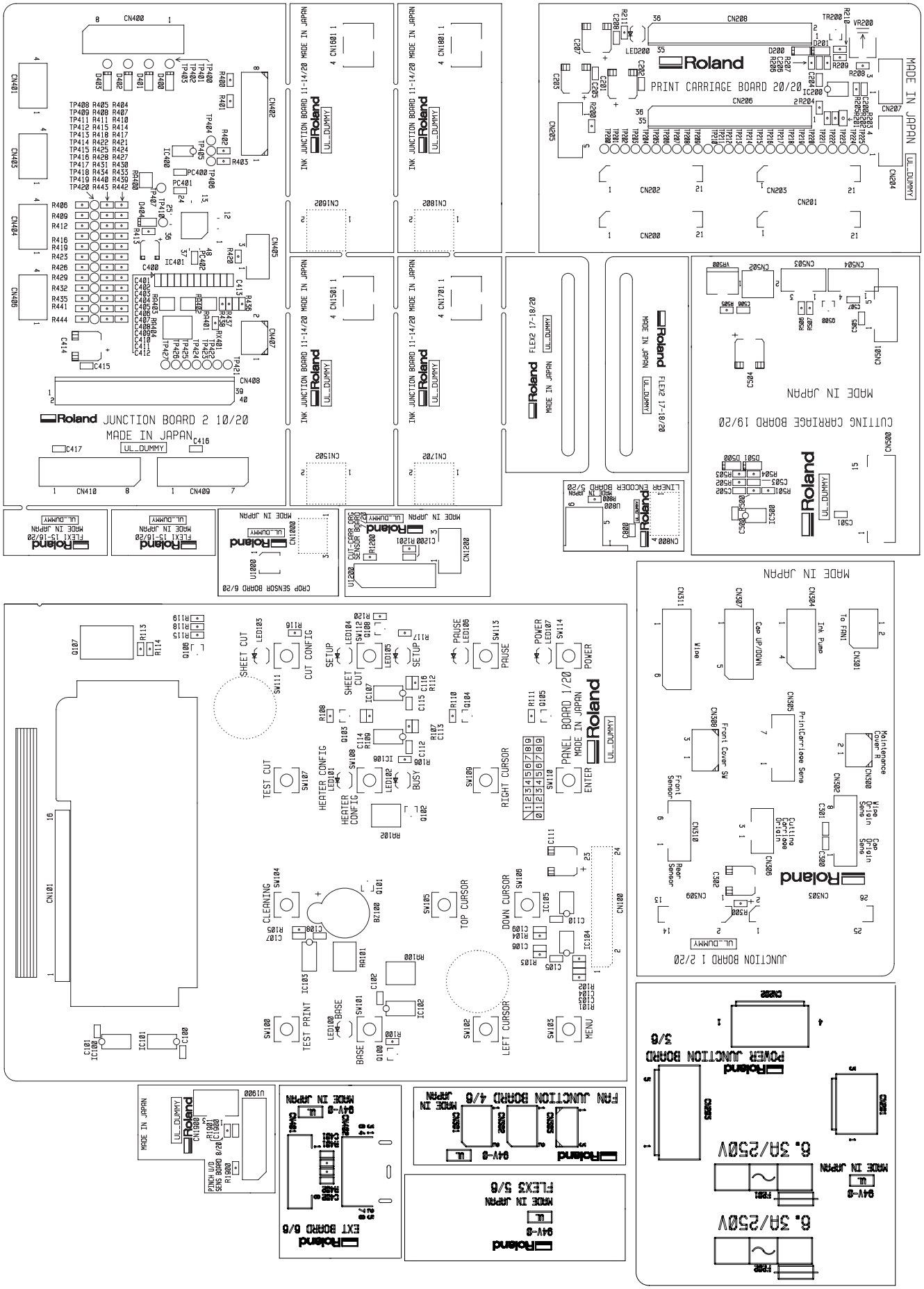


Heater Board 2/2 Circuit Diagram

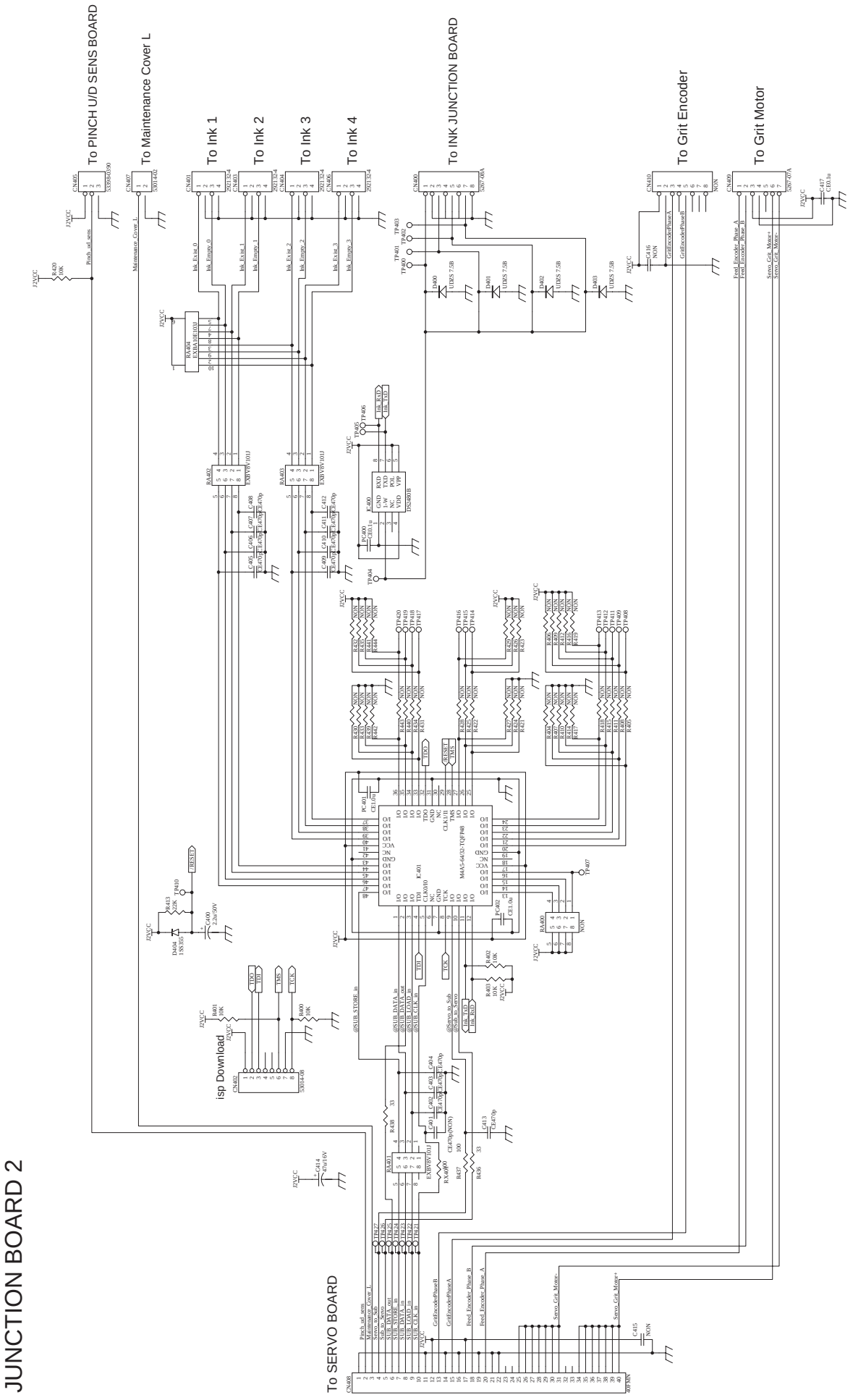


2-5 SUB BOARD

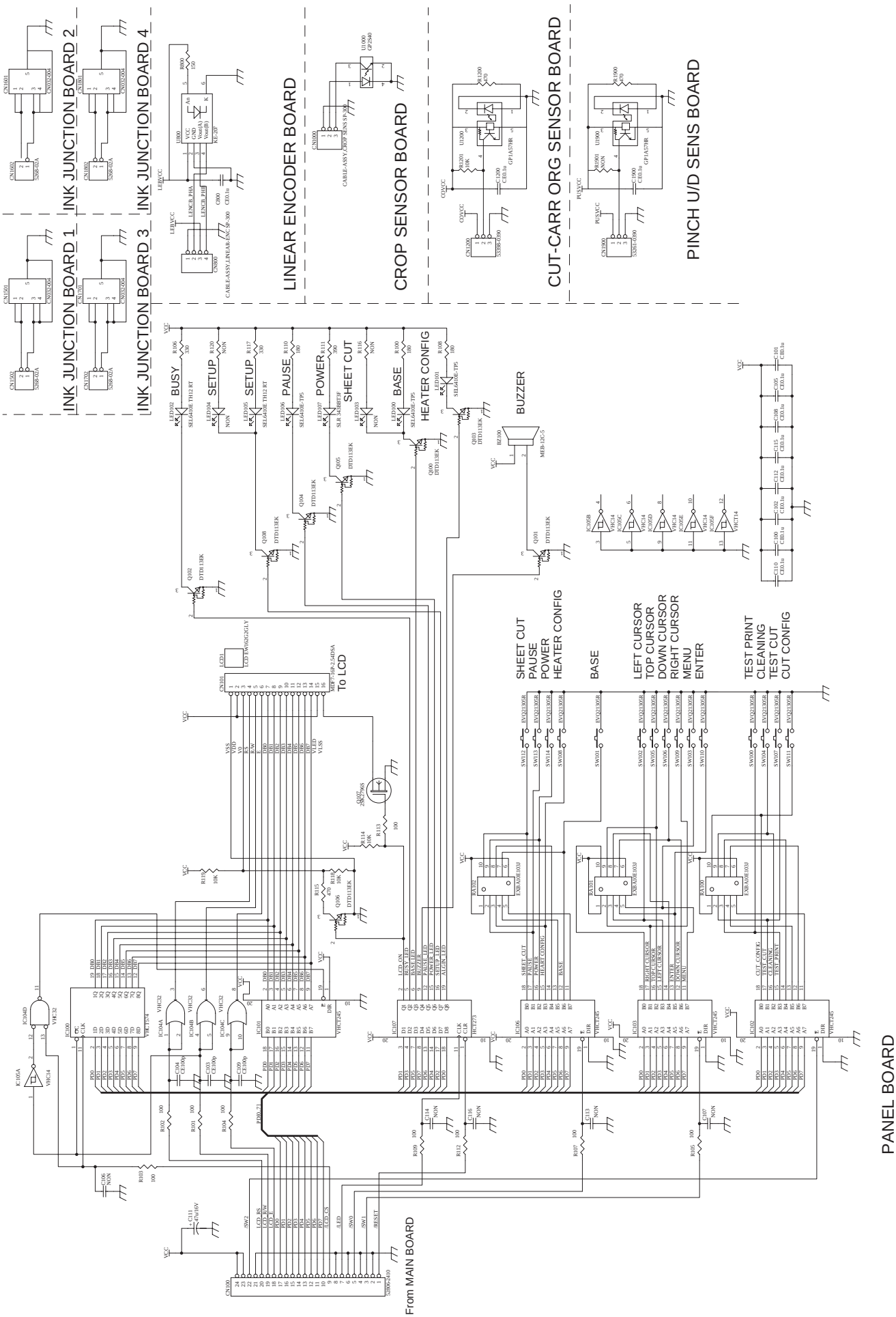
Arrangement Diagram Component Side



Sub Board 1/4 Circuit Diagram

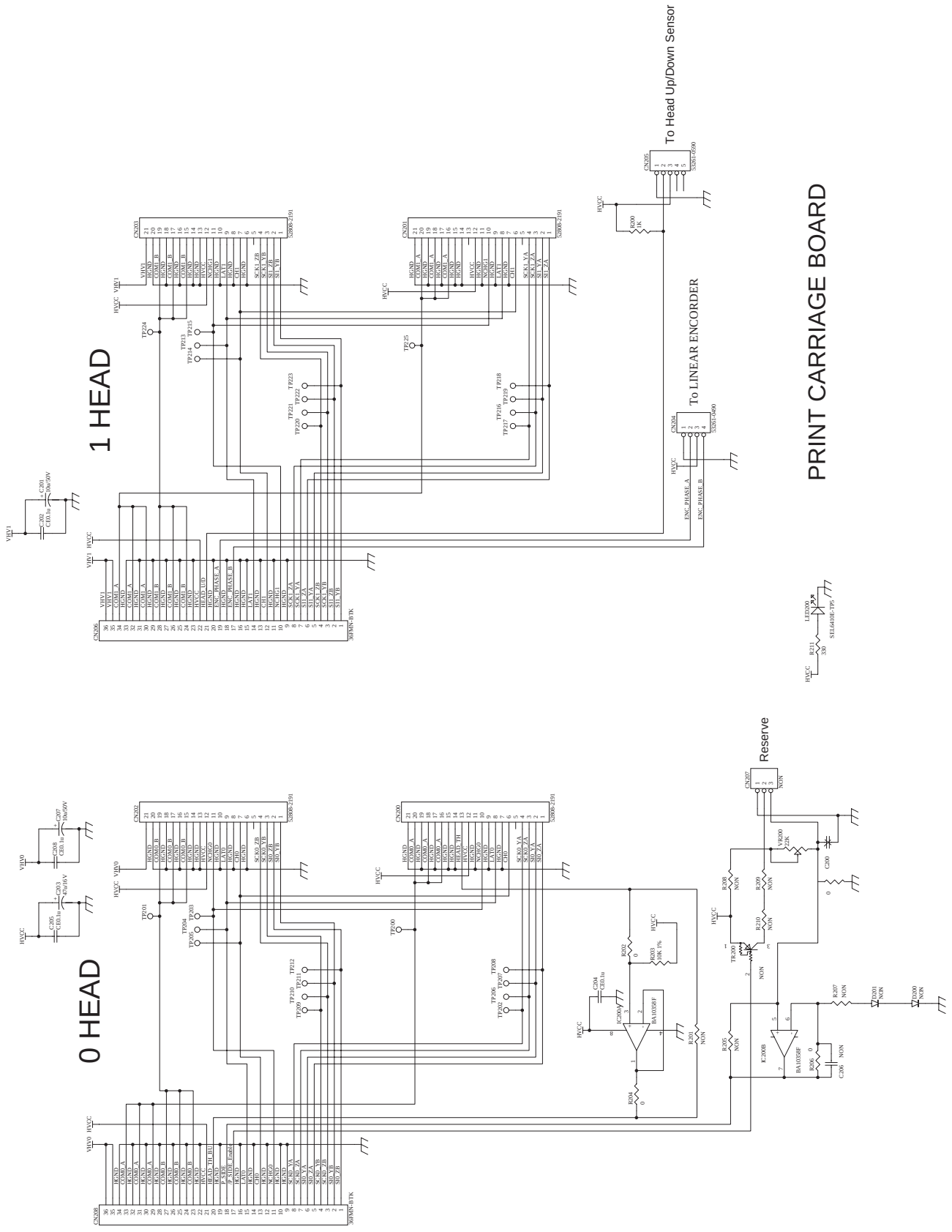


Sub Board 2/4 Circuit Diagram

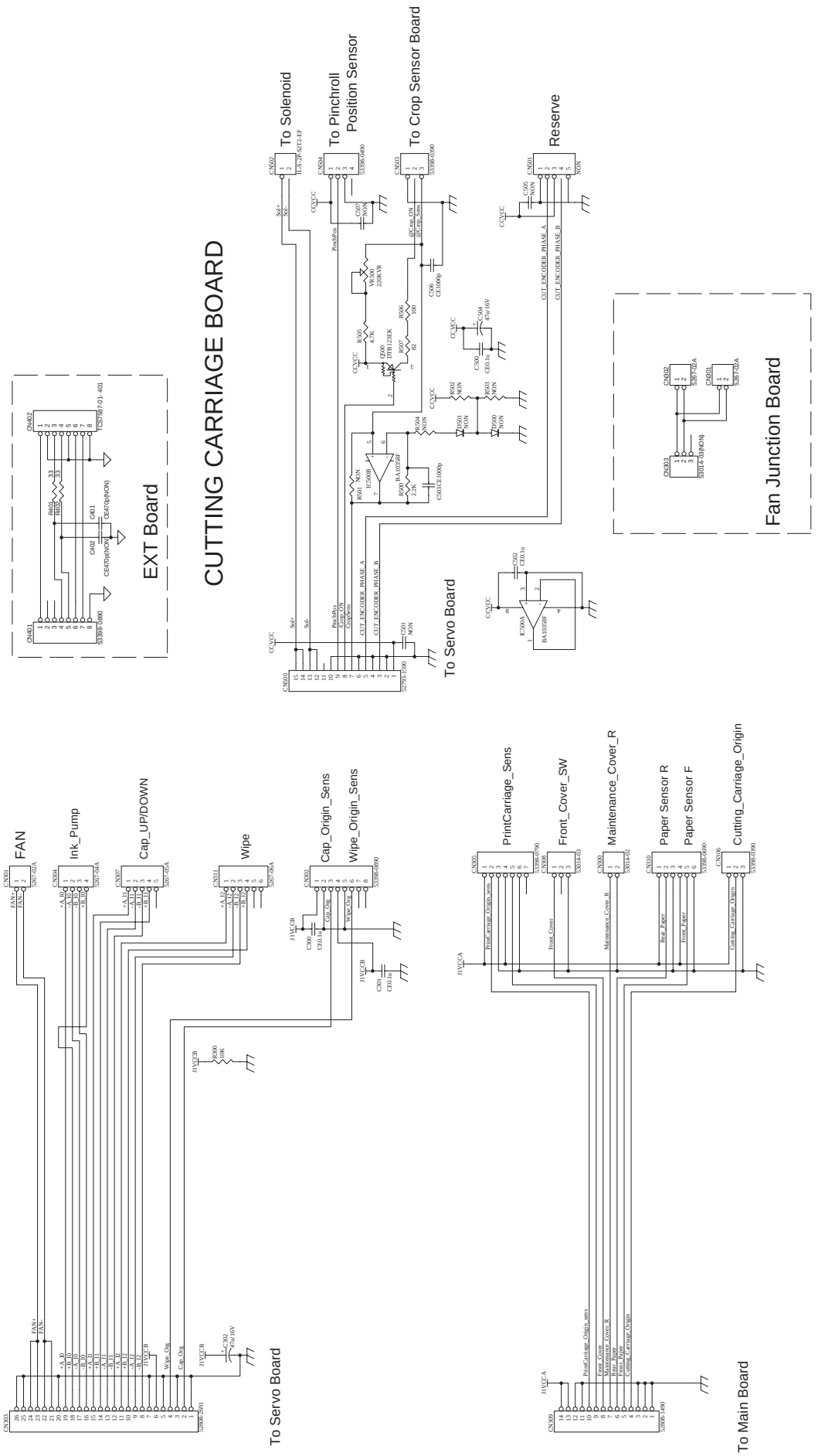


PANEL BOARD

Sub Board 3/4 Circuit Diagram



Sub Board 4/4 Circuit Diagram



2-6 MAINTENANCE PARTS LIST_Electrical Parts REVISED 3

MAIN BOARD

IC No.	Parts No.	Description	Function
IC44	15199237	V.RGL L4960	5V REGULATOR
IC48	15159127	IC E09A19RA	D/A Converter for HEAD BK&CY
IC49	15159127	IC E09A19RA	D/A Converter for HEAD BK&CY
IC50	15159127	IC E09A19RA	D/A Converter for HEAD MG&YE
IC51	15159127	IC E09A19RA	D/A Converter for HEAD MG&YE
TR5	15129122	TR 2SC4131 GB	Transistor for Driving HEAD BK&CY
TR9	15129121	TR 2SA1746 OY	Transistor for Driving HEAD BK&CY
TR6	15129122	TR 2SC4131 GB	Transistor for Driving HEAD BK&CY
TR10	15129121	TR 2SA1746 OY	Transistor for Driving HEAD BK&CY
TR7	15129122	TR 2SC4131 GB	Transistor for Driving HEAD MG&YE
TR11	15129121	TR 2SA1746 OY	Transistor for Driving HEAD MG&YE
TR8	15129122	TR 2SC4131 GB	Transistor for Driving HEAD MG&YE
TR12	15129121	TR 2SA1746 OY	Transistor for Driving HEAD MG&YE
F2	22555109	FUSE,CCF1NTE1.6	FUSE for HEAD BK&CY
F3	22555109	FUSE,CCF1NTE1.6	FUSE for HEAD MG&YE

SERVO BOARD

IC No.	Parts No.	Description	Function
IC17	15189105	IC-LINEAR MTD2005	PUMP MOTOR DRIVER
IC14	15189111	IC-LINEAR,MTD2005F-4072 ET	WIPE MOTOR DRIVER
IC18	15189111	IC-LINEAR,MTD2005F-4072 ET	CAP MOTOR DRIVER
IC10	15119119	TR,FET UPA1759G-E2 ET	FAN DRIVER
F1	12559102	FUSE,MMCT 3.15A ET	MOTOR POWER FUSE

HEATER CONTROL BOARD

IC No.	Parts No.	Description	Function
IC7	15119119	TR,FET UPA1759G-E2 ET	RELAY DRIVER

3 Replacement of Main Parts

The necessary adjustments after the replacement of each part, and the referential time for each work are described as follows.

HEAD REPLACEMENT :
20min. (1 Head)

1. THERMISTER CHECK
2. HEAD ALIGNMENT
3. HEAD INFORMATION CLEAR
4. CAP HEIGHT CHECK *9
5. TOOL / CROP MARK POSITION ADJUSTMENT Adj. Time : 57 min

< Total Time : 77min. >

TOOL CARRIAGE REPLACEMENT : 15 min

1. LIMIT & CUT DOWN POSITION ADJUSTMENT
2. TOOL HEIGHT ADJUSTMENT
3. TOOL PRESSURE ADJUSTMENT
4. CROP MARK SENSOR ADJUSTMENT
5. TOOL / CROP MARK POSITION ADJUSTMENT
6. PRINT/CUT POSITION ADJUSTMENT Adj. Time : 52 min

< Total Time : 67min. >

CAP TOP REPLACEMENT : 10 min. (2pcs.)

1. CAP HEIGHT CHECK *9 Adj. Time : 2min.

< Total Time : 12min. >

CARRIAGE MOTOR REPLACEMENT : 20 min

1. SERVO LOCK CHECK
2. AGING
3. MOTOR HOURS CLEAR Adj. Time : 5min.

< Total Time : 25min. >

PUMP REPLACEMENT : 15 min.

1. PUMP TIMES CLEAR

< Total Time : 15min. >

MAIN BOARD REPLACEMENT : 12 min.

1. DIP SW SETTING
2. BATTERY INSTALLATION
3. FIRMWARE INSTALLATION
4. SYSTEM PARAMETER INITIALIZE
5. HEAD RANK SETTING
6. SERIAL NUMBER INPUT *1
7. CAP & WIPER CHECK *2
8. CAP HEIGHT ADJUSTMENT
9. SENSOR CHECK
10. LIMIT & CUT DOWN POSITION INITIALIZE
11. LINEAR ENCODER SETUP
12. TOOL PRESSURE ADJUSTMENT
13. INK TYPE SETTING
14. HEAD ALIGNMENT
15. CALIBRATION
16. CROP MARK SENSOR ADJUSTMENT
17. TOOL / CROP MARK POSITION ADJUSTMENT
18. PRINT / CUT POSITION ADJUSTMENT Adj. Time : 90min.

< Total Time : 102min. >

CUTTING CARRIAGE BOARD REPLACEMENT : 7min.

1. TOOL UP/DOWN CHECK *3
2. PINCH ROLLER SENSOR CHECK
3. CROP MARK SENSOR ADJUSTMENT
4. TOOL / CROP MARK POSITION ADJUSTMENT
5. PRINT / CUT POSITION ADJUSTMENT Adj. Time : 26min.

< Total Time : 33min. >

CARRIAGE BOARD REPLACEMENT : 15min.

1. THERMISTER CHECK
2. LINEAR ENCODER SETUP Adj. Time : 10min.

<Total Time : 25min.>

PANEL BOARD REPLACEMENT : 7min.

1. LCD/LED//BUZ CHECK
2. KEY CHECK *4 Adj. Time : 3min.

< Total Time : 10min. >

SERVO BOARD REPLACEMENT : 12min.

1. SENSOR CHECK *5
(INK CARTRIDGE SENSOR, INK EMPTY SENSOR and
PINCH ROLLER SENSOR)
2. CAP & WIPER CHECK *2
3. FAN CHECK *6
4. PUMP CHECK *7
5. AGING
6. TOOL PRESSURE ADJUSTMENT
7. CROP MARK SENSOR ADJUSTMENT
8. TOOL / CROP MARK POSITION ADJUSTMENT
9. PRINT / CUT POSITION ADJUSTMENT Adj. Time : 40min.

< Total Time : 52min. >

HEATER POWER BOARD REPLACEMENT : 10min.

1. HEATER CHECK *8 Adj. Time : 3min.

< Total Time : 13min. >

HEATER CONTROL BOARD REPLACEMENT : 5min.

1. HEATER CHECK *8 Adj. Time : 3min.

< Total Time : 8min. >

JUNCTION BOARD 1 REPLACEMENT : 10min.

1. SENSOR CHECK *5
(HEAD LOCK SENSOR, LIMIT SENSOR, FRONT COVER SENSOR,
MAINTENANCE COVER SENSOR, SHEET LOAD SENSOR,
FRONT PAPER SENSOR, REAR PAPER SENSOR)
2. CAP & WIPER CHECK *2
3. FAN CHECK *6
4. SCAN MOTOR AGING Adj. Time : 8min.

< Total Time : 18min. >

JUNCTION BOARD 2 REPLACEMENT : 5min.

1. SENSOR CHECK *5
(SHEET LOAD SENSOR, INK CARTRIDGE SENSOR, EMPTY SENSOR)
2. FEED MOTOR AGING Adj. Time : 3min.

< Total Time : 8min. >

NETWORK BOARD REPLACEMENT : 9min.

1. FIRMWARE UPGRADE
2. IP ADDRESS SETTING Adj. Time : 7min.

< Total Time : 16min. >

CARRIAGE WIRE REPLACEMENT : 45min.

1. WIRE TENSION ADJUSTMENT
2. LIMIT & CUT DOWN POSITION INITIALIZE
3. LINEAR ENCODER SETUP
4. CUTTING QUALITY CHECK Adj. Time : 18min.

< Total Time : 63min. >

LINEAR ENCODER REPLACEMENT : 25min.

1. LINEAR ENCODER SETUP Adj. Time : 3min.

< Total Time : 28min. >

LINEAR SCALE REPLACEMENT : 20min.

1. LINEAR ENCODER SETUP Adj. Time : 3min.

< Total Time : 23min. >

CROP MARK SENSOR REPLACEMENT : 10min.

1. CROP MARK SENSOR ADJUSTMENT
2. TOOL / CROP MARK POSITION ADJUSTMENT
3. PRINT / CUT POSITION ADJUSTMENT Adj. Time : 25min.

< Total Time : 35min. >

BATTERY REPLACEMENT : 7min.

1. BATTERY FLAG CLEAR

< Total Time : 7min. >

*1 Input the serial number in the [SERVICE MENU] > [SERIAL NO.].
*2 It can be performed in the [SERVICE MENU] > [CAP&WIPER CHECK].
*3 It can be performed in the [SERVICE MENU] > [FORCE ADJUST].
*4 It can be performed in the [SERVICE MENU] > [KEY CHECK].
*5 It can be performed in the [SERVICE MENU] > [SENSOR CHECK].
*6 It can be performed in the [SERVICE MENU] > [FAN CHECK].
*7 It can be performed in the [SERVICE MENU] > [PUMP CHECK].
*8 It can be performed in the [SERVICE MENU] > [HEATER CHECK].
*9 It can be performed in the [SERVICE MENU] > [CAP ADJUST] > [CHECK GAP].

Revised 11

⚠WARNING

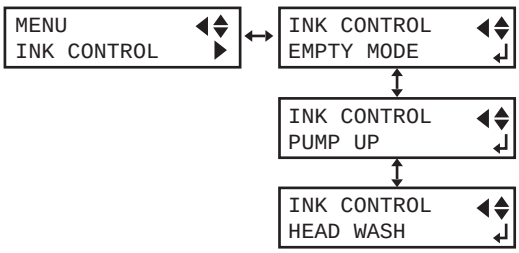
To prevent static damage, discharge static electricity from your body before you touch any of electronic components. You can do so by touching an unpainted metal surface on the chassis.

You can also take the following steps to prevent damage from electrostatic discharge (ESD):

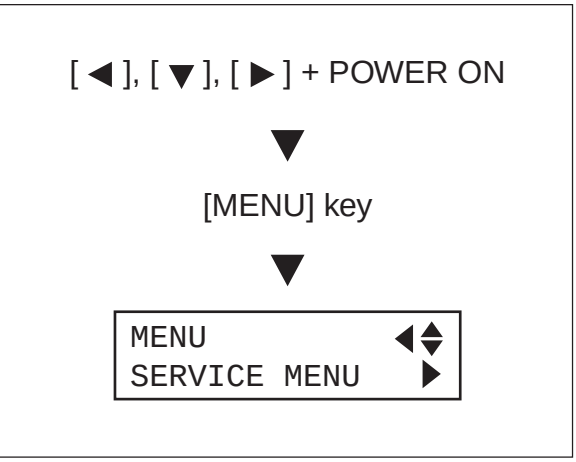
- When unpacking a static-sensitive component from its shipping carton, do not remove the component from the antistatic packing material until you are ready to install the component to the machine. Just before unwrapping the antistatic packaging, be sure to discharge static electricity from your body.
- When transporting a sensitive component, first place it in an antistatic container or packaging.
- Handle all sensitive components in a static-safe area. If possible, use antistatic floor pads and workbench pads.

3-1 HEAD REPLACEMENT

1 Turn on the SUB POWER SW and perform the [PUMP UP] from the [INK CONTROL] menu.
When it finishes, the SUB POWER will be automatically turned off.

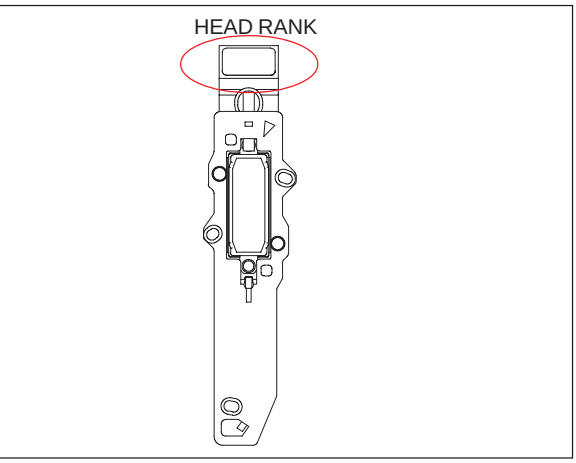


2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



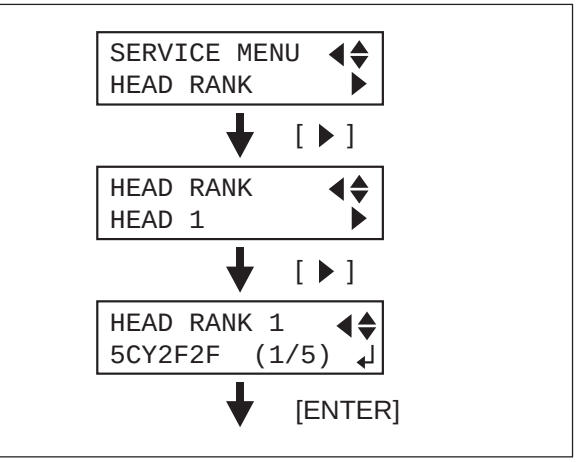
3 Input the HEAD RANK of the head which is going to be installed.

> Make sure to input the HEAD RANK before replacing the head, because the sticker which the head rank is written on will be hidden once the head is installed.

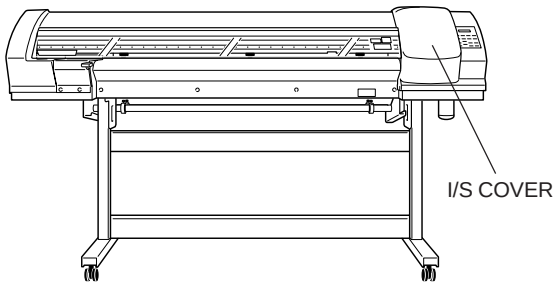


4 In [HEAD RANK] menu, select the Head No. of the head that you are going to replace and input the HEAD RANK written on the new head.
Input the HEAD RANK by selecting the digit with the Left and Right keys, and changing the parameters with the Up and Down keys.
Press the [ENTER] key to save the settings.

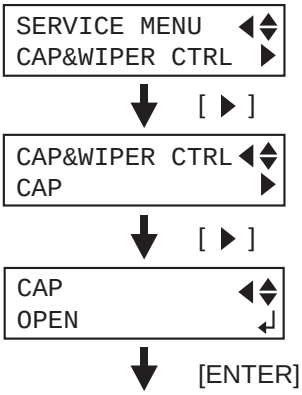
** The left Head is [HEAD 1].



5 Remove the I/S COVER.

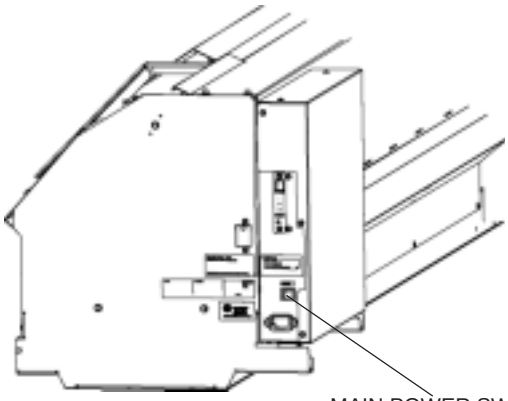


6 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

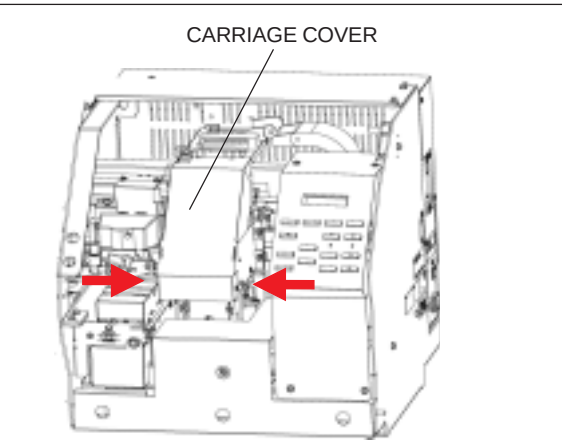


7 Turn off the SUB POWER SW, and then turn off the MAIN POWER SW.

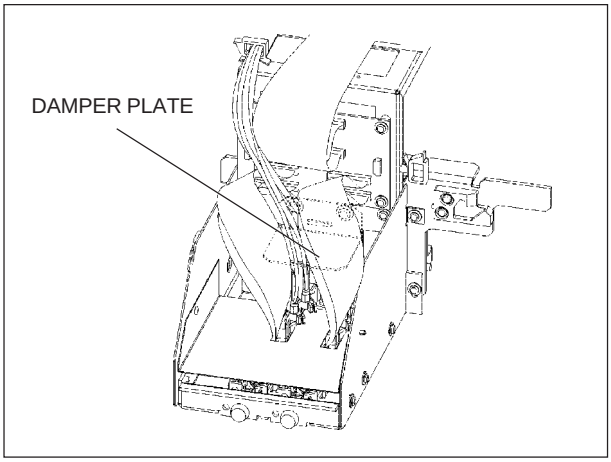
Be sure to turn off the MAIN POWER SW when replacing the head. The head or main board could break, otherwise. It is recommended to disconnect the AC code.



8 Remove the CARRIAGE COVER.

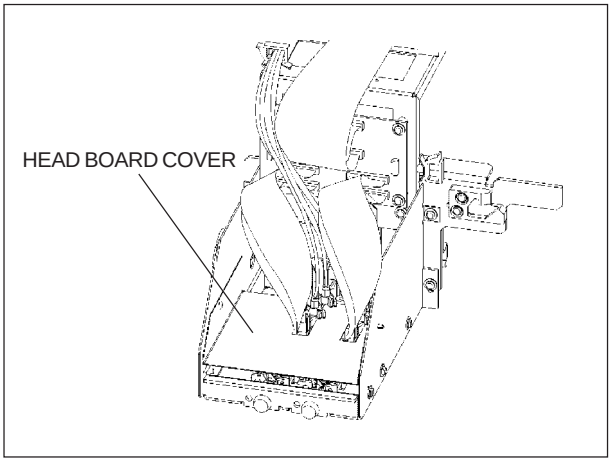


9 Remove the DAMPER PLATE and remove the 2 INK DAMPERs from the HEAD which will be replaced.

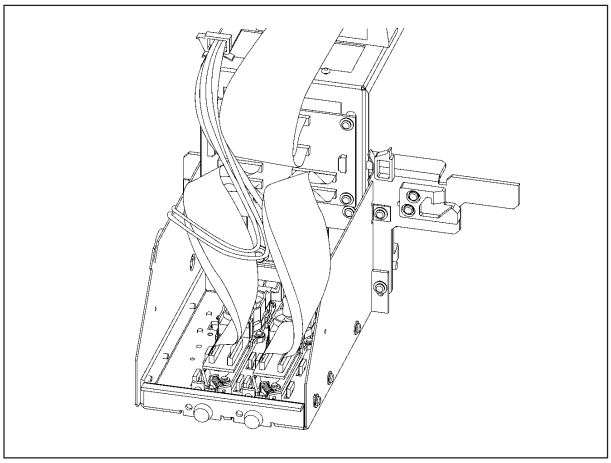


Do not hold both sides of the INK DAMPER so hard. It could break.
Be sure to remove and fix the INK DAMPER with the HEAD BOARD COVER fixed. It prevents the ink from dropping on the HEAD BOARD.

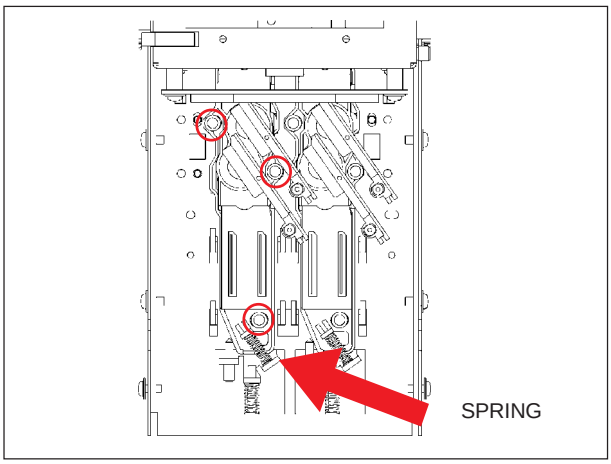
10 Remove the HEAD BOARD COVER (the transparent cover).



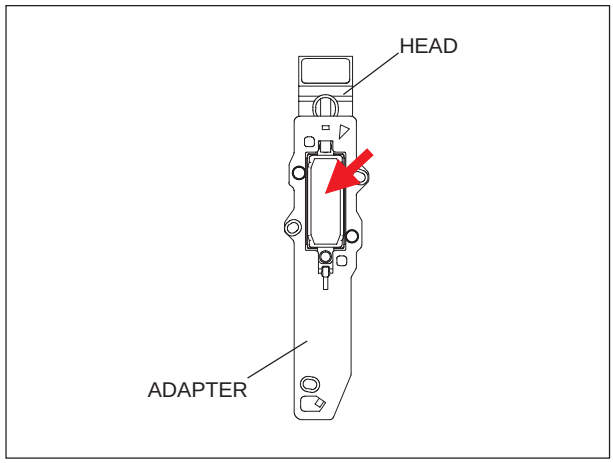
11 Disconnect the 2 flexible cables from the HEAD.



12 Remove the SPRING, and remove the 3 screws fixing the HEAD in order as shown in the figure.
Then, pull the HEAD towards the front and pull it up to remove it.

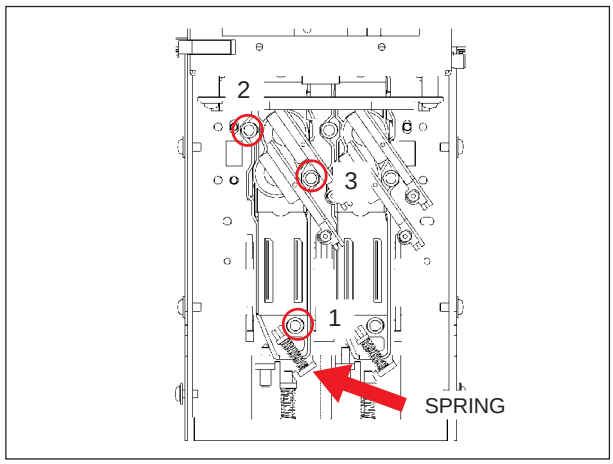


13 Remove the HEAD from the ADAPTER and fix the new HEAD to the ADAPTER.



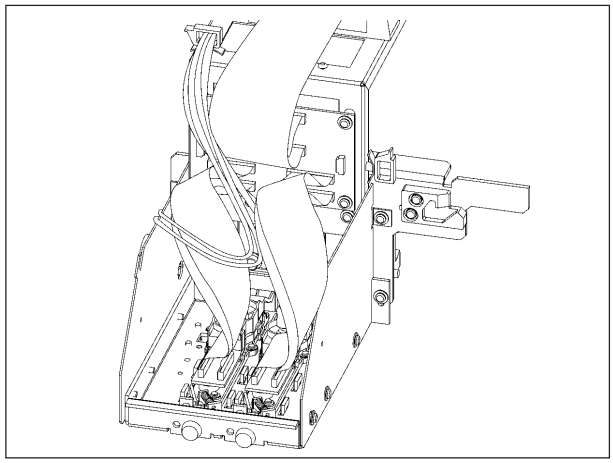
Make sure to fix the HEAD by pressing it to the bottom left corner of the ADAPTER.
Use the 2kgf·cm torque driver (ST-056) to tighten up the screws.

14 Install the HEAD to the head carriage and fix the 3 screws temporarily. Then, fix the SPRING and tighten up the 3 screws in order as shown in the figure.



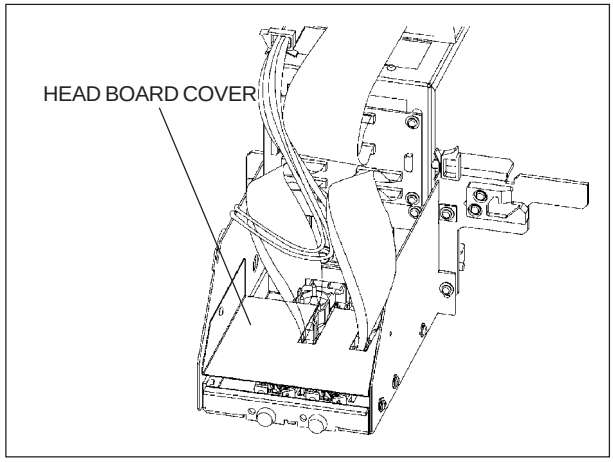
Use the 2kgf·cm torque driver (ST-056) to tighten up the screws.

15 Connect the 2 flexible cables to the HEAD BOARD.



Do not connect cable to the wrong connecter.

16 Fix the HEAD BOARD COVER temporarily.

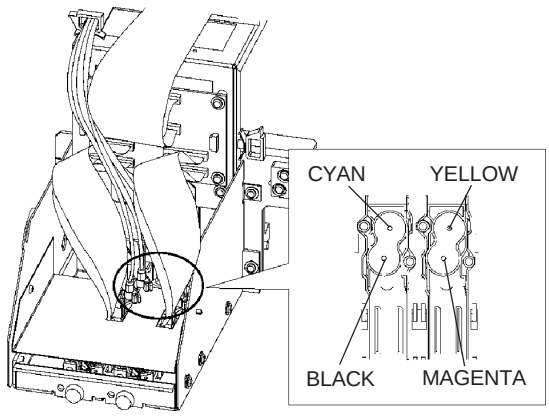


The HEAD BOARD COVER should be fixed to prevent the ink from dropping on the HEAD BOARD when fixing the INK DAMPERs. It is not necessary to fix the cover with the NYLON RIVET, because the cover needs to be removed for the HEAD ALIGNMENT.

17 Fix the 2 INK DAMPERs to the head.

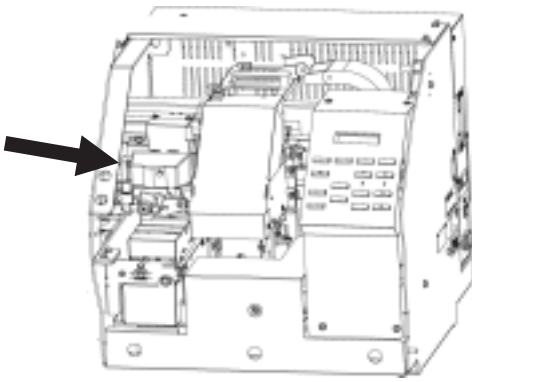
Make sure to replace the DAMPERs when the HEAD is replaced.

Do not hold both sides of the INK DAMPER so hard. It could break.



18 Move the HEAD CARRIAGE by hand to the lock position.

Be careful that the head does not strike the media or media clamp.



19 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

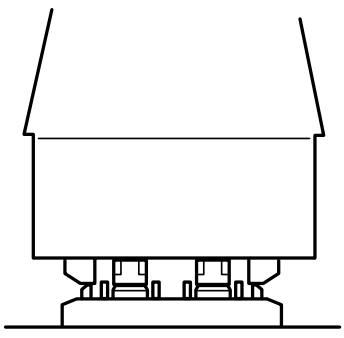
▼

[MENU] key

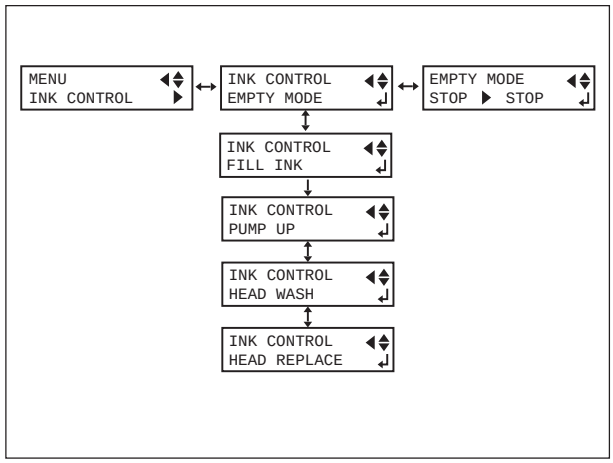
▼

MENU
SERVICE MENU

20 Select [CAP&WIPER CTRL] > [CAP] > [UP], and press the [ENTER] key to move up the capping unit 1 step. Check that the GUIDEs at the two ends of the capping unit align with the GUIDEs at the two ends of the head carriage. Then press the [ENTER] key twice more to cap the heads.



21 From the menu (NOT from the service menu), select [INK CONTROL] > [HEAD REPLACE], and press the ENTER key.



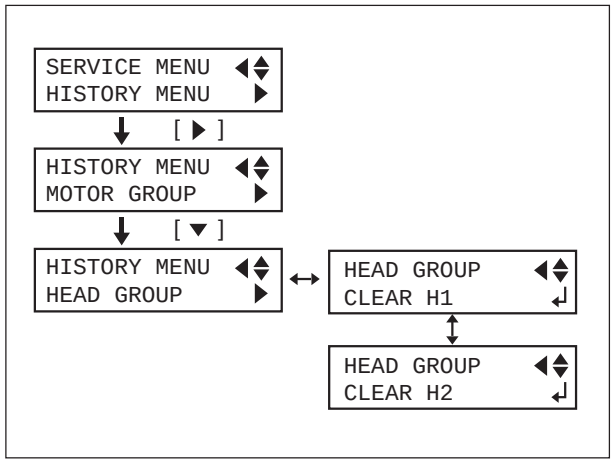
22 Enter the SERVICE MODE and perform the following adjustments.

1. THERMISTER CHECK
2. HEAD ALIGNMENT
3. HEAD INFORMATION CLEAR
4. CAP HEIGHT CHECK
5. TOOL / CROP MARK SENSOR POSITION

HOW TO CLEAR THE HEAD INFORMATION

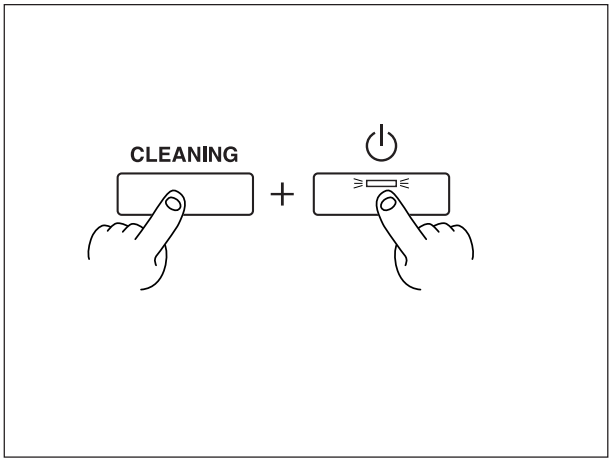
After THERMISTER CHECK and HEAD ALIGNMENT, clear the HEAD INFORMATION from the SERVICE MENU > HISTORY MENU > HEAD GROUP.

When you replaced the left Head, select [CLEAR H1] and press the ENTER key.
When you replaced the right Head, [CLEAR H2] and press the ENTER key.

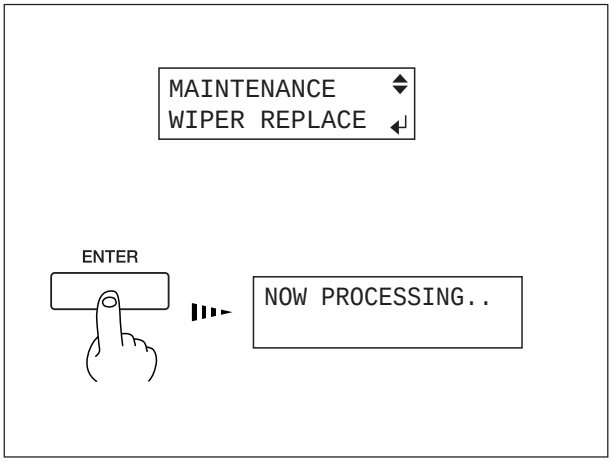


3-2 WIPER REPLACEMENT

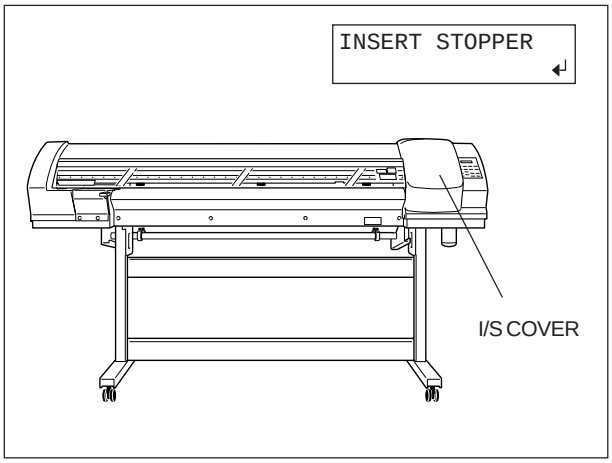
1 Turn on the SUB POWER SW while pressing the [CLEANING] key to enter the maintenance mode.



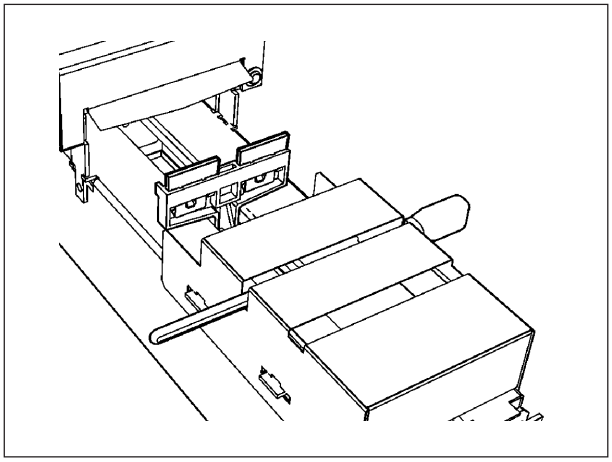
2 Select [WIPER REPLACE] and press the [ENTER] key. The head moves to the left side.



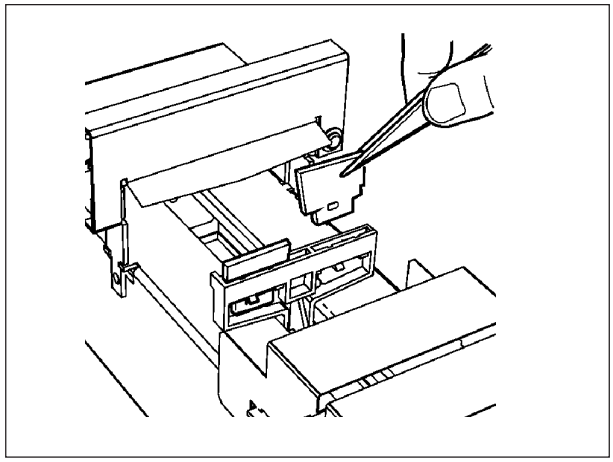
3 Make sure the screen shown in the figure is displayed. Then, remove the I/S COVER.



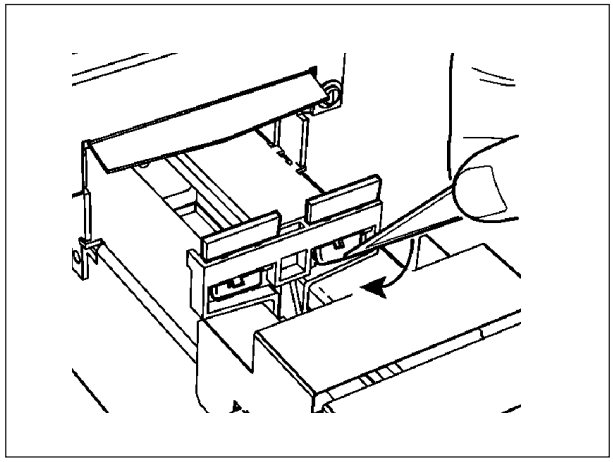
4 Attach the Cleaning Stick at the location as shown in the figure and press the ENTER key.



5 Using the tweezers, grasp the bottom portion of the wiper and take it off the hook.

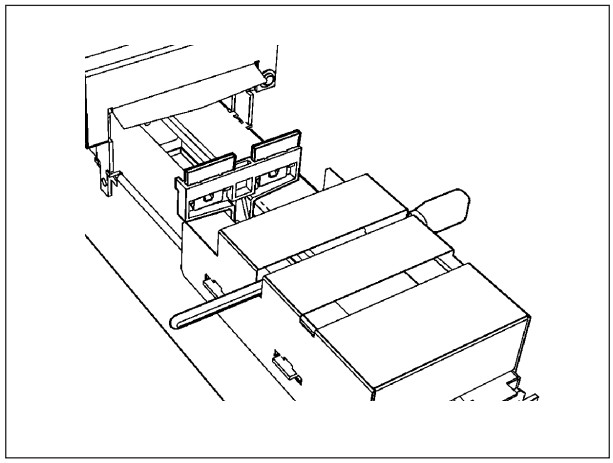


6 Use the tweezers to press the area shown in the figure and engage the WIPER on the hook.

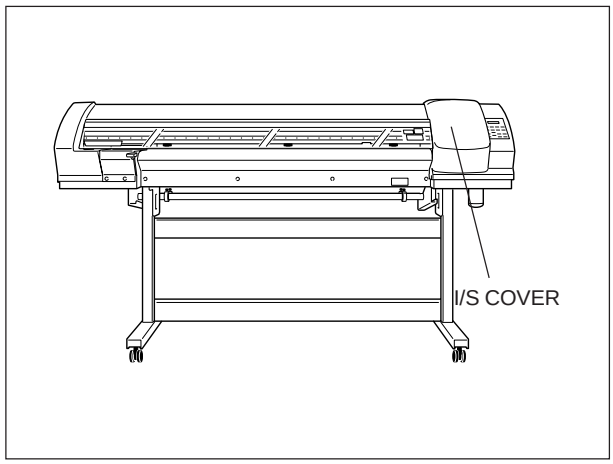


Make sure to attach the Wiper so that the rubber surface toward the front.

7 Remove the Cleaning Stick and fix the I/S Cover.
Then, press the ENTER key.

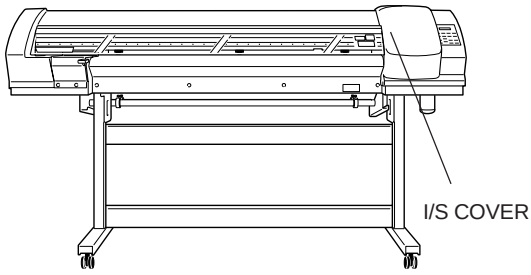


8 Head Cleaning starts automatically.
After cleaning has finished,the Sub Power will be turned off automatically.

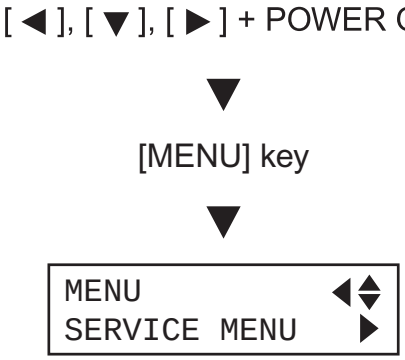


3-3 CAP TOP REPLACEMENT

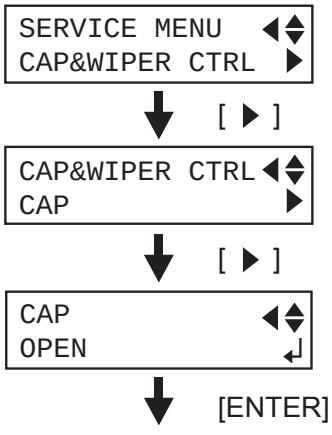
1 Remove the I/S COVER.



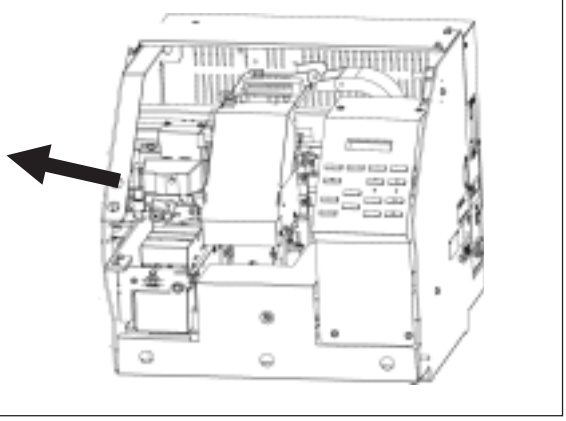
2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



3 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

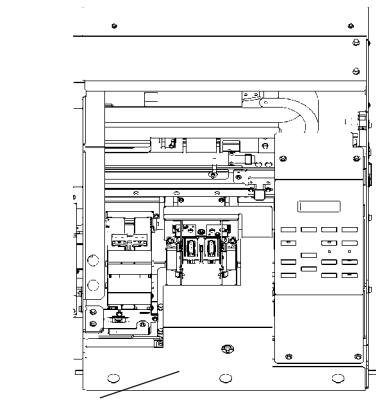


4 Move the HEAD CARRIAGE slowly leftwards so that it is not above the capping unit.

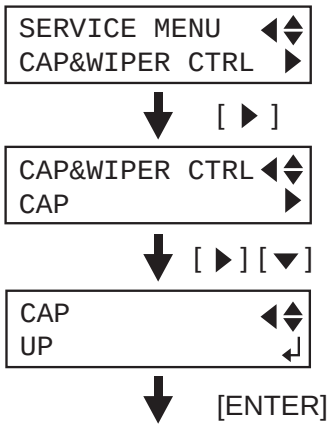


Be careful that the head does not strike the media or media clamp.

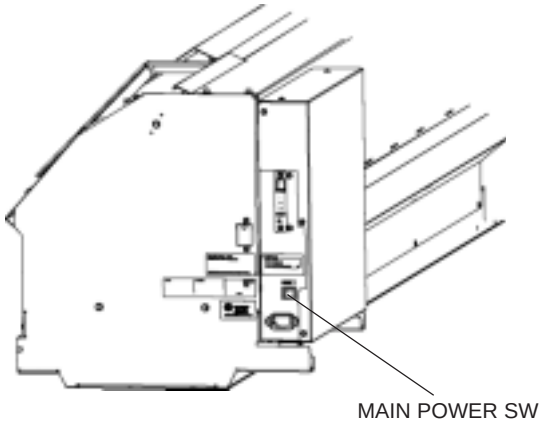
5 Remove the PUMP COVER.



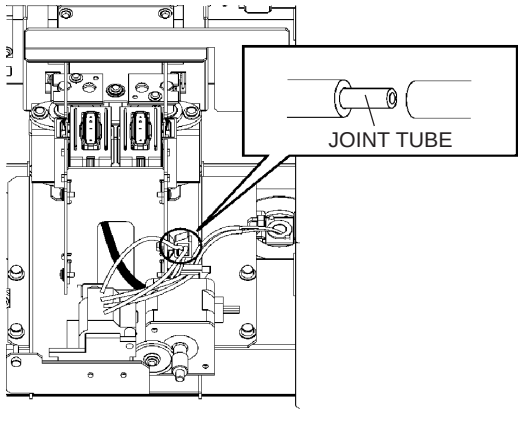
6 Select [CAP&WIPER CTRL] > [CAP] > [UP], and press the [ENTER] key. The capping unit moves up. Press the [ENTER] key 3 times, because the capping unit moves up in 3 steps.



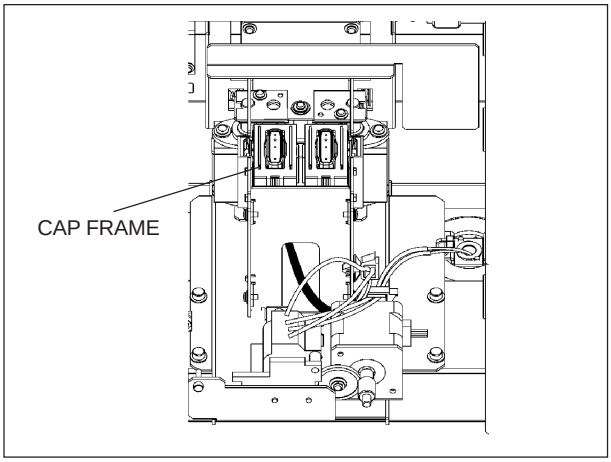
7 Turn off the SUB POWER SW, and then turn off the MAIN POWER SW.



8 Disconnect the tube(Black) of the CAP TOP from the tube(White) of the PUMP.
Keep the JOINT TUBE for connecting the tube of the new CAP TOP.

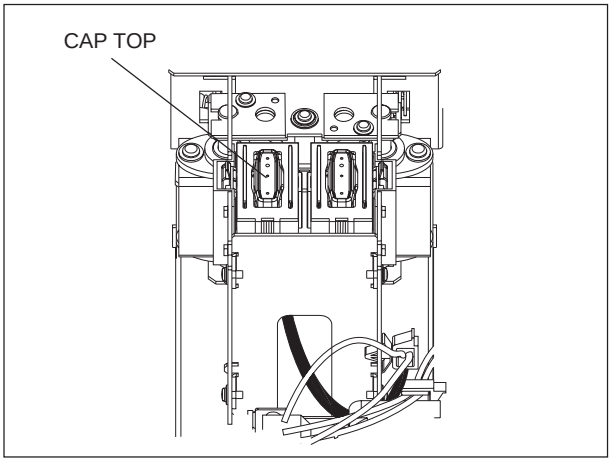


9 Unhook the CAP FRAME with holding it by the other hand, and remove it.

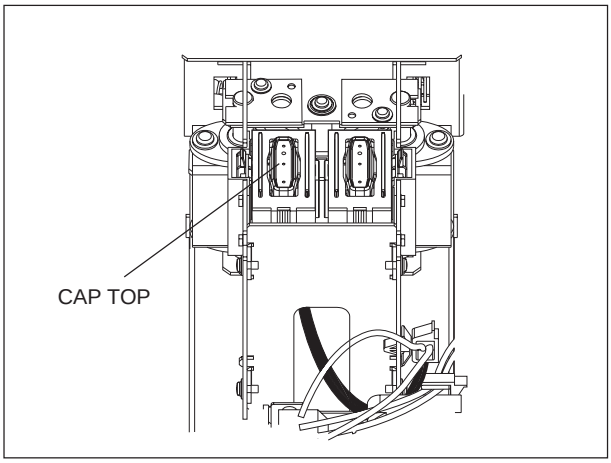


Make sure to hold the CAP FRAME. There is a SPRING under the CAP TOP. The CAP TOP will jump out unless you hold the cap frame when removing it.

10 Remove the CAP TOP together with the tube.

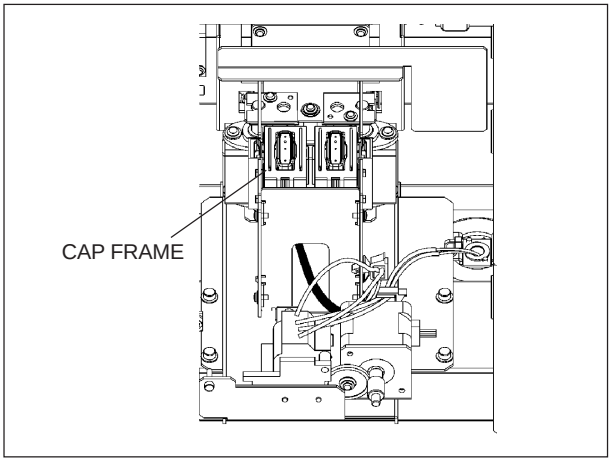


11 Fix the new CAP TOP. Make sure to fix it so that the tube side faces the front.

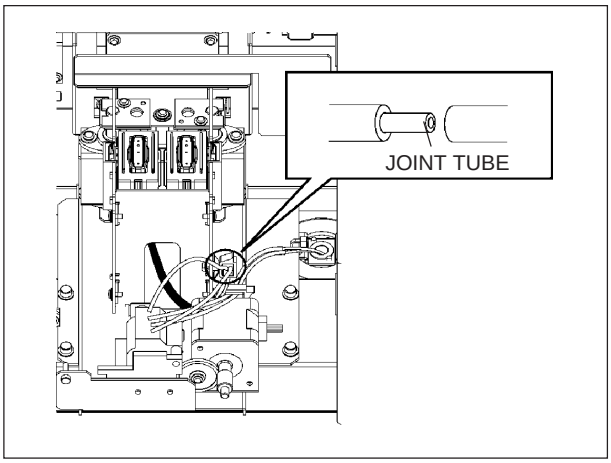


Make sure not to touch the sponge.
Make sure the SPRING is properly fixed under the CAP TOP.

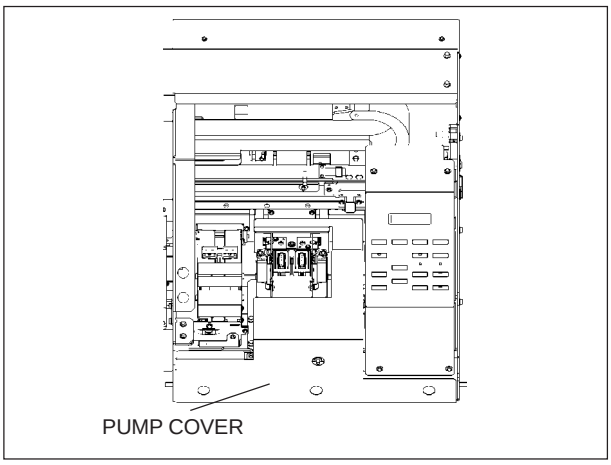
12 Fix the CAP FRAME.



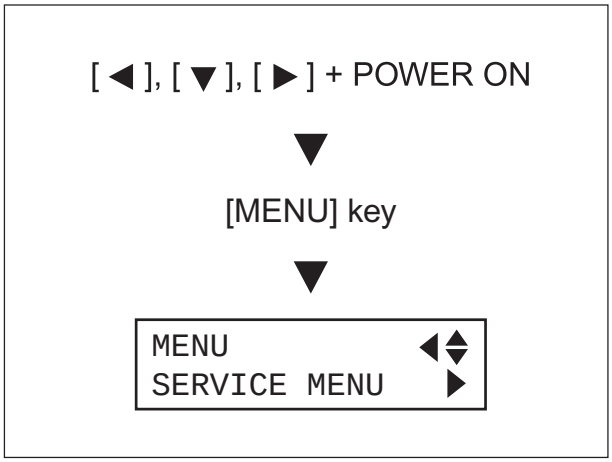
13 Connect the tube of the CAP TOP to the tube of the PUMP using the JOINT TUBE.



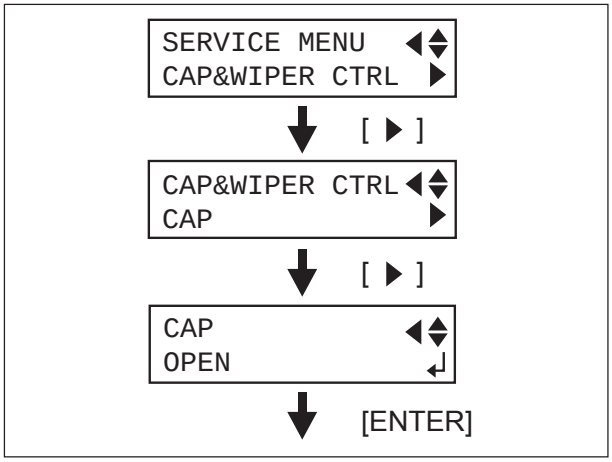
14 Fix the PUMP COVER.



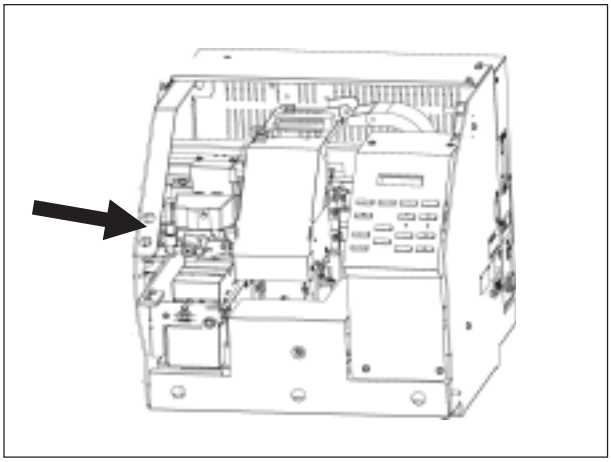
15 Turn on the MAIN POWER SW, then turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



16 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

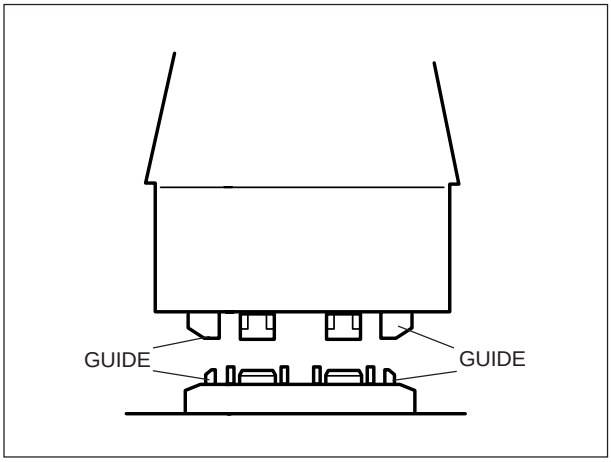


17 Move the HEAD CARRIAGE by hand to the lock position.



Be careful that the head does not strike the media or media clamp.

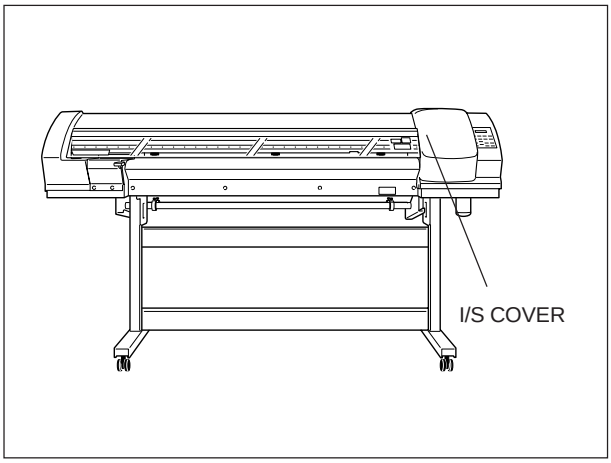
18 Select [CAP&WIPER CTRL] > [CAP] > [UP], and press the [ENTER] key to move up the capping unit 1 step. Check that the GUIDEs at the two ends of the capping unit align with the GUIDEs at the two ends of the head carriage. Then press the [ENTER] key twice more to cap the heads.



19 Fix I/S cover.

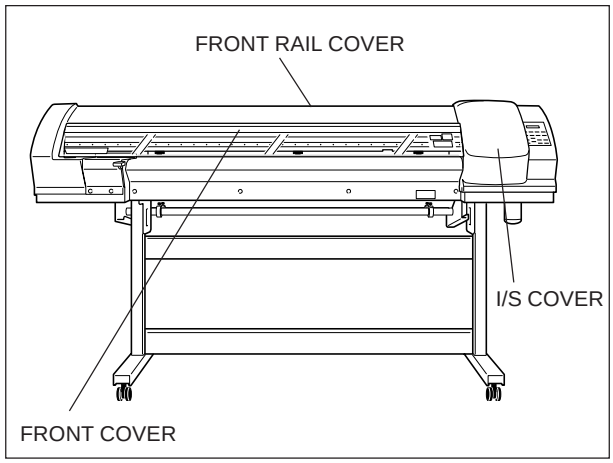
Enter the SERVICE MODE and perform the following adjustments.

1. CAP HEIGHT CHECK

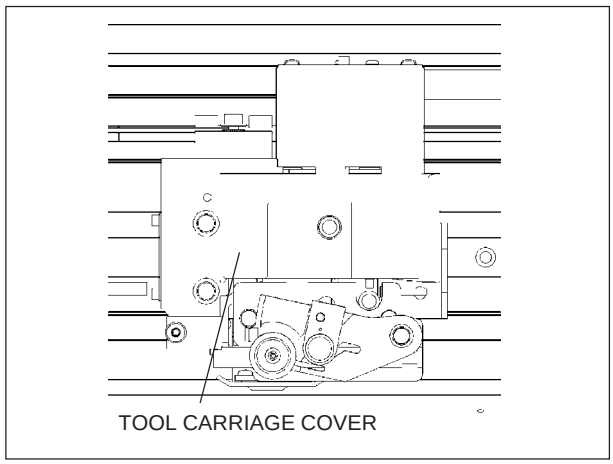


3-4 TOOL CARRIAGE_REPLACEMENT

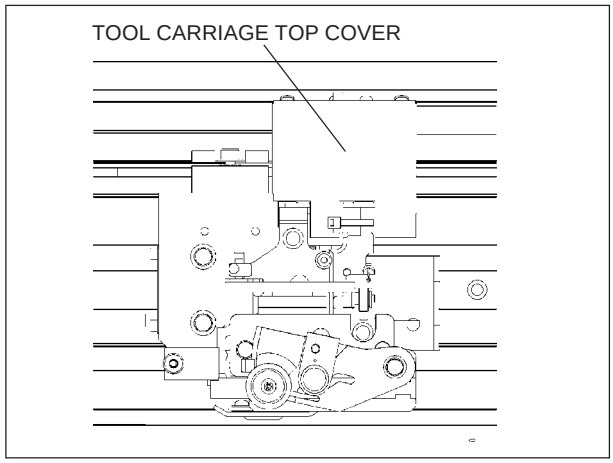
1 Turn off the Main Power SW and remove the I/S COVER, FRONT RAIL COVER and FRONT COVER.



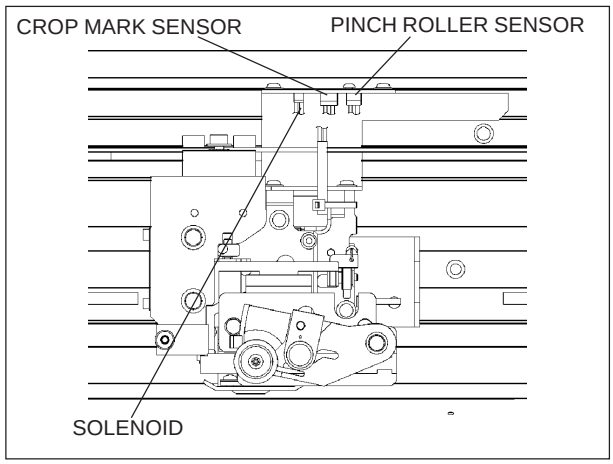
2 Remove the TOOL CARRIAGE COVER.



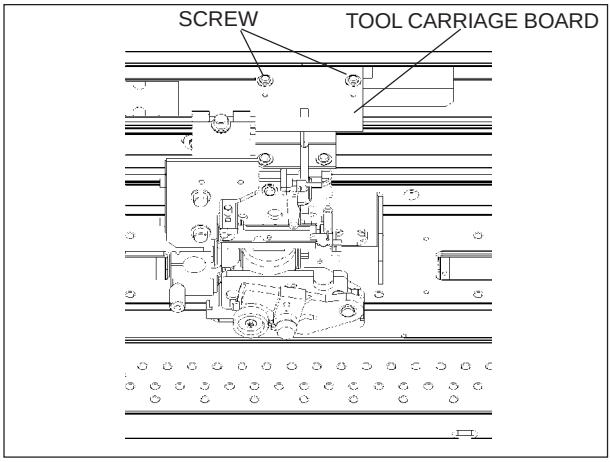
3 Remove the TOOL CARRIAGE TOP COVER.



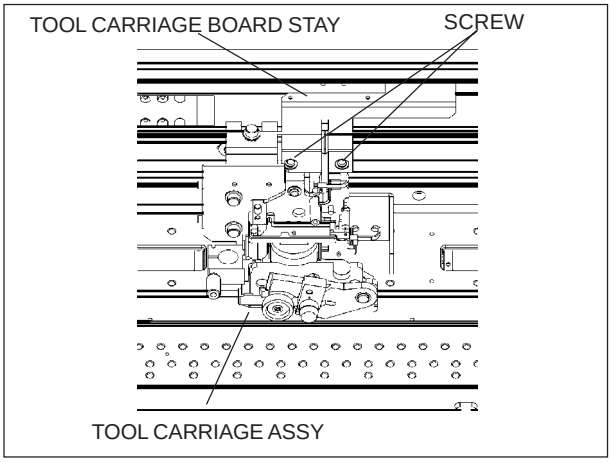
4 Disconnect the CROP MARK, PINCH ROLLER and SOLENOID Wirings.



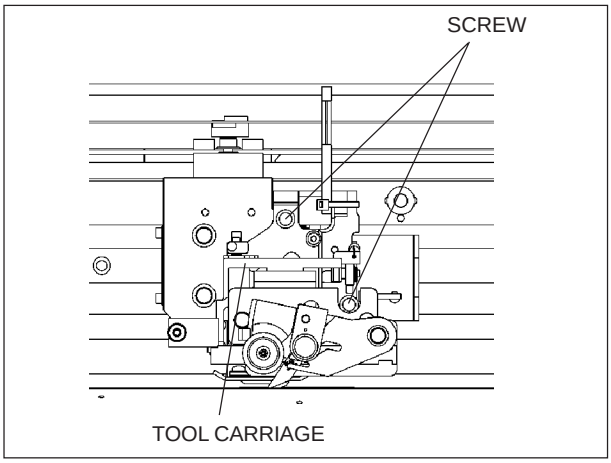
5 Remove the TOOL CARRIAGE BOARD.



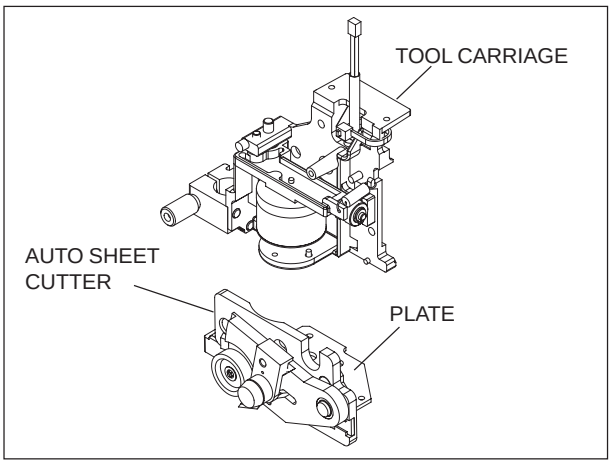
6 Remove the TOOL CARRIAGE BOARD STAY from the TOOL CARRIAGE ASSY.



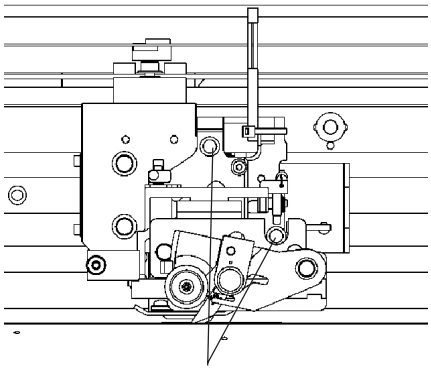
7 Remove the TOOL CARRIAGE.



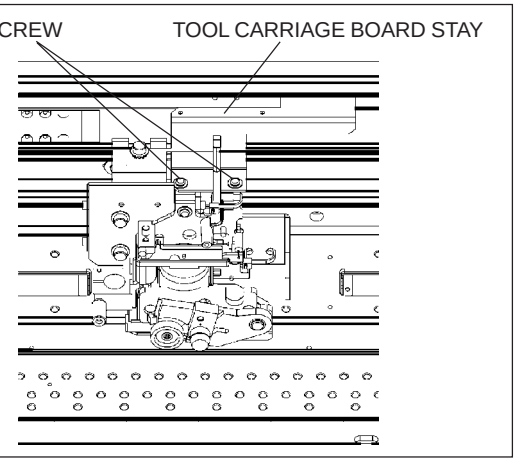
8 Remove the AUTO SHHET CUTTER together with the PLATE from TOOL CARRIAGE and fix the AUTO SHEET CUTTER to the new TOOL CARRIAGE.



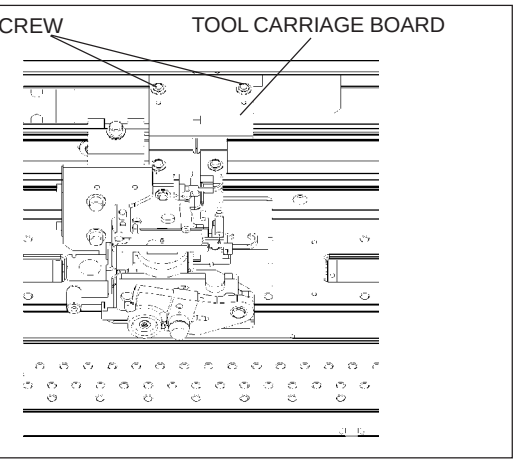
9 Fix the new TOOL CARRIAGE.



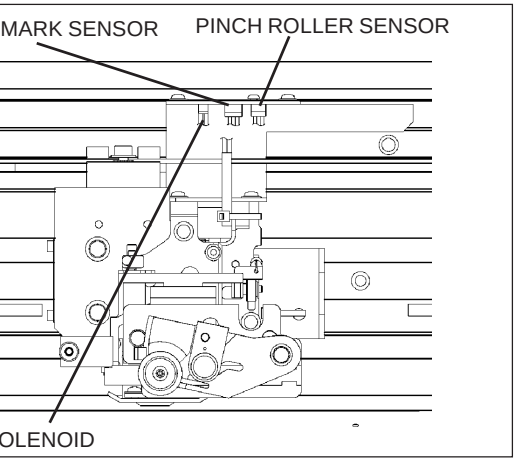
10 Fix the TOOL CARRIAGE BOARD STAY to the TOOL CARRIAGE.



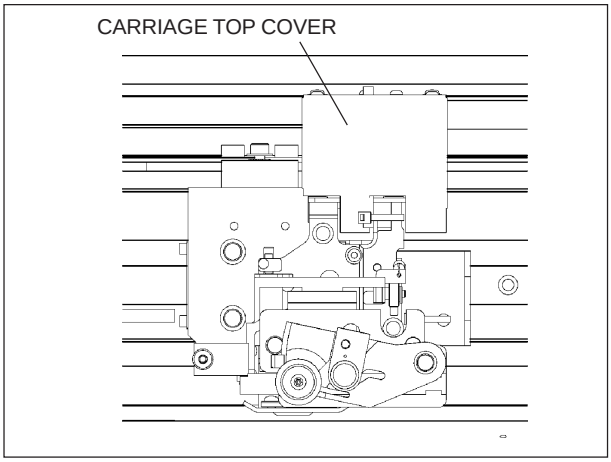
11 Fix the TOOL CARRIAGE BOARD.



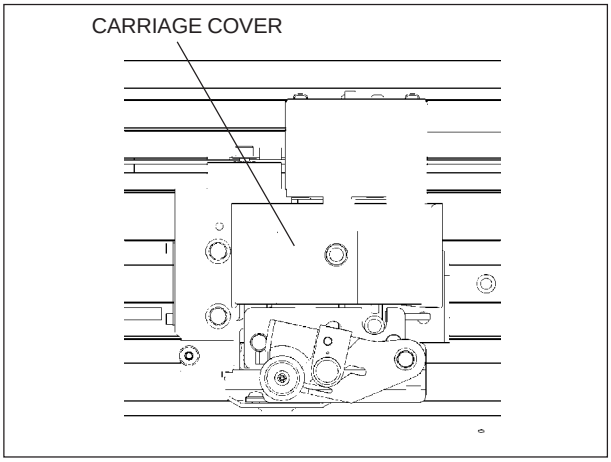
12 Connect the CROP MARK, PINCH ROLLER and SOLEDOID Wirings.



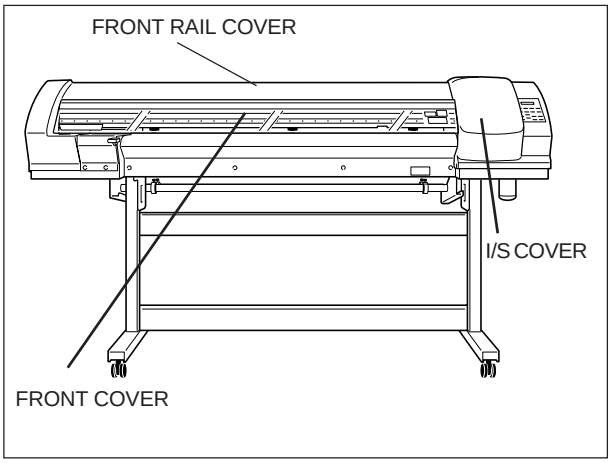
13 Fix the CARRIAGE TOP COVER.



14 Fix the TOOL CARRIAGE COVER.



15 Fix the FRONT RAIL COVER, FRONT COVER and I/S COVER.

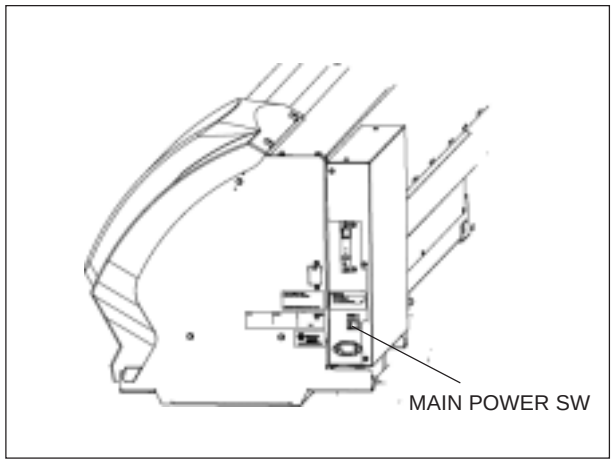


16 Enter the SERVICE MODE and perform the following adjustments and settings.

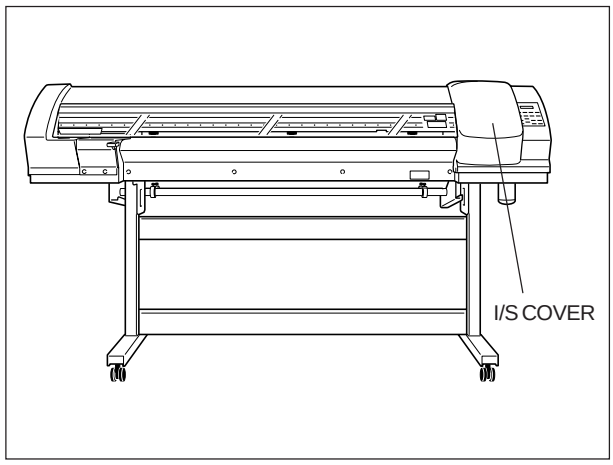
1. PINCH ROLLER POSITION SENSOR CHECK
2. LIMIT POSITION & CUT DOWN POSITION INITIALIZE
3. TOOL HEIGHT ADJUSTMENT
4. TOOL PRESSURE ADJUSTMENT
5. CROP MARK SENSOR ADJUSTMENT
6. TOOL / CROP MARK SENSOR POSITION ADJUSTMENT
7. PRINT / CUT POSITION ADJUSTMENT
8. CUTTING QUALITY CHECK

3-5 CARRIAGE MOTOR REPLACEMENT

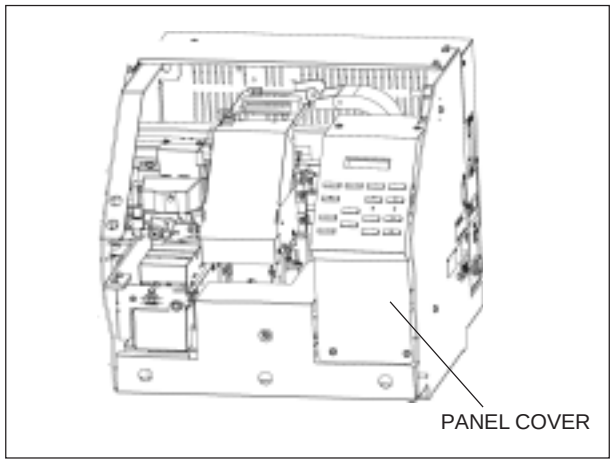
1 Turn off the MAIN POWER SW.



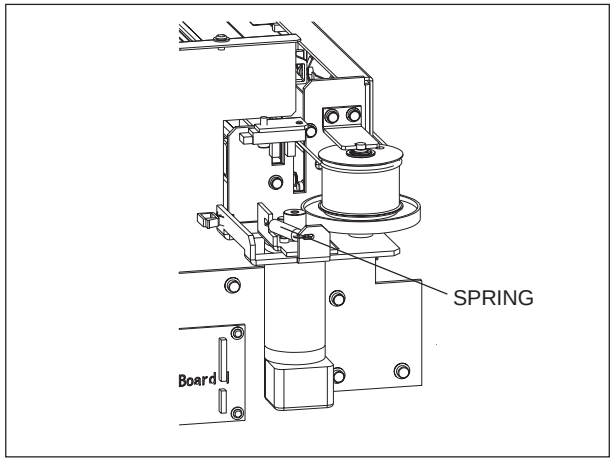
2 Remove the I/S COVER.



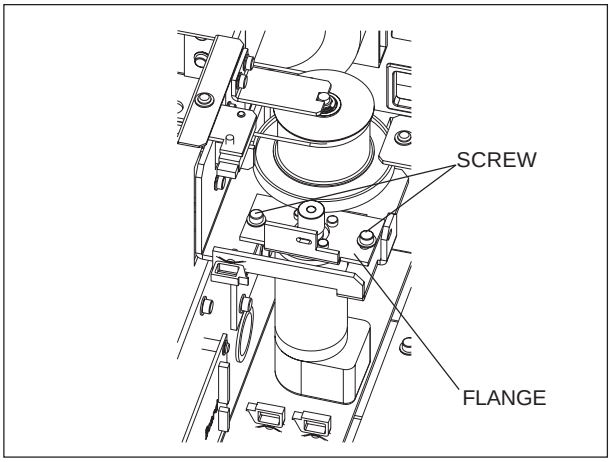
3 Remove the PANEL COVER. Be sure to disconnect the flexible cable connected to the PANEL BOARD.



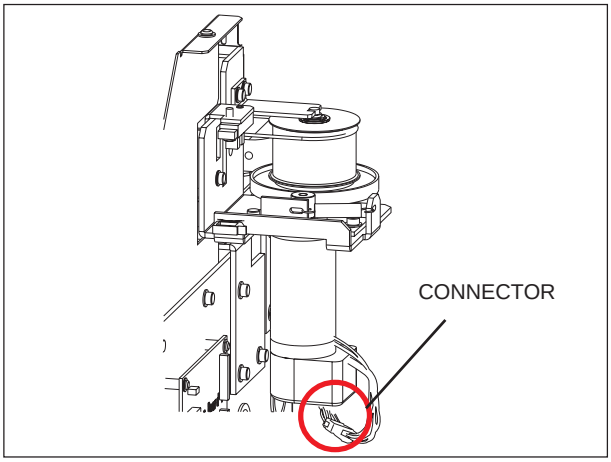
4 Remove the SPRING.



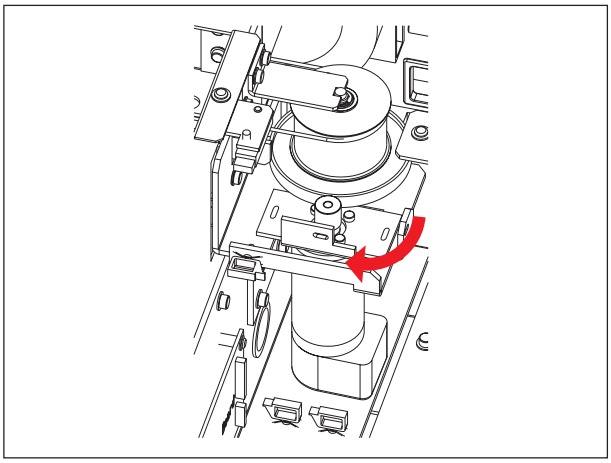
5 Remove the screws fixing the FLANGE.



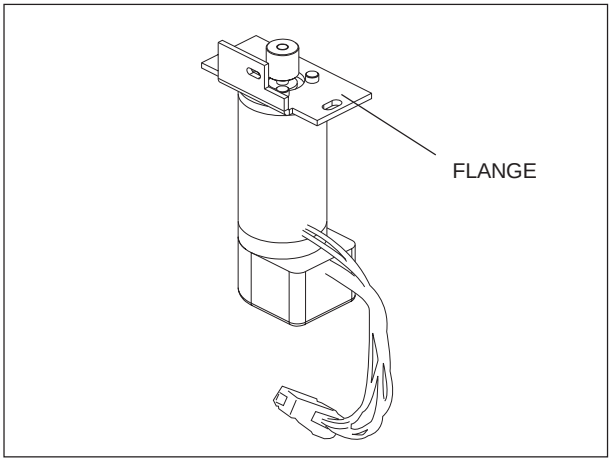
6 Disconnect the connector of the MOTOR cable.



7 Rotate the Motor 90 degree and remove it downward.

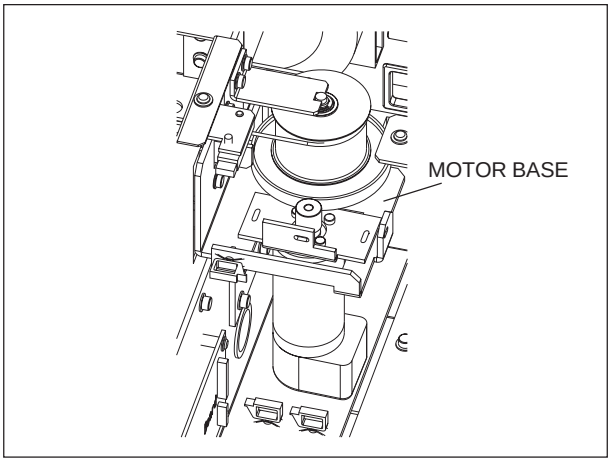


8 Remove the Motor from the Flange and fix the new Motor to the Flange.

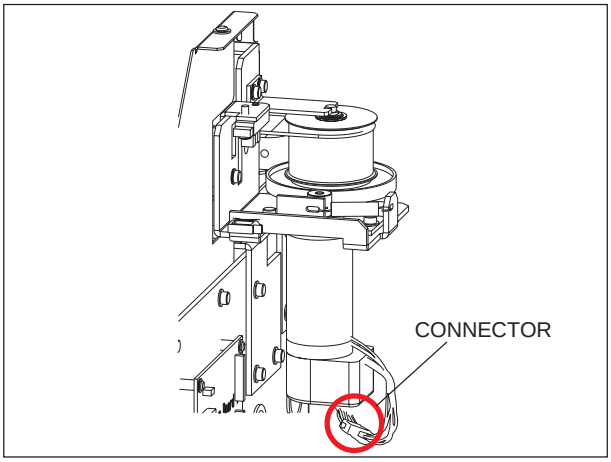


Be careful with the fixing direction of the Frange.

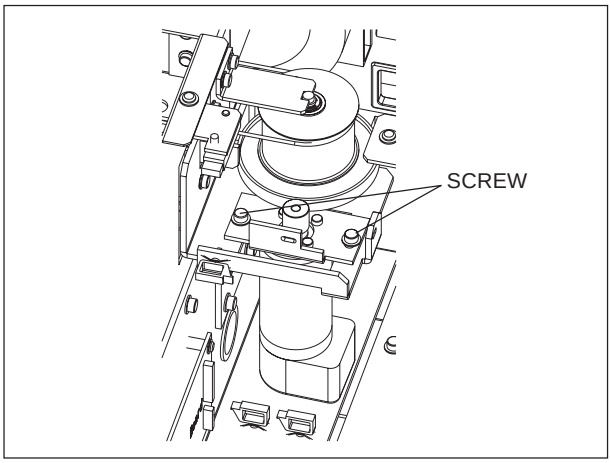
9 Fix the Motor from under the MOTOR BASE.



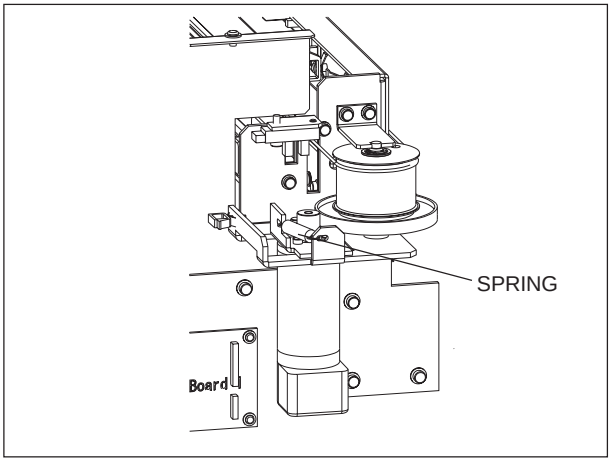
10 Connect the connector of the Motor cable.



11 Fix the Motor Flange by the 2 SCREWs temporalily.

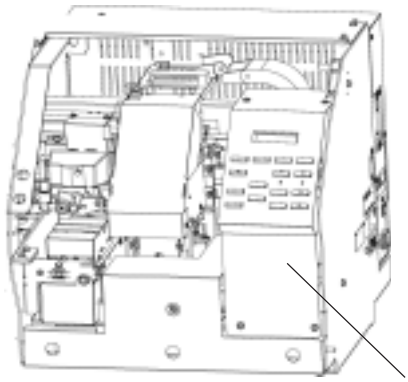


12 Fix the SPRING, then tighten up the 2 SCREWs to fix the FLANGE with checking the gears mesh without the baklash.



Apply a proper quantity of grease (FLOIL G902) between gears.

13 Connect the PANEL CABLE to the PANEL BOARD and fix the PANEL COVER.



14 Perform the SERVO LOCK CHECK.
After turning on the main power, turn on the sub power while pressing the Left, Right and Down keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

```
MENU              ◀▲▼
SERVICE MENU        ▶
```

15 In [SERVO LOCK] menu, select [S].
Move the head carriage left and right by hand and make sure the value on the LCD changes depending on the head position.

```
SERVICE MENU      ◀▲▼
SERVO LOCK          ▶
```

▼ [▶]

```
SERVO LOCK        ◀▲▼
S:                3 ↲
```

16 Press the [ENTER] key to excite the MOTOR.
Make sure the MOTOR is locked and the value on the LCD doesn't change.

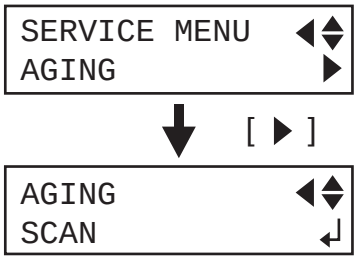
```
SERVO LOCK        ◀▲▼
S:             1688 ↲
```

▼ [ENTER]

```
SERVO LOCK        ◀▲▼
S:*            1688
```

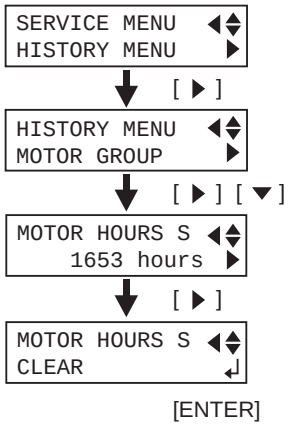
17 Check the AGING.

Go back to the SERVICE MENU, and select [AGING] > [SCAN] and press the [ENTER] key. Make sure the machine do the AGING and then, finish it by pressing [ENTER] key.

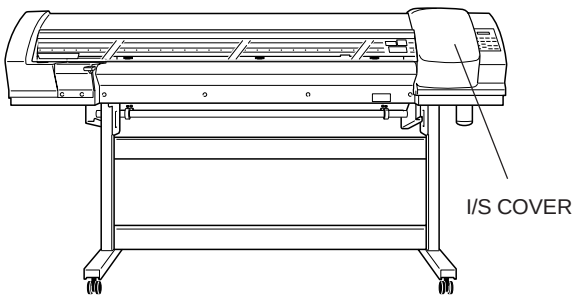


18 Clear the motor working hours.

Go back the SERVICE MENU, and select [HISTORY MENU] > [MOTOR GROUP] > [MOTOR HOURS S] > [CLEAR] and press the [ENTER] key. The motor working hours will be reset to 0.

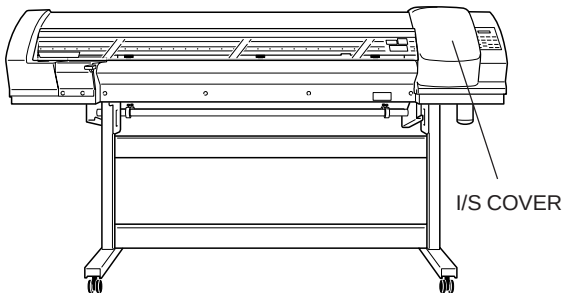


18 Fix the I/S COVER.



3-6 PUMP REPLACEMENT

1 Remove the I/S COVER.



2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

```
MENU                ◀▲▼
SERVICE MENU        ▶
```

3 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

```
SERVICE MENU        ◀▲▼
CAP&WIPER CTRL      ▶
```

▼ [▶]

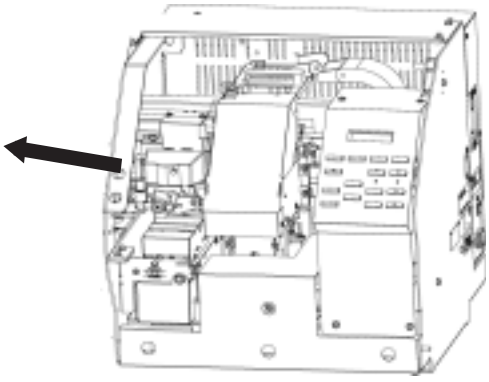
```
CAP&WIPER CTRL      ◀▲▼
CAP                 ▶
```

▼ [▶]

```
CAP                 ◀▲▼
OPEN                ↵
```

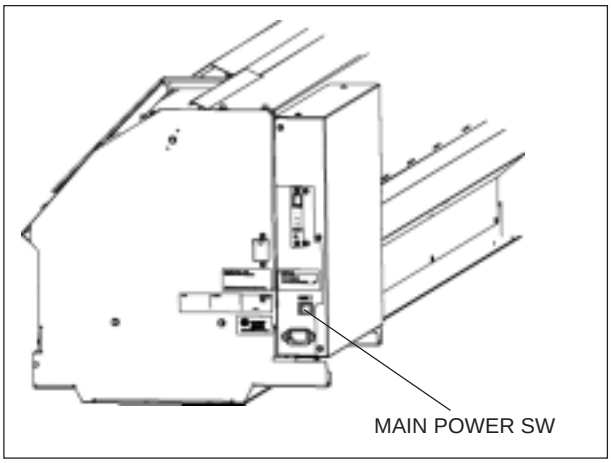
▼ [ENTER]

4 Unlock the Head Carriage and move it leftward by hand.

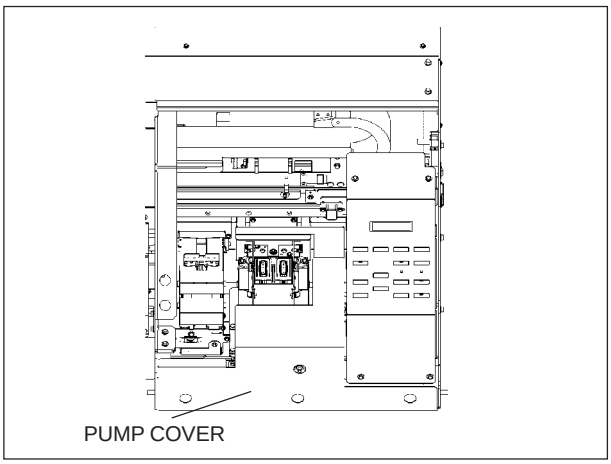


Be careful that the head does not strike the media or media clamp.

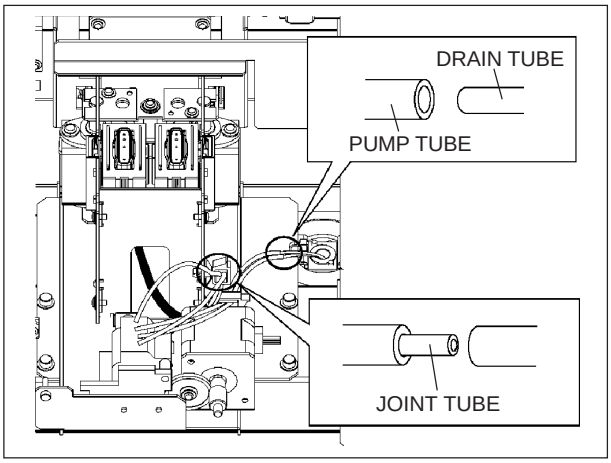
5 Turn off the SUB POWER SW, and then turn off the MAIN POWER SW.



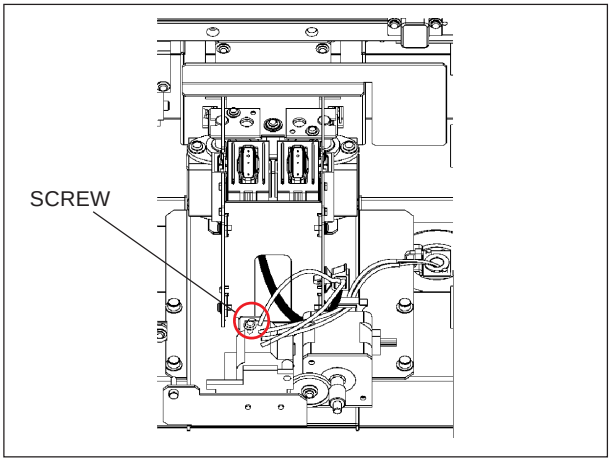
6 Remove the PUMP COVER.



7 Disconnect the tube(Black) of the CAP TOP from the tube(White) of the PUMP. And disconnect the PUMP TUBE from the DRAIN TUBE.
Keep the JOINT TUBE for connecting the tube of the new PUMP.

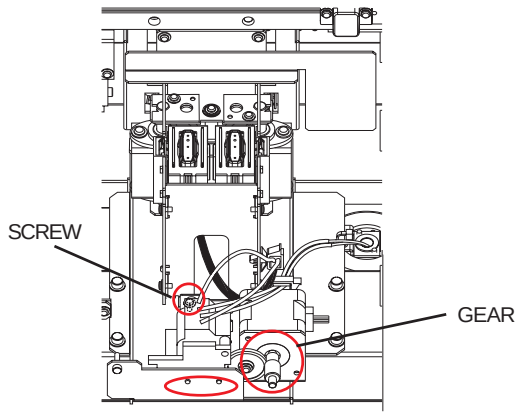


8 Remove the SCREW fixing the PUMP and remove the PUMP UNIT.



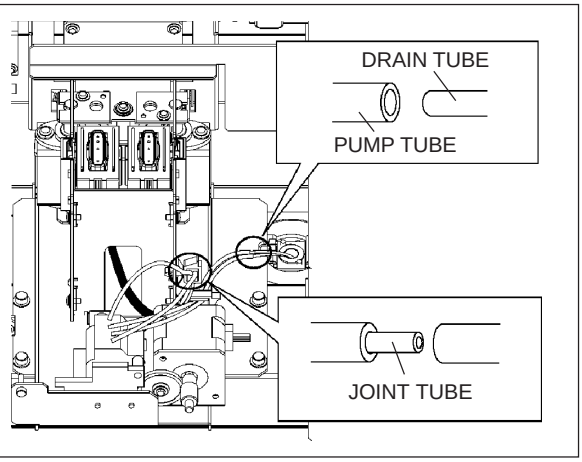
9 Fix the new PUMP so that the 2 projection parts of the PUMP fix to the holes of the FRAME.

Make sure that the Gear of the PUMP UNIT and the Gear of the PUMP MOTOR mesh without backlash.

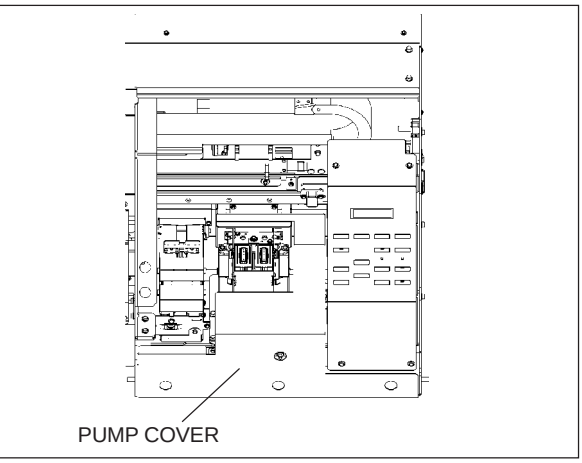


10 Connect the tube of the CAP TOP to the tube of the PUMP using the JOINT TUBE and connect the tube of the PUMP to the DRAIN TUBE.

You can connect either tube of the CAP TOP to the either tube of the PUMP.

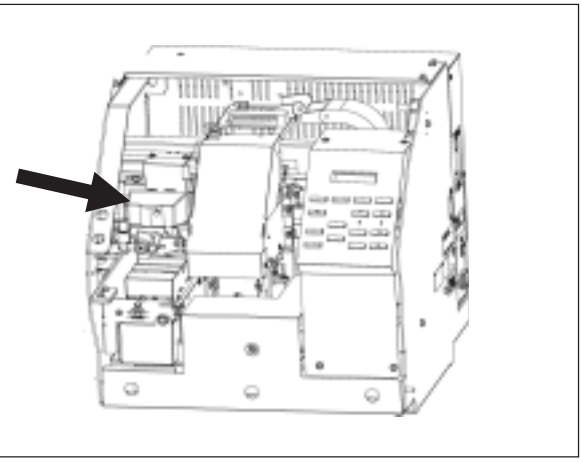


11 Fix the PUMP COVER.

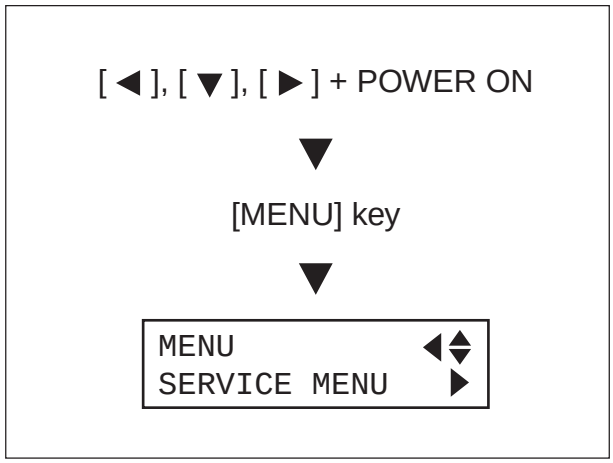


12 Move the HEAD CARRIAGE by hand to the lock position.

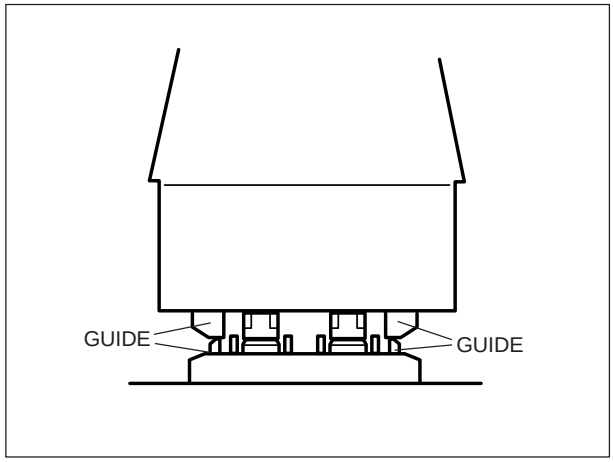
Be careful that the head does not strike the media or media clamp.



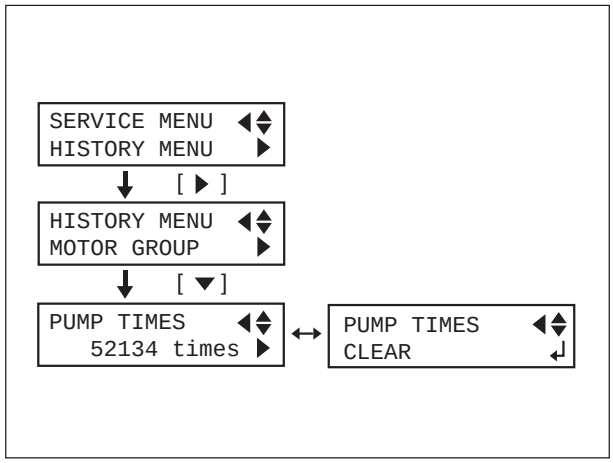
13 Turn on the MAIN POWER SW. Then, turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



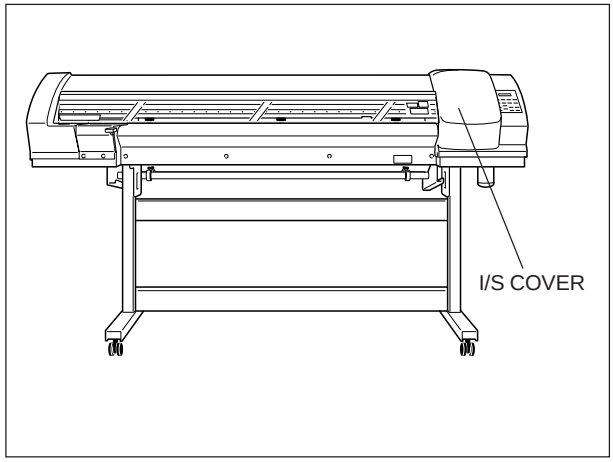
14 Select [CAP&WIPER CTRL] > [CAP] > [UP], and press the [ENTER] key to move up the capping unit 1 step. Check that the GUIDEs at the two ends of the capping unit align with the GUIDEs at the two ends of the head carriage. Then press the [ENTER] key twice more to cap the heads.



15 Clear the PUMP TIMES.
Select [HISTORY MENU] > [MOTOR GROUP] > [PUMP TIMES] > [CLEAR], and press the [ENTER] key .

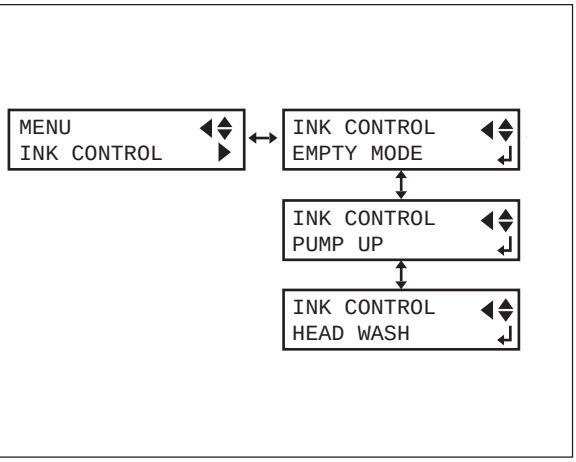


16 Fix the I/S COVER.

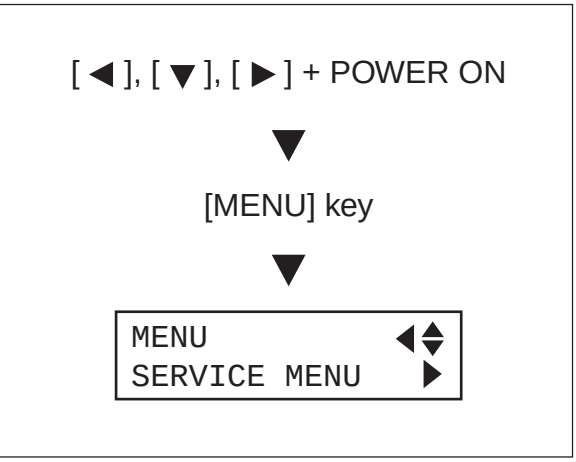


3-7 INK TUBE REPLACEMENT

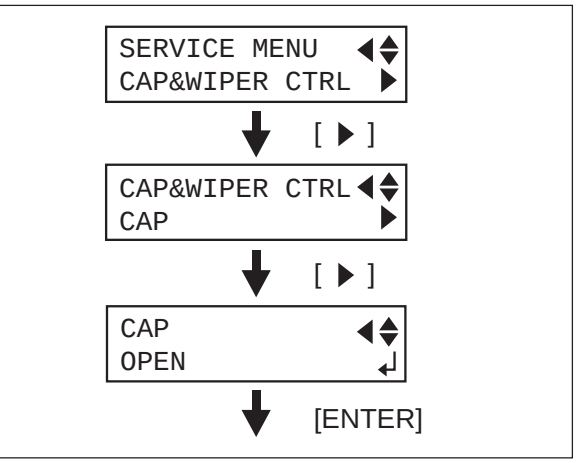
1 Turn on the SUB POWER SW and perform the [PUMP UP] from the [INK CONTROL] menu.
When it finishes, the SUB POWER will be automatically turned off.



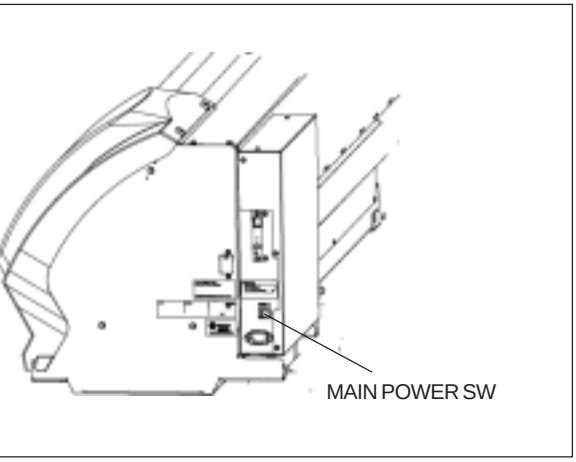
2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



3 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

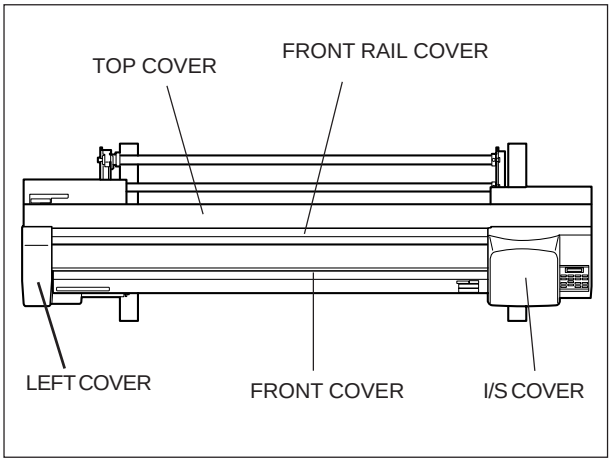


4 Turn off the SUB POWER SW, and then turn off the MAIN POWER SW.



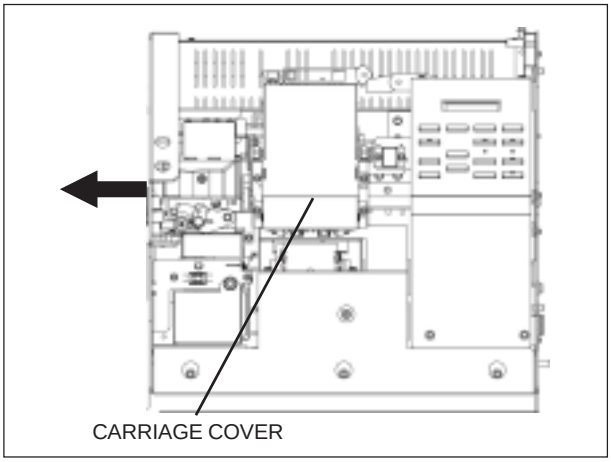
5 Remove the following covers.

LEFT COVER
I/S COVER
TOP COVER
FRONT RAIL COVER
FRONT COVER

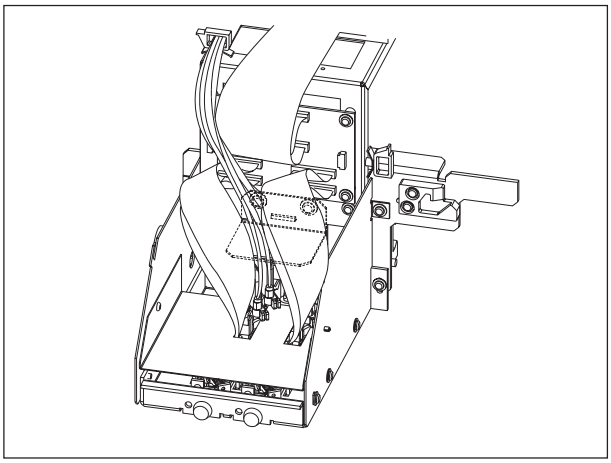


6 Remove CARRIAGE COVER. Then, move the HEAD CARRIAGE to the left end.

Be careful that the head does not strike the media or media clamp.

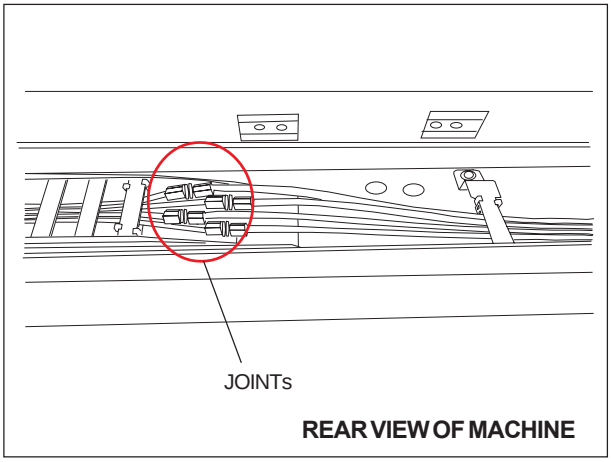


7 Disconnect the INK TUBEs from the INK DAMPERs and put the scotch tape at the tip of the ink tubes to prevent the ink from spilling out.

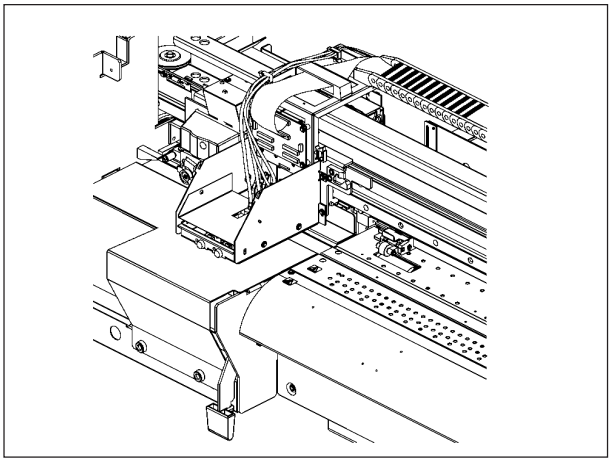


8 Disconnect the INK TUBEs from the JOINTs, and put the scotch tape at the tip of the ink tubes to prevent the ink from coming out.

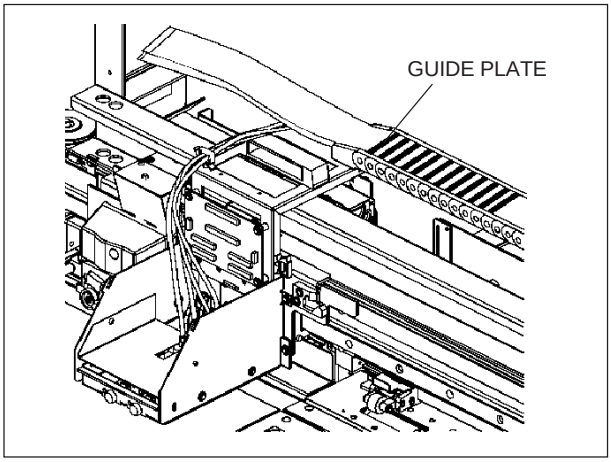
It is not necessary to replace the INK TUBEs of the other side of the JOINTs (between Joint and I/C Holder.



9 Disconnect 2 FLEXIBLE CABLEs that are coming from the CABLE VEYOR from the CARRIAGE BOARD.

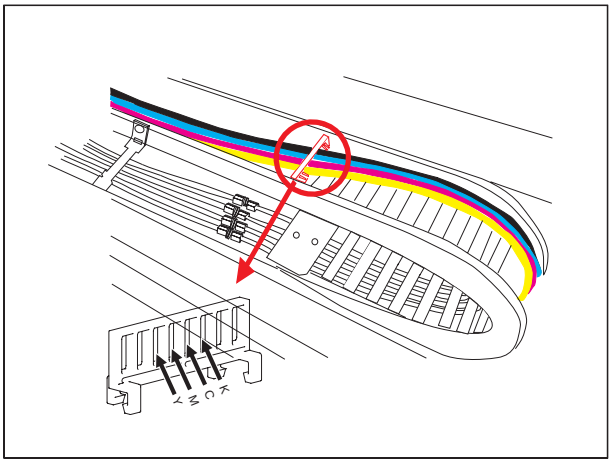


10 Remove the GUIDE PLATEs of the CABLE VEYOR. Then, take out the FLEXIBLE CABLEs from the CABLE VEYOR.



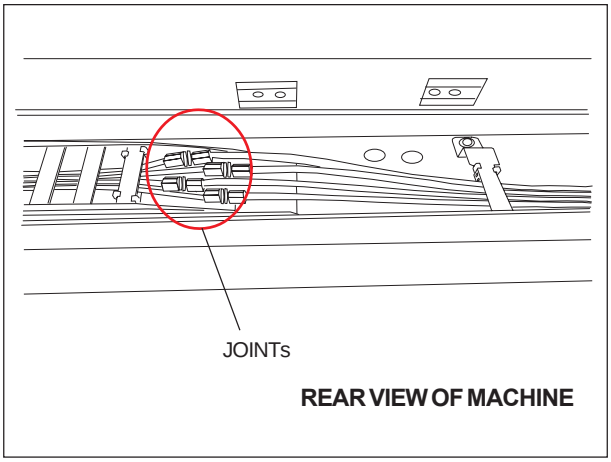
11 Pull out the INK TUBE from the CABLE VEYOR.

12 Put the new INK TUBE in the CABLE VEYOR through the TUBE GUIDE.



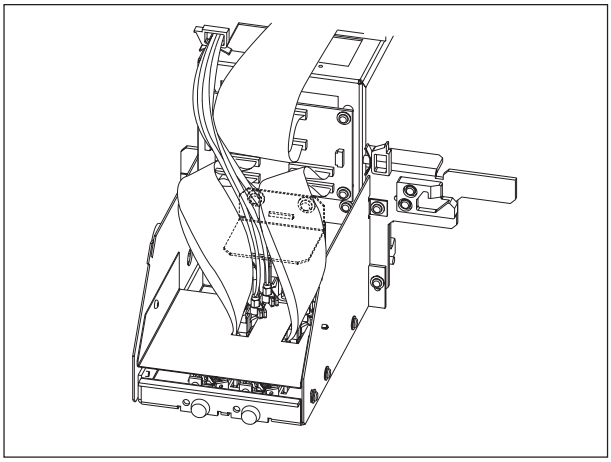
Be careful which hole of the TUBE GUIDE should be used for each INK TUBE.

13 Connect the new INK TUBE to the JOINTs, and mark the INK TUBE to indicate the color of the ink.

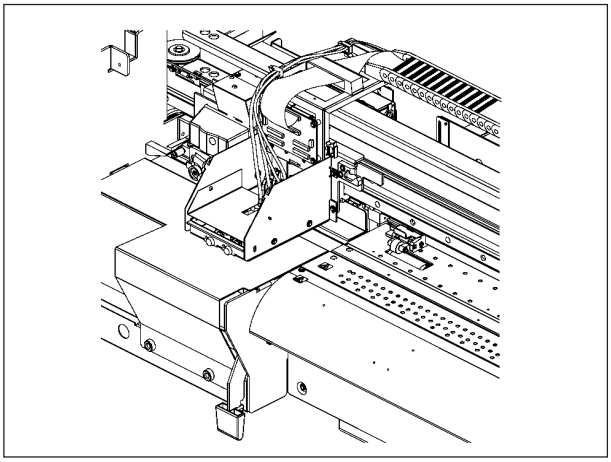


14 Cut the INK TUBE at appropriate length and connect it to the INK DAMPER. Then mark the INK TUBE to indicate the color of the ink.

Then, replace the other INK TUBEs in the same way.

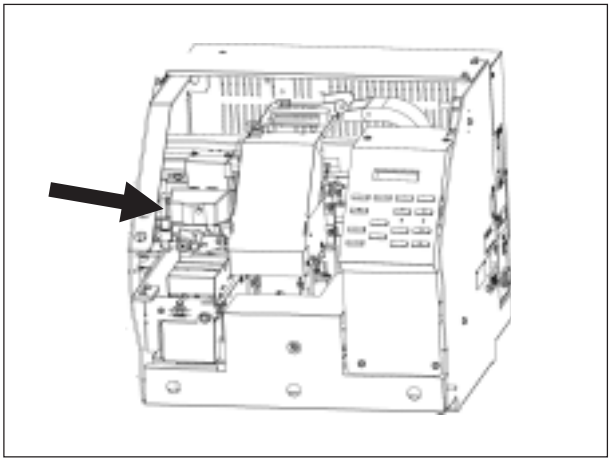


15 Connect 2 FLEXIBLE CABLEs to the PRINT CARRIAGE BOARD and put back the GUIDE PLATEs.

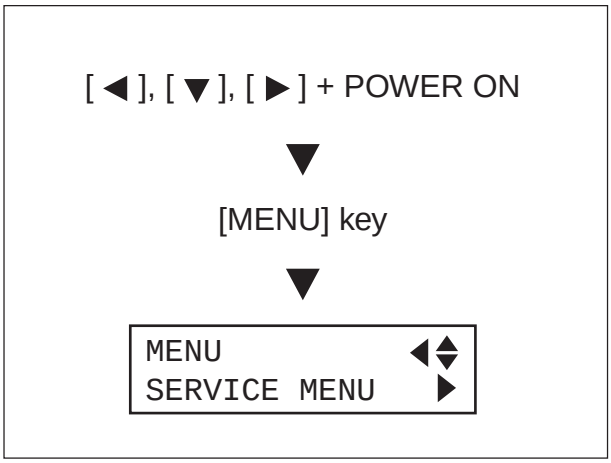


16 Move the HEAD CARRIAGE by hand to the lock position.

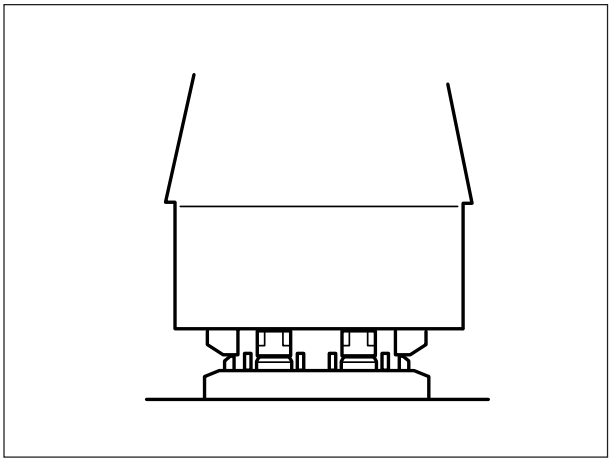
Be careful that the head does not strike the media or media clamp.



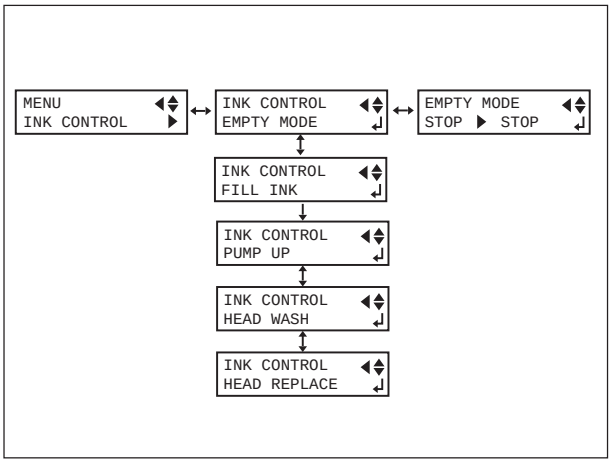
17 After turning on the Main Power SW, turn on the Sub Power SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



18 Select [CAP&WIPER CTRL] > [CAP] > [UP], and press the [ENTER] key to move up the capping unit 1 step. Check that the GUIDEs at the two ends of the capping unit align with the GUIDEs at the two ends of the head carriage. Then press the [ENTER] key twice more to cap the heads.



19 From the menu (NOT from the service menu), select [INK CONTROL] > [FILL INK], and press the ENTER key.



3-8 BATTERY REPLACEMENT

⚠ CAUTION

Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions.

⚠ ATTENTION

Il y a danger d'explosion s'il y a remplacement incorrect de la batterie.
Remplacer uniquement avec une batterie du méme type ou d'un type équivalent recommandé par le constructeur.
Mattre au rebut les batteries usagées conformément aux instructions du fabricant.

⚠ ADVARSEL!

Lithiumbatteri - Eksplosionsfare ved fejlagtig handtering.
Udskiftning ma kun ske med batteri af samme fabrikat og type.
Levér det brugte batteri tilbage til laveranøren.

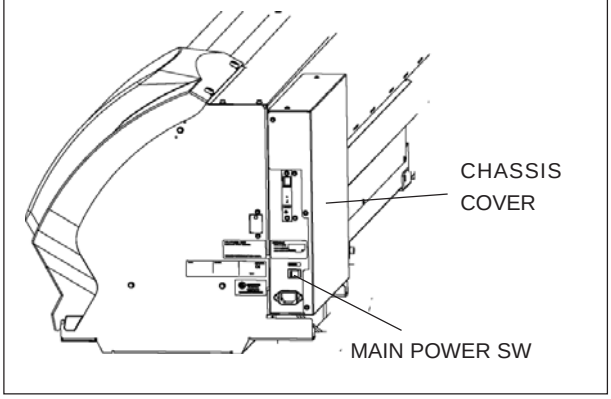
⚠WARNING

Do not recharge, short-circuit, disassembly the lithium battery, nor put it into fire.
It may cause heat, explosion and fire.

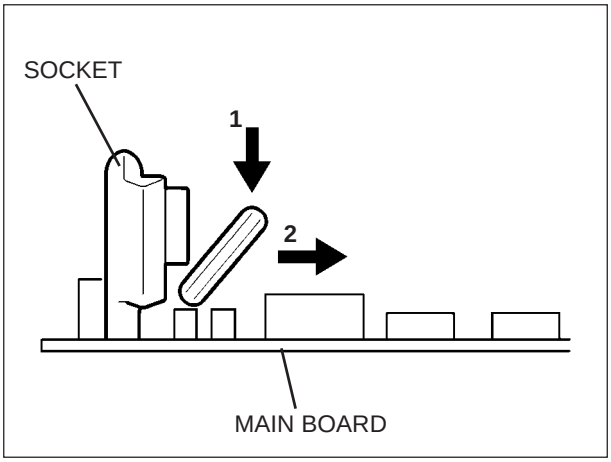
Put tape around the lithium battery for insulation for disposal or preservation.
It may cause heat, explosion and fire.

Revised 8

1 Turn off the Sub Power SW, and then turn off the Main Power SW.
Remove the CHASSIS COVER.

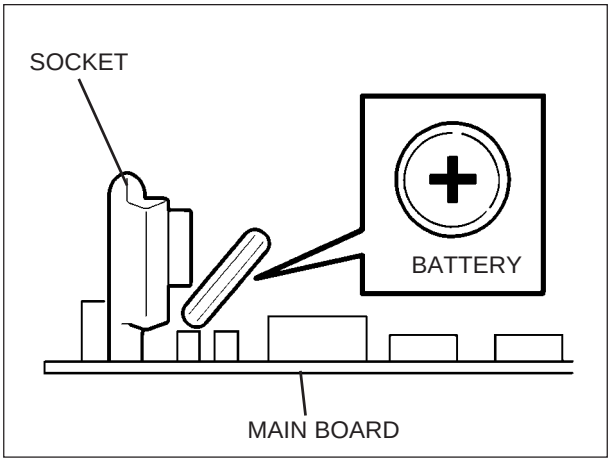


2 Remove the BATTERY on the MAIN BOARD by pushing it down and tilting towards right.

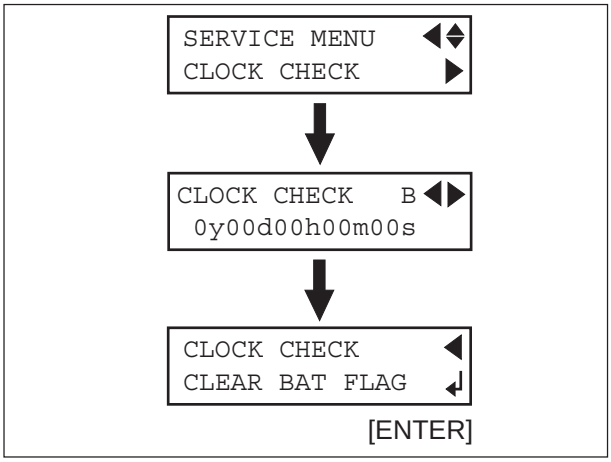


3 Replace the BATTERY with new one.

Be careful with the direction of the BATTERY.



4 Clear the BATTERY FLAG from the [CLOCK CHECK] menu in the Service Menu.

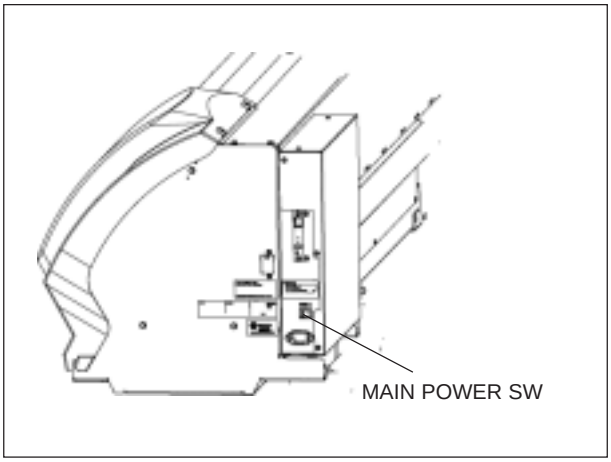


5 Dispose the BATTERY.

FOLLOWING MAY CAUSE EXPLOSION OF BATTERY.
RECHARGE, SHORT-CIRCUIT, DISASSEMBLY, HEATING, PUTTING INTO FIRE.
DON'T PUT BATTERY WITH OTHER METAL OR BATTERY.
DISPOSE BATTERY WITHOUT INSULATION.

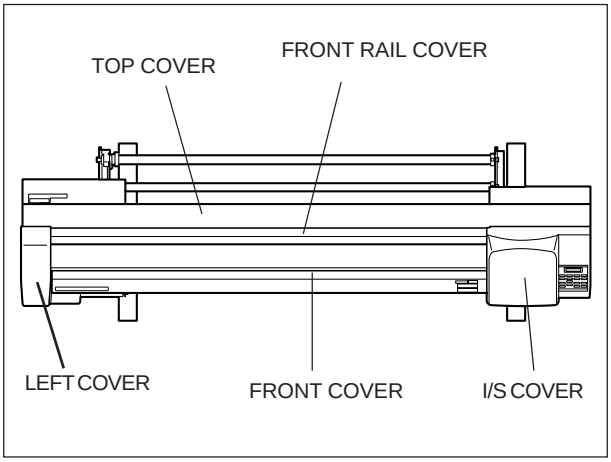
3-9 CARRIAGE WIRE REPLACEMENT

1 Turn off the MAIN POWER SW.

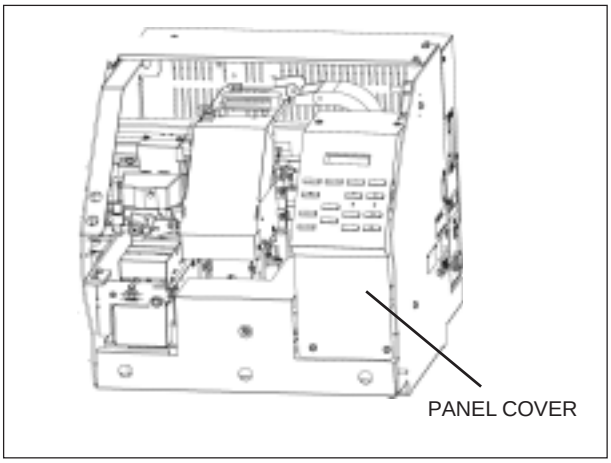


2 Remove the following covers.

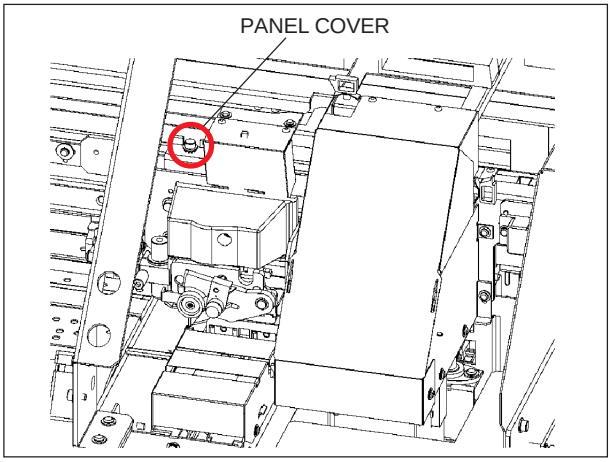
LEFT COVER
I/S COVER
TOP COVER
FRONT RAIL COVER
FRONT COVER



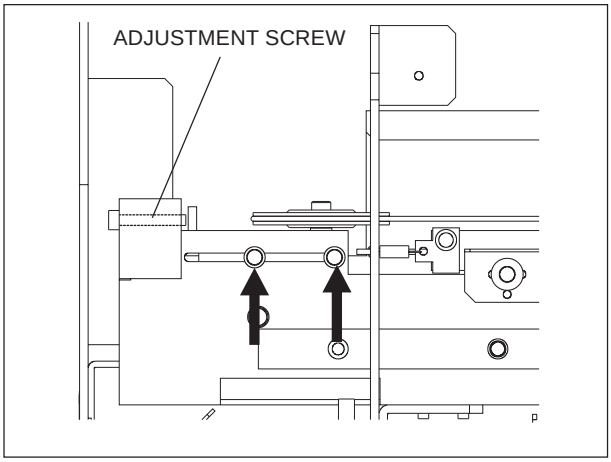
3 Remove the PANEL COVER with disconnecting the flexible cable connected to the PANEL BOARD.



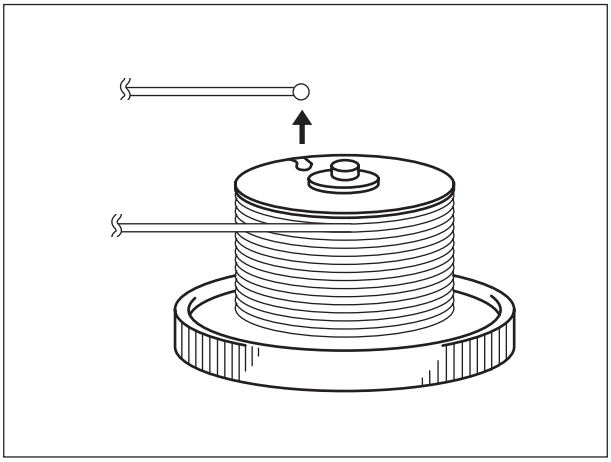
4 Loosen the screw fixing the TOOL CARRIAGE to the CARRIAGE WIRE.



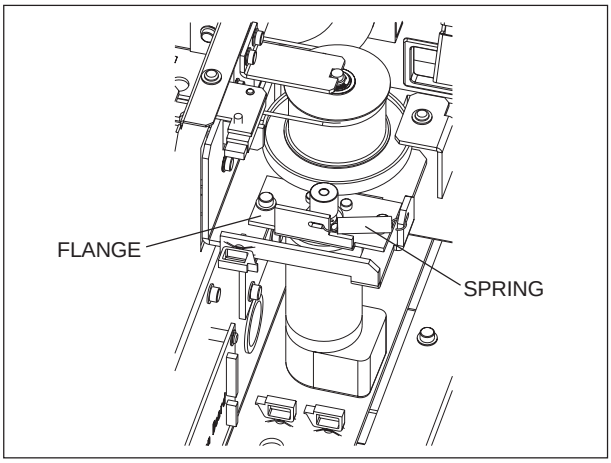
5 Loosen the 2 screws and then the ADJUSTMENT SCREW in order to loosen the wire tension.



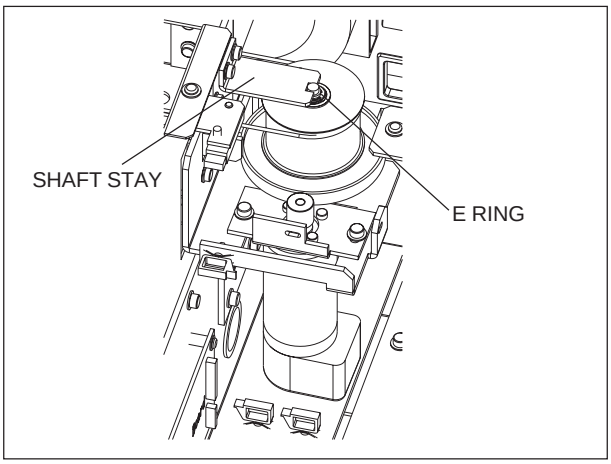
6 Remove the CARRIAGE WIRE from the DRIVE PULLEY as shown in the figure.



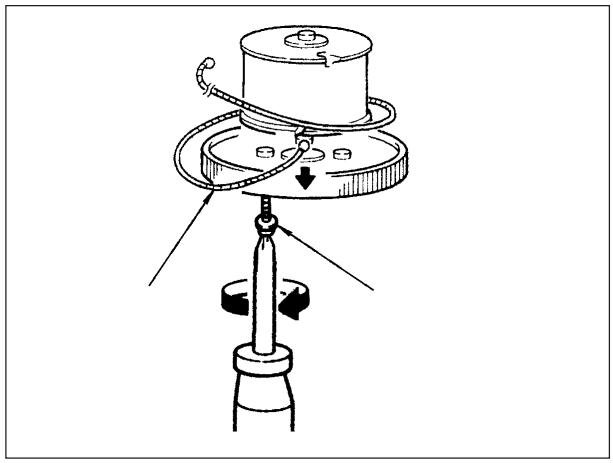
7 Remove the SPRING, then loosen the screws fixing the MOTOR FLANGE.



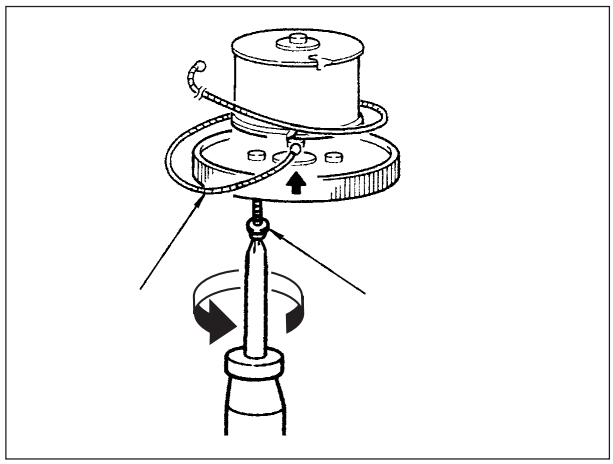
8 Remove the SHAFT STAY and the E RING, then remove the DRIVE PULLEY from the shaft.



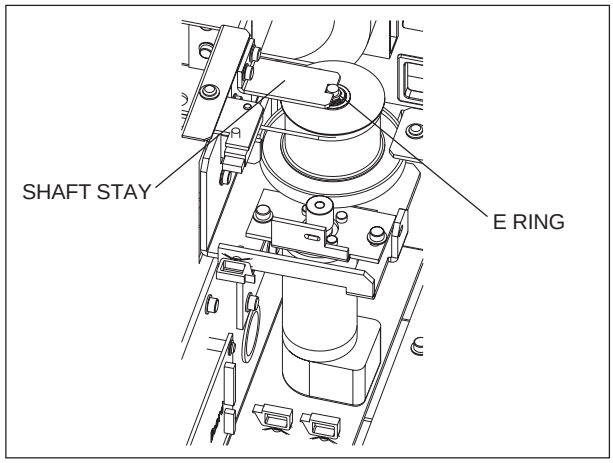
9 Remove the screws fixing the DRIVE GEAR and remove the CARRIAGE WIRE from the PULLEY.



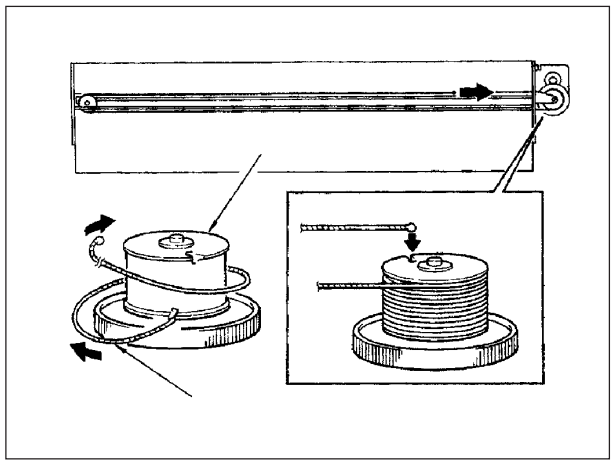
10 Fix one end of the new WIRE and fix the DRIVE GEAR to the DRIVE PULLEY with the screws.



11 Put the DRIVE PULLEY into the shaft and fix it with the E RING. Then, fix the SHAFT STAY.

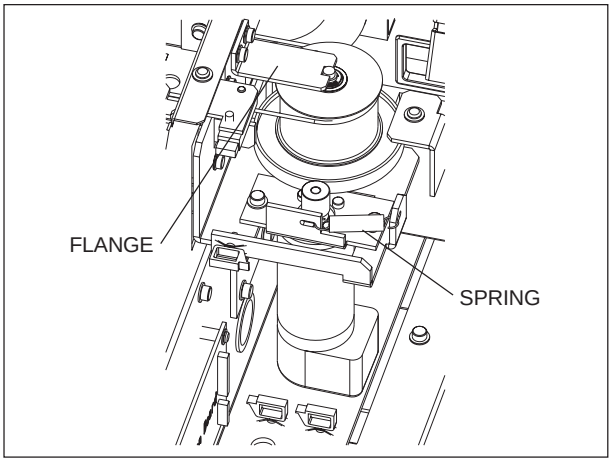


12 Wind the CARRIAGE WIRE around the DRIVE PULLEY from bottom to the top, and fix the other end of the WIRE.

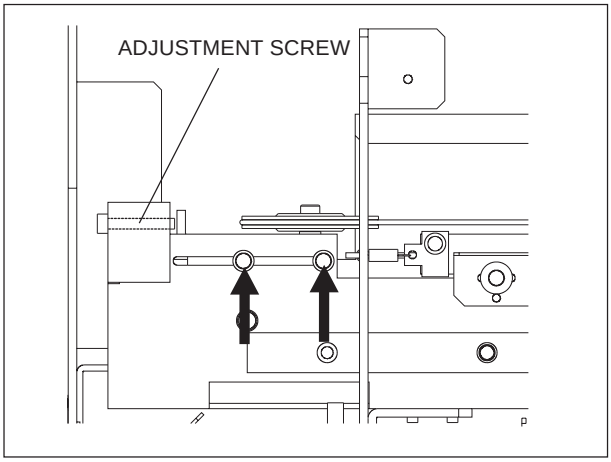


Make sure that the CARRIAGE WIRE does not cross over.

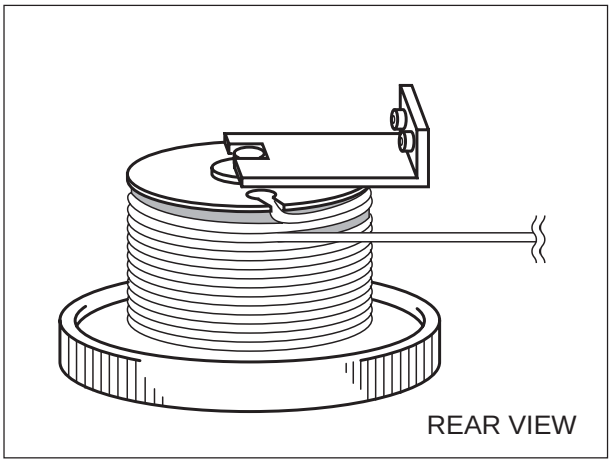
13 Fix the SPRING, then tighten up the 2 screws to fix the FLANGE with checking the gears mesh without backlash.



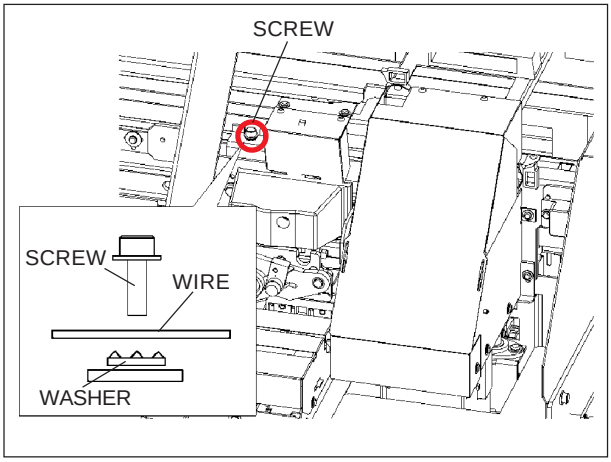
14 Tighten the ADJUSTMENT SCREW and remove the slack in the Wire.
Do not tighten it too tightly.



15 Rotate the DRIVE PULLEY until the CARRIAGE WIRE comes to its second wind from the top.

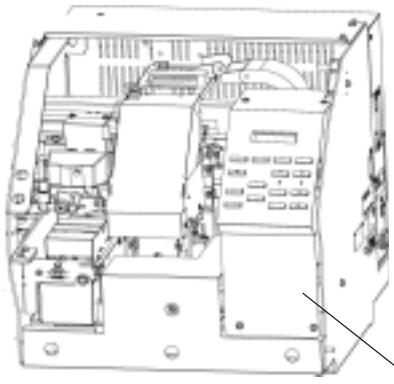


16 Fix the CARRIAGE WIRE to the TOOL CARRIAGE.



Make sure that the Tool Carriage is connected to the Head Carriage, and also Head Carriage is locked when fixing the WIRE.

17 Connect the PANEL CABLE to the PANEL BOARD, and fix the PANEL COVER.



18 Turn on the MAIN POWER SW. Then, turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

```
MENU                ◀▲▼
SERVICE MENU        ▶
```

19 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

```
SERVICE MENU        ◀▲▼
CAP&WIPER CTRL      ▶
```

▼ [▶]

```
CAP&WIPER CTRL      ◀▲▼
CAP                 ▶
```

▼ [▶]

```
CAP                 ◀▲▼
OPEN                ↲
```

▼ [ENTER]

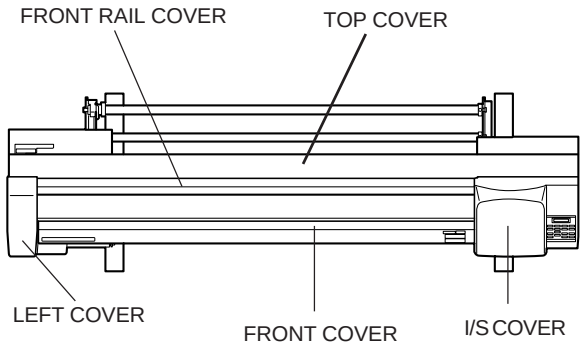
20 Move the HEAD CARRIAGE in a whole width of the GUIDE RAIL several times to remove the slack in the CARRIAGE WIRE.
Then, carry out the following adjustments.

1. WIRE TENSION ADJUSTMENT
2. LIMIT POSITION & CUT DOWN POSITION INITIALIZE
3. LINEAR ENCODER SETUP
4. CUTTING QUALITY CHECK

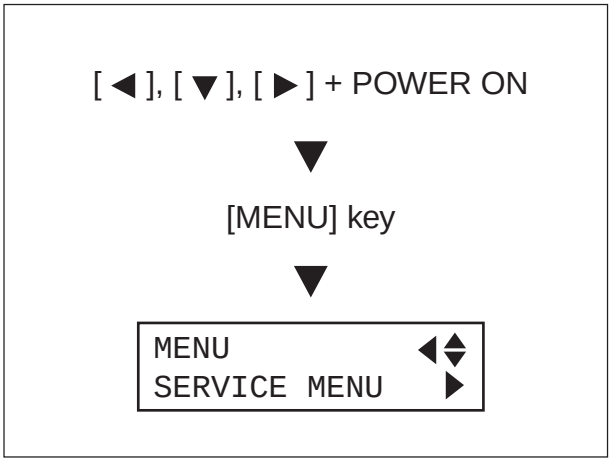
3-10 ENCODER SCALE REPLACEMENT

1 Remove the following covers.

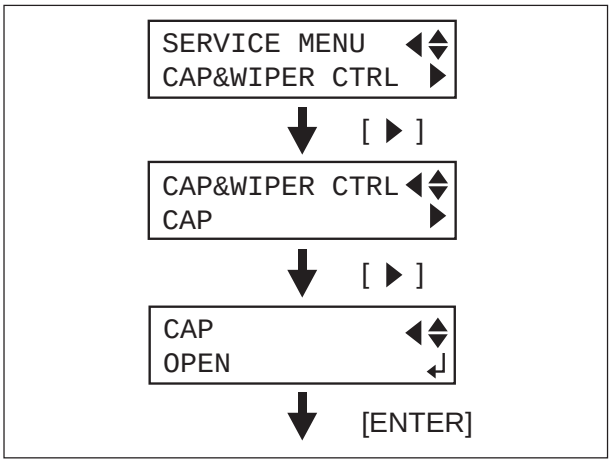
LEFT COVER
I/S COVER
TOP COVER
FRONT RAIL COVER
FRONT COVER



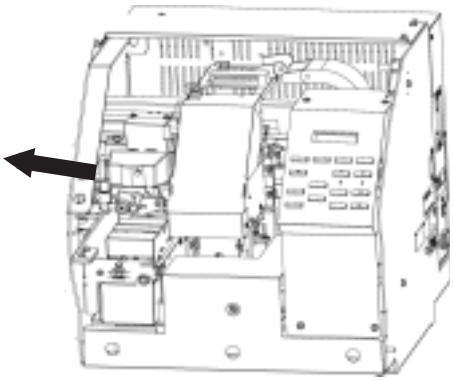
2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.



3 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

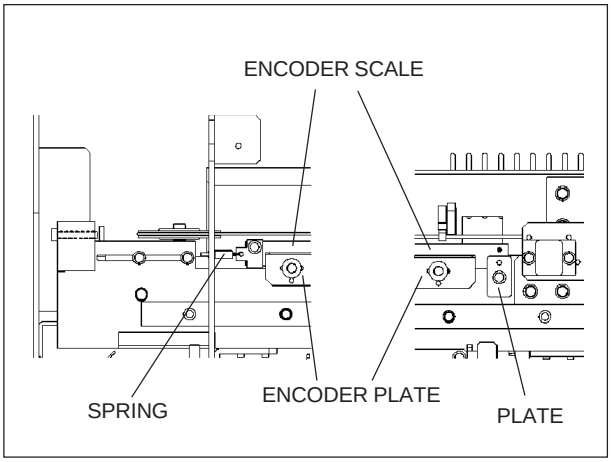


4 Move the HEAD CARRIAGE slowly leftwards.

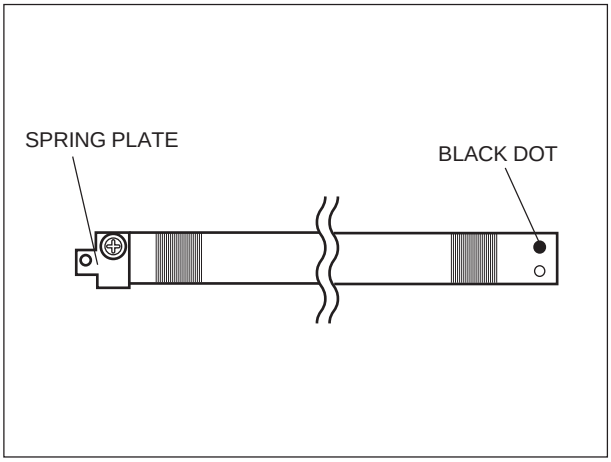


Be careful that the head does not strike the media or media clamp.

5 Remove the ENCODER SCALE by removing the PLATE fixing the ENCODER SCALE at its right end and the SPRING on its left end.

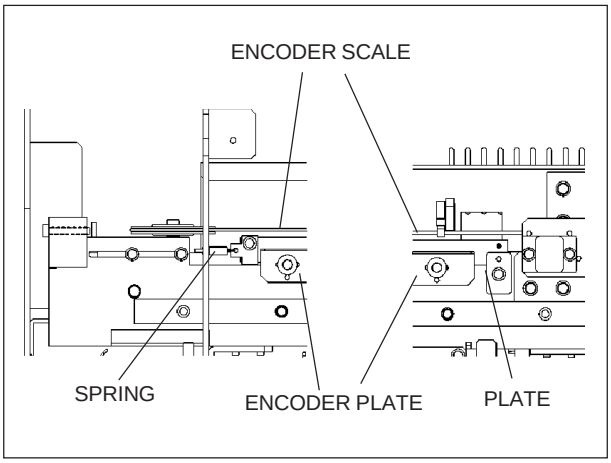


6 Remove the SPRING PLATE from the ENCODER SCALE and fix it to the new ENCODER SCALE where there is no black dot written on it.



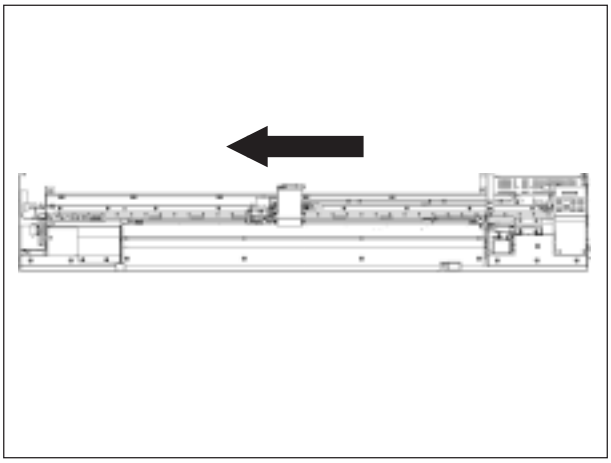
Make sure not to make scratches or put grease on the ENCODER SCALE when fixing it.

7 Put the ENCODER SCALE in between the ENCODER PLATE and the GUIDE RAIL.
Then, fix the right end with the PLATE and hook up the SPRING on the left end.
Make sure that the ENCODER SCALE is in place.



Do not loosen or tighten the screws fixing the ENCODER PLATE.

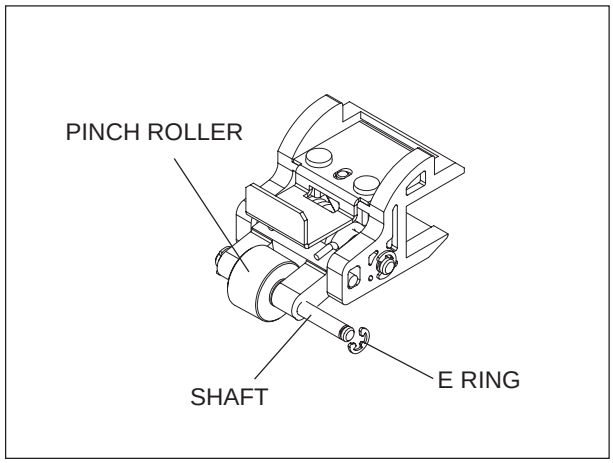
8 Move the HEAD CARRIAGE in a whole width of the machine.
Make sure that the ENCODER SCALE doesn't make contact with the ENCODER MODULE and also ENCODER SCALE is between the slit of the ENCODER MODULE.



9 Carry out the LINEAR ENCODER SETUP.

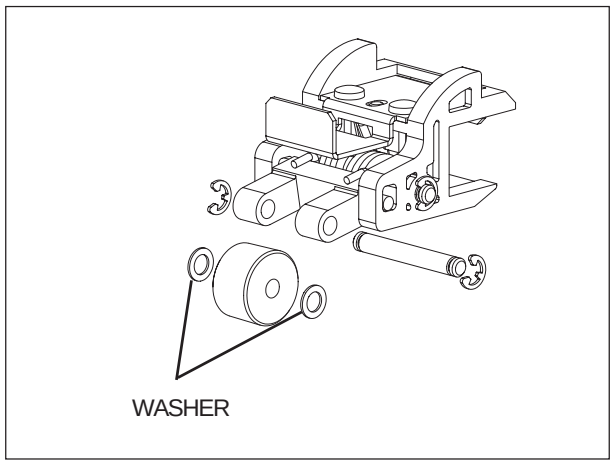
3-11 PINCH ROLLER REPLACEMENT

1 Remove the E RING on one side of the PINCH ROLLER and pull out the SHAFT.



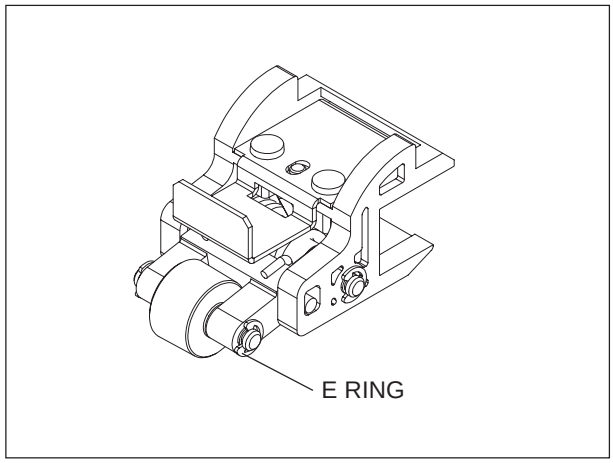
Make sure not to lose the washers which are fixed at both sides of the PINCH ROLLER.

2 Put the new PINCH ROLLER with washers and insert the SHAFT into the PINCH ROLLER.
Fixing operation becomes easy when you put the washers to the PINCH ROLLER with grease.



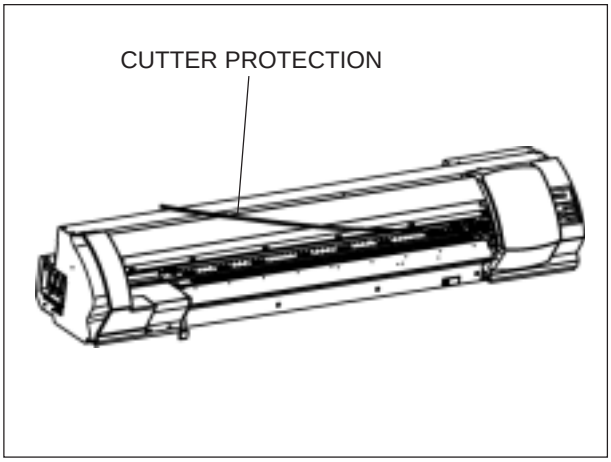
Red marking is done on the outer side of LEFT & RIGHT PINCH ROLLERS.
As for the CENTER PINCH ROLLERS, there is no marking.

3 Fix the E RING and make sure that the PINCH ROLLER rotates smoothly.



3-12 CUTTER PROTECTION REPLACEMENT

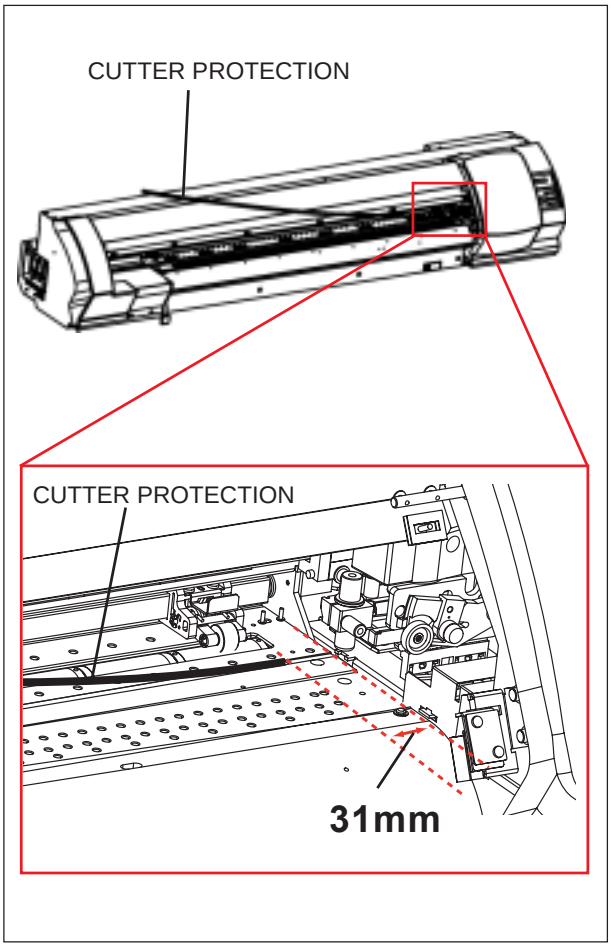
1 Remove the CUTTER PROTECTION.



2 Wipe the adhesive on the BED with the alcohol.

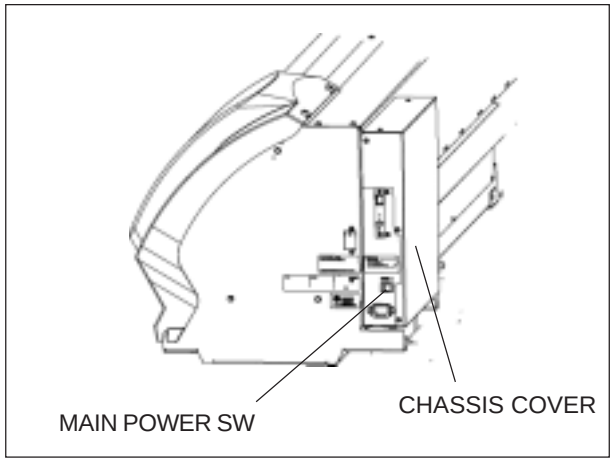
3 Install the CUTTER POROTECTION from 31mm from right edge of the BED.

4 Make sure that the CUTTER PROTECTION is not bumpy.

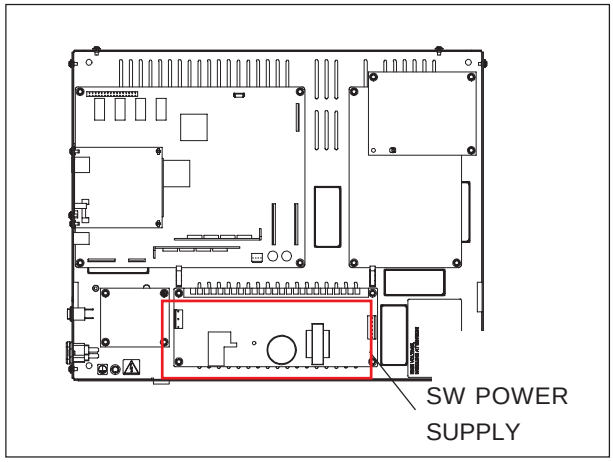


3-13 SW POWER SUPPLY REPLACEMENT

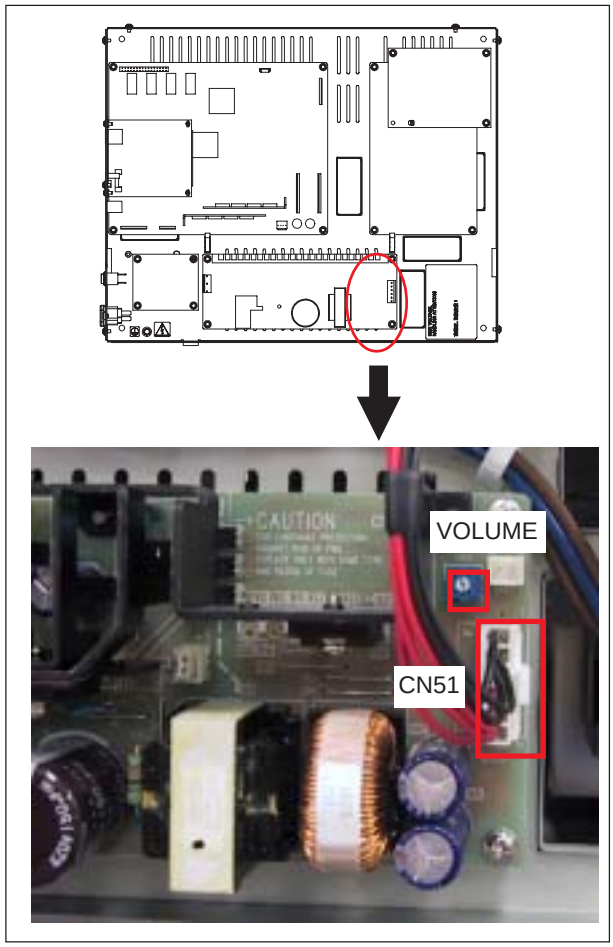
1 Turn off the MAIN POWER SW and disconnect the AC Cord. Then, remove the CHASSIS COVER.



2 Disconnect the Cables which are connected to the SW POWER SUPPLY and replace the SW POWER SUPPLY.



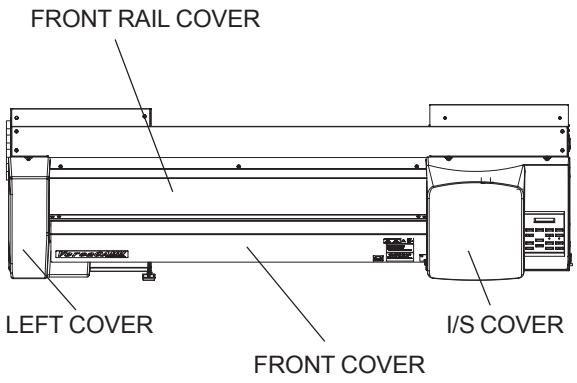
3 After replacing the SW POWER SUPPLY, adjust the output voltage of the SW POWER SUPPLY by rotating the VOLUME clockwise so that the output voltage will be +41V +/- 0.1V.
In order to confirm the output voltage, put the probes of the multimeter to the CN51 at 6pin (Vout) and 1 pin (GND).



When the output voltage exceeds +41.4V, SW POWER SUPPLY does not output the voltage by the protection circuit on it.
In this case, SW POWER SUPPLY will output the voltage by rotating the VOLUME counterclockwise.

3-14 FLEXIBLE CABLE REPLACEMENT Revised 4

This is a procedure to replace the FLEXIBLE CABLE between the SERVO BOARD and the TOOL CARRIAGE.



1 Remove the following covers.

LEFT COVER
I/S COVER
FRONT RAIL COVER
FRONT COVER

2 Turn on the SUB POWER SW while pressing the Left, Right and Down keys to enter the SERVICE MODE.

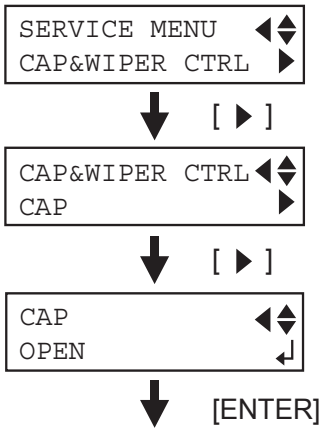
[◀], [▼], [▶] + POWER ON

▼

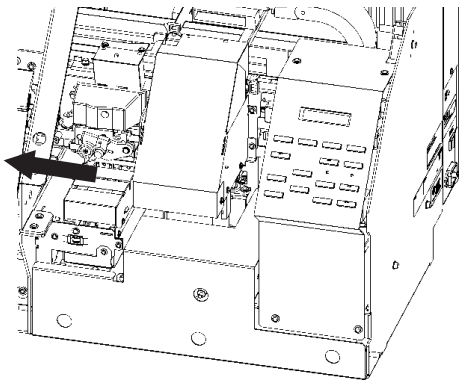
[MENU] key

▼

3 Select [CAP&WIPER CTRL] > [CAP] > [OPEN], and press the [ENTER] key. The CAPPING UNIT moves down and allows you to move the HEAD CARRIAGE by hand.

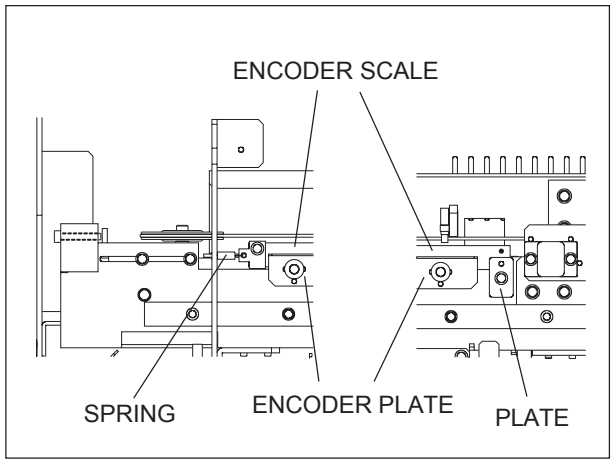


4 Move the HEAD CARRIAGE slowly leftwards.

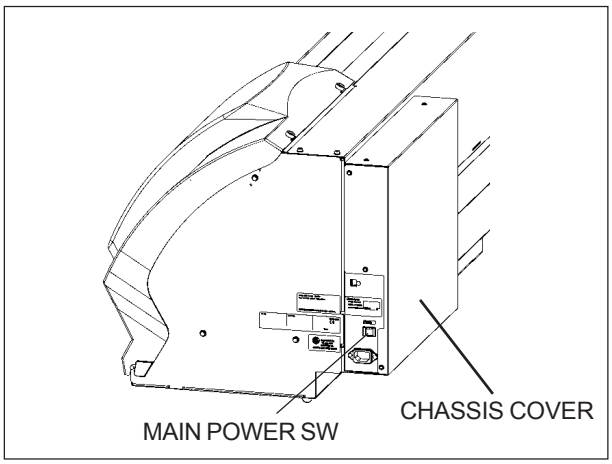


Be careful that the head does not strike the media or media clamp.

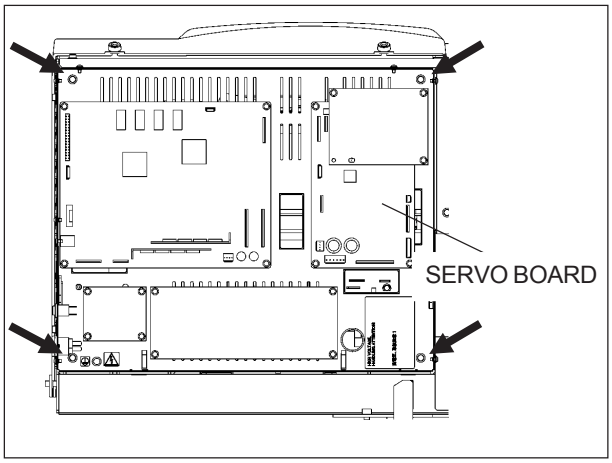
5 Remove the ENCODER SCALE by removing the PLATE fixing the ENCODER SCALE at its right end and the SPRING on its left end.



6 Turn off the Main Power SW, and disconnect the power cord. Then, remove the CHASSIS COVER.

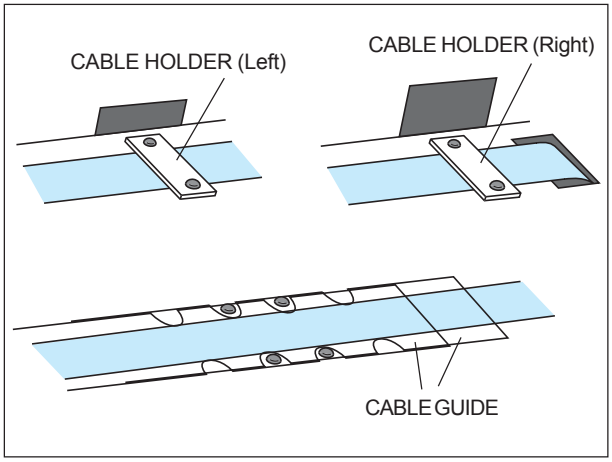


7 Disconnect the flexible cable at the CN6 of the SERVO BOARD.
Then, remove the 4 screws fixing the 4 corners of the CHASSIS and open it.

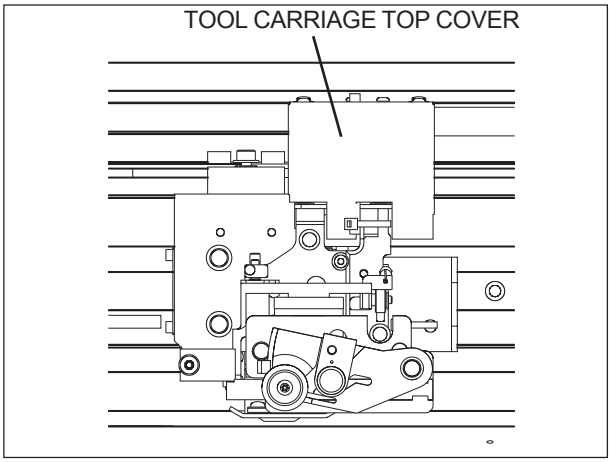


You don't have to take off the CHASSIS from the machine.

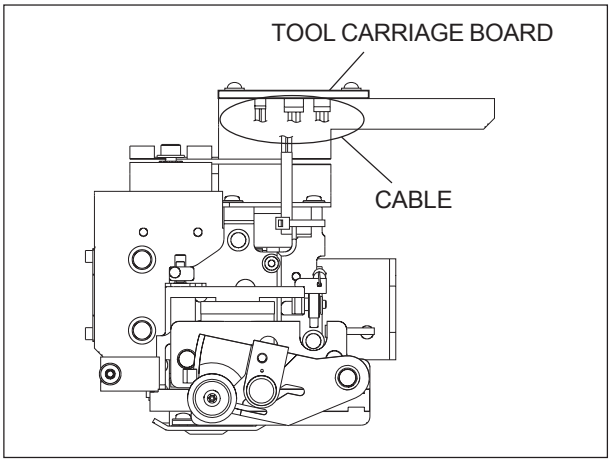
8 Remove the 2 CABLE HOLDERs that are holding the FLEXIBLE CABLE on the RAIL, and remove the rivets that are fixing the CABLE GUIDEs.



9 Remove TOOL CARRIAGE TOP COVER from the TOOL CARRIAGE.

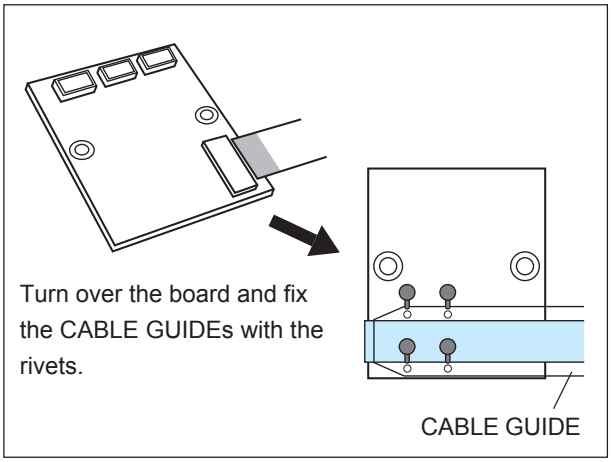


10 Disconnect the 3 cables except the FLEXIBLE CABLE from the TOOL CARRIAGE BOARD, and remove the TOOL CARRIAGE BOARD from the machine.

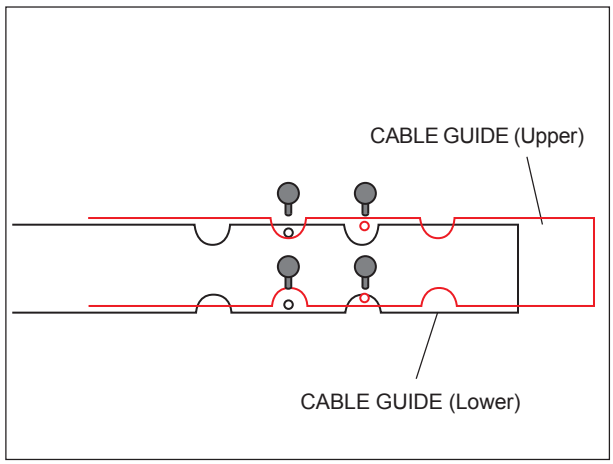


11 Remove the FLEXIBLE CABLE and the CABLE GUIDEs from the TOOL CARRIAGE BOARD.

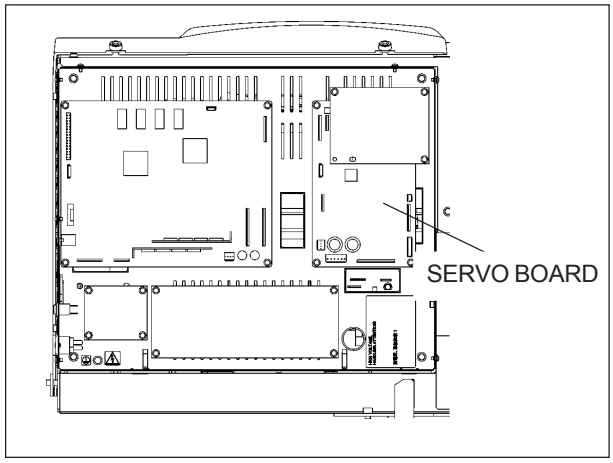
12 Connect the new FLEXIBLE CABLE to the TOOL CARRIAGE BOARD. Then, fix the 2 new CABLE GUIDEs with putting the FLEXIBLE CABLE between them.



13 Fix the CABLE GUIDEs on the RAIL with the rivets.

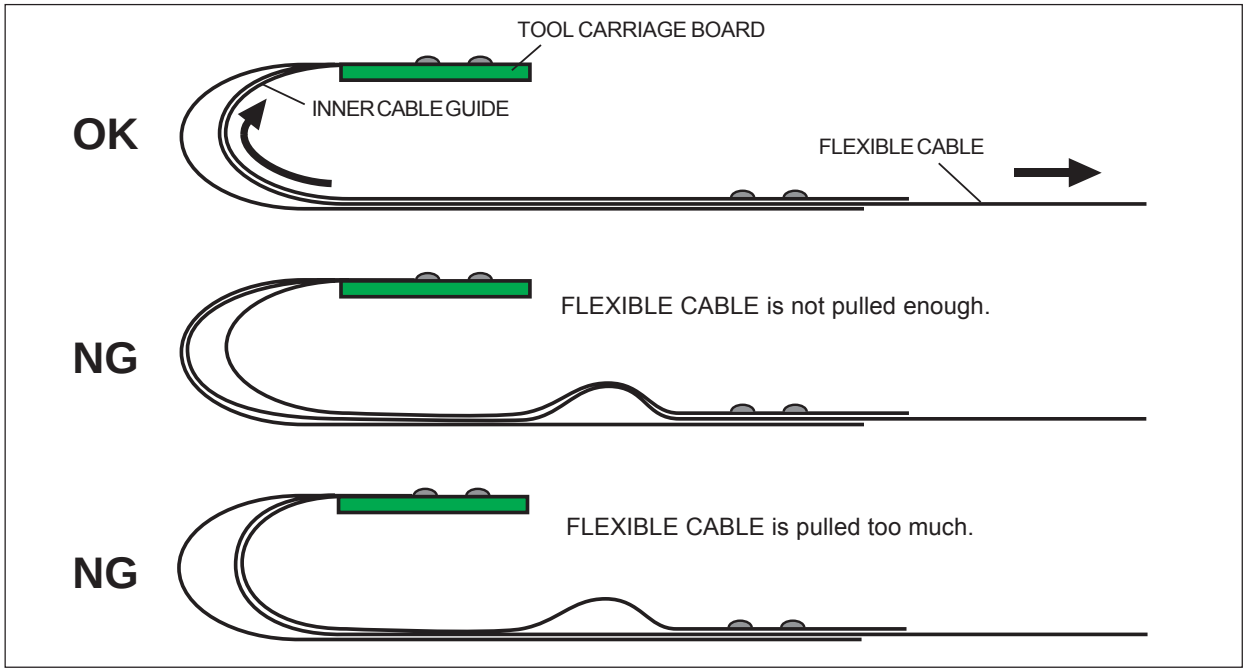


14 Connect the FLEXIBLE CABLE to CN6 of the SERVO BOARD.

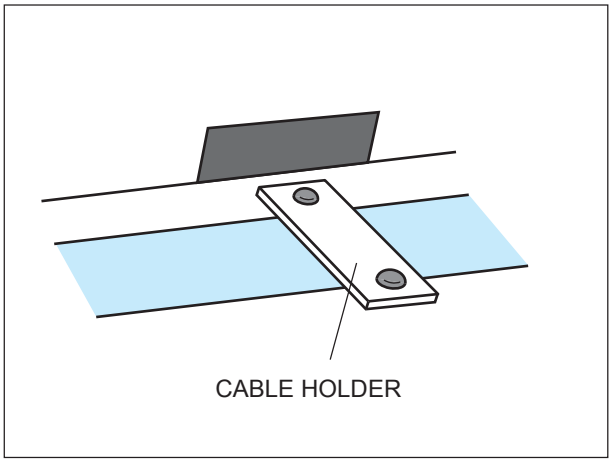


15 Pull the FLEXIBLE CABLE rightward with holding the INNER CABLE GUIDE at the left side so that the FLEXIBLE CABLE fits to the INNER CABLE GUIDE.

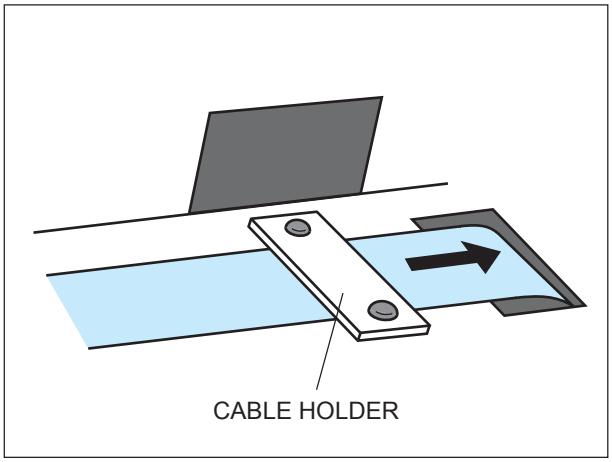
If the FLEXIBLE CABLE is not pulled enough or pulled too much, there will be the slack in the CABLE GUIDE.



16 Fix the FLEXIBLE CABLE with the CABLE HOLDER with keeping the condition of [15].

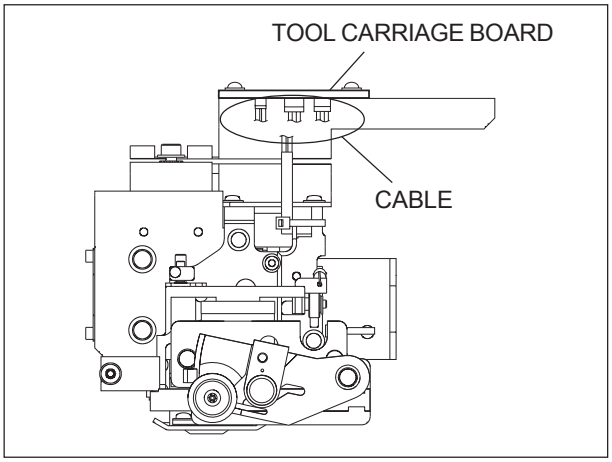


17 Fix the FLEXIBLE CABLE with the other CABLE HOLDER.

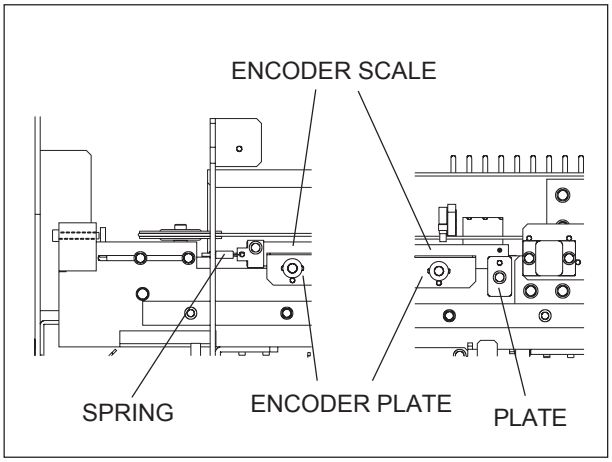


Fix the CABLE HOLDER with pulling the FLEXIBLE CABLE not to have the slack between the 2 CABLE HOLDERs.

18 Fix the TOOL CARRIAGE BOARD to the TOOL CARRIAGE, and connect the 3 cables.



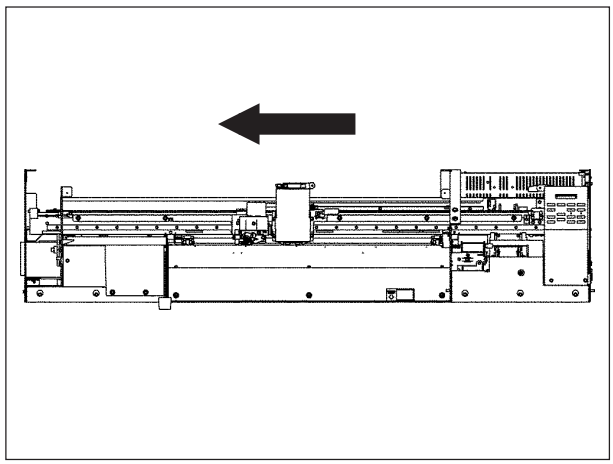
19 Put the ENCODER SCALE in between the ENCODER PLATE and the GUIDE RAIL.
Then, fix the right end with the PLATE and hook up the SPRING on the left end.
Make sure that the ENCODER SCALE is in place.



Do not loosen or tighten the screws fixing the ENCODER PLATE.

20 Move the HEAD CARRIAGE in a whole width of the machine.

Make sure that the ENCODER SCALE doesn't make contact with the ENCODER MODULE and also ENCODER SCALE is between the slit of the ENCODER MODULE.



21 Carry out the LINEAR ENCODER SETUP.

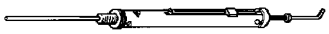
4 Adjustment

4-1 Special Tools

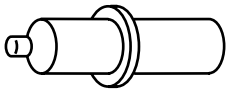
Table shows a list of special tools recommended by Roland DG Corp.

Tool No.	ST-056
Tool Name	TORQUE DRIVER N6
Purpose	HEAD ALIGNMENT

Tool No.	ST-002
Tool Name	TENSION GAUGE 300g (3N)
Purpose	Tool Pressure Adjustment

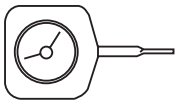


Tool No.	ST-006
Tool Name	WHITE DUMMY PEN
Purpose	Tool Height Adjustment Tool Pressure Adjustment



Tool No.	ST-011
Tool Name	TENSION METER
Purpose	WIRE TENSION ADJUSTMENT

Tool No.	ST-013
Tool Name	DIAL TENSION METER DT-100 (100g/1N)
Purpose	Tool Pressure Adjustment

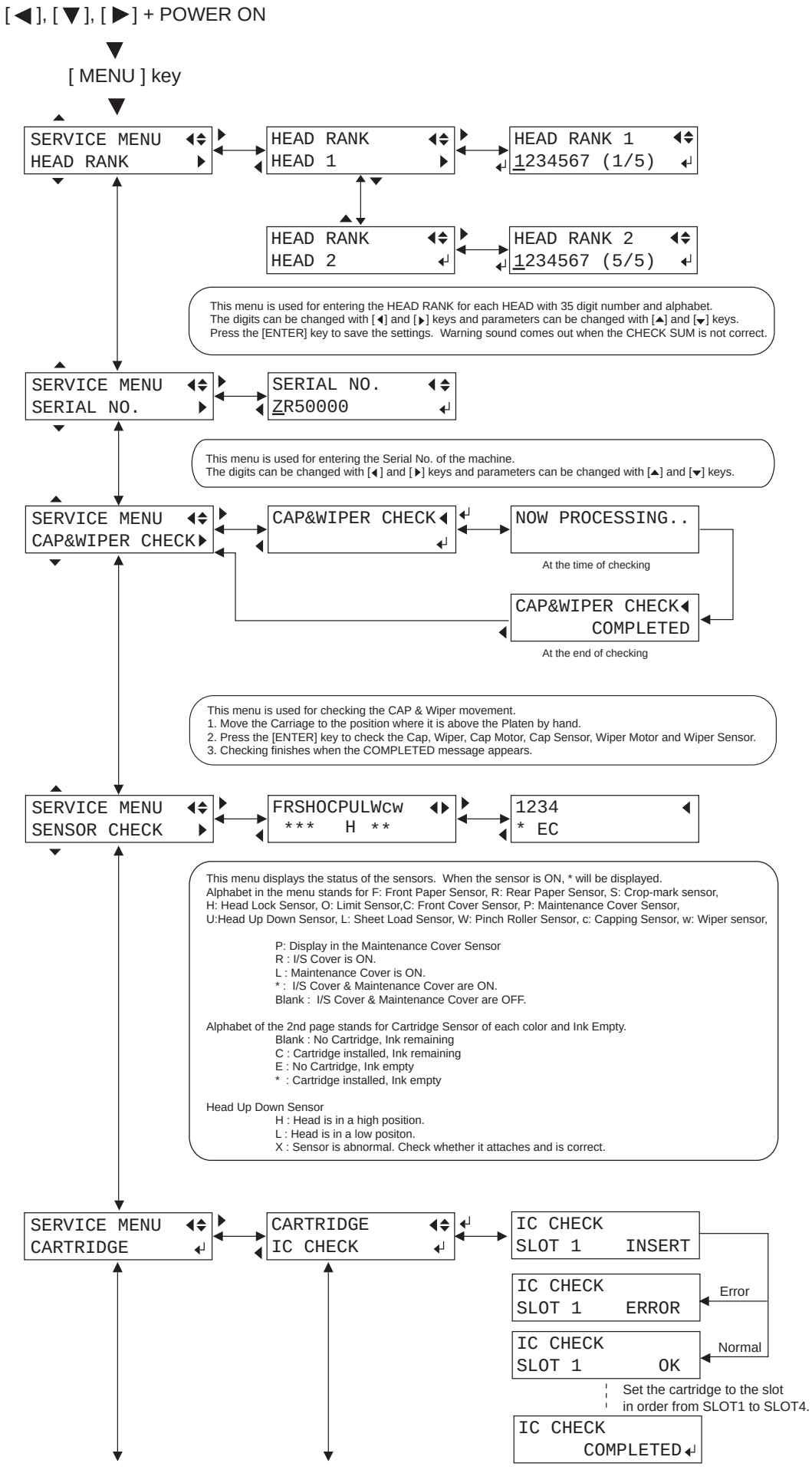


Tool No.	ST-037
Tool Name	CLEAN STICK TX712A
Purpose	Manual Head Cleaning

Tool No.	21755107
Tool Name	CLEANING LIQUID (SL) 500ML
Purpose	HEAD CLEANING (SOL)

Tool No.	22085118
Tool Name	KIT,CLEANING (SL)
Purpose	HEAD CLEANING (SOL) * Cleaning Liquid + Cleaning Sticks 10 pcs.

4-2 SERVICE MODE



Detection, writing, and reading of an ink cartridge IC are performed, and a device and a communication way are checked.
The existence of the driver for IC detection are checked first.
It becomes the following display when the abnormalities are found on the driver.

```
IC CHECK
   SYSTEM ERROR↵
```

Next, the communication check of cartridge IC is performed for every slot.
When a cartridge is inserted to the slot, it checks by establishing communication with cartridge IC automatically.
When it is able to check normally, [OK] is displayed.
When the cartridge is taken out, the number of the slot put into the next is directed.
The cartridges are checked in order from No.1 to No.4 by taking out and inserting.
If the check is completed to No.4 normally, the following indication is displayed and it ends.
When the [ENTER] key is pressed, it returns to the [IC CHECK] menu.

```
IC CHECK
      COMPLETED↵
```

If the communication with cartridge IC are not established, the following indication is displayed and it ends.

```
CARTRIDGE
SLOT 1    ERROR↵
```

Note
* The cartridge with IC is used for checking here.
* No record to the IC is performed at all when checking.
  (Although the number of times of taking out and insertion of a cartridge is originally counted,
  a part to have taken out and inserted with the check is not counted.)
* Check if the cartridge sensor works correctly before performing this check.

```
CARTRIDGE
SLOT 1
```

Set the cartridge to the slot
in order from SLOT1 to SLOT4.

```
CARTRIDGE
SLOT 4
```

```
SL1 : SERIAL
1402A30C010000A5
```
Serial number of the ink cartridge IC is displayed.

```
SL1 : INK TYPE
        eSOL K
```
Ink type of the ink cartridge IC is displayed.

```
SL1 : CAPACITY
          200cc
```
Ink capacity of the ink cartridge IC is displayed.

```
SL1 : LOT NO.
          40218A
```
Lot number of the ink cartridge IC is displayed.

```
SL1 : CONSUM.
        1.704cc
```
The amount of the ink used of an ink cartridge IC is displayed.

```
SL1 : TIME
0y000d00h00m00s
```
The using time of an ink cartridge is displayed.

```
SL1 : INSERT
         1 times
```
The number of times of insertion of an ink cartridge is displayed.

```
SL1 : FLAG
       00000000
```
The flag information of an ink cartridge is displayed.

The various information currently recorded on the ink cartridge IC is read for every cartridge slot.
It becomes as follows when an error occur in a certain state.

```
SLOT1
   NO CARTRIDGE
```
Ink cartridge is not inserted.

```
SLOT1
     NO IC CHIP
```
Ink cartridge without IC is inserted.

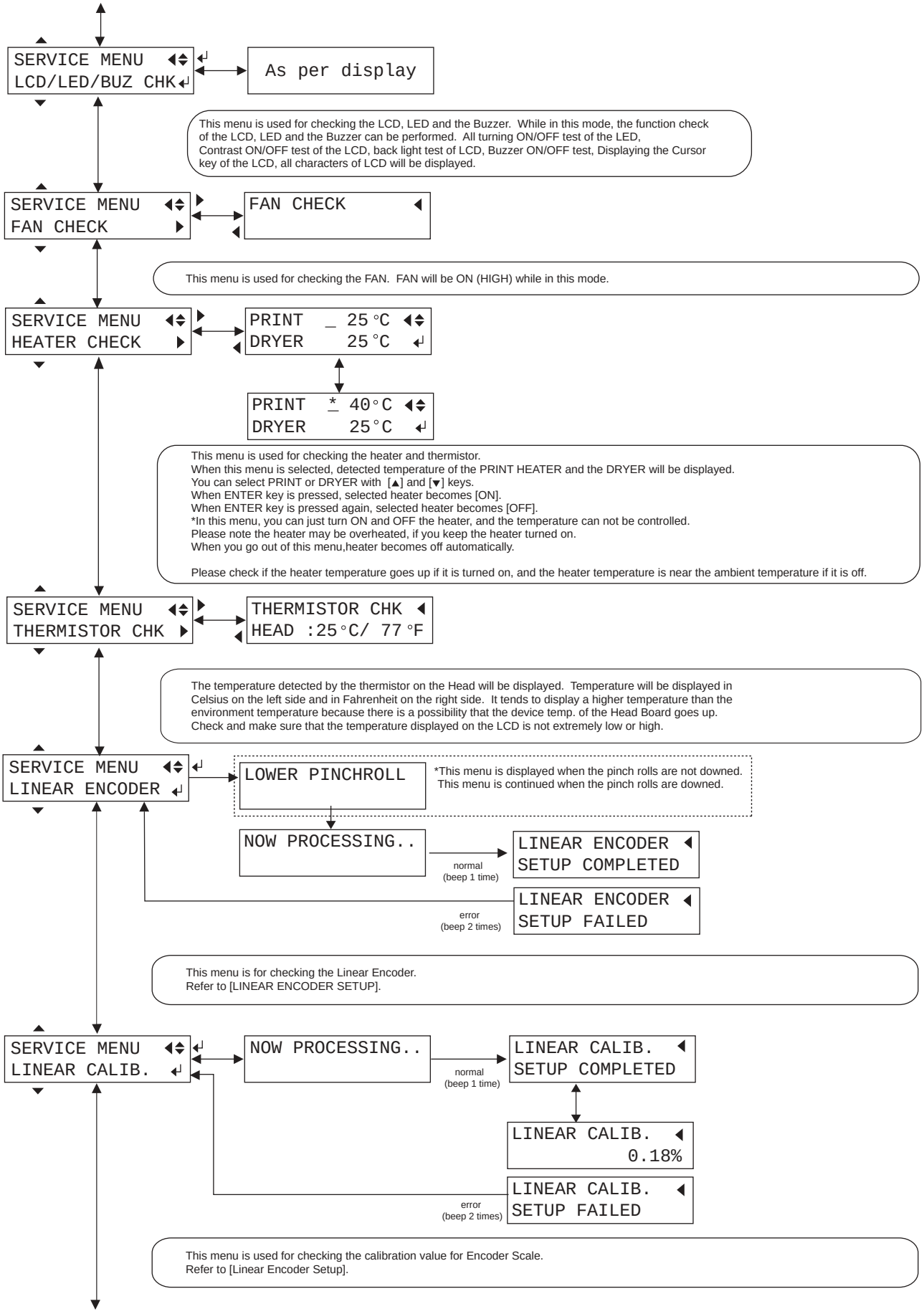
```
SLOT1
   SYSTEM ERROR
```
The system is abnormal at wire disconnection and short-circuit, driver breakage, etc.

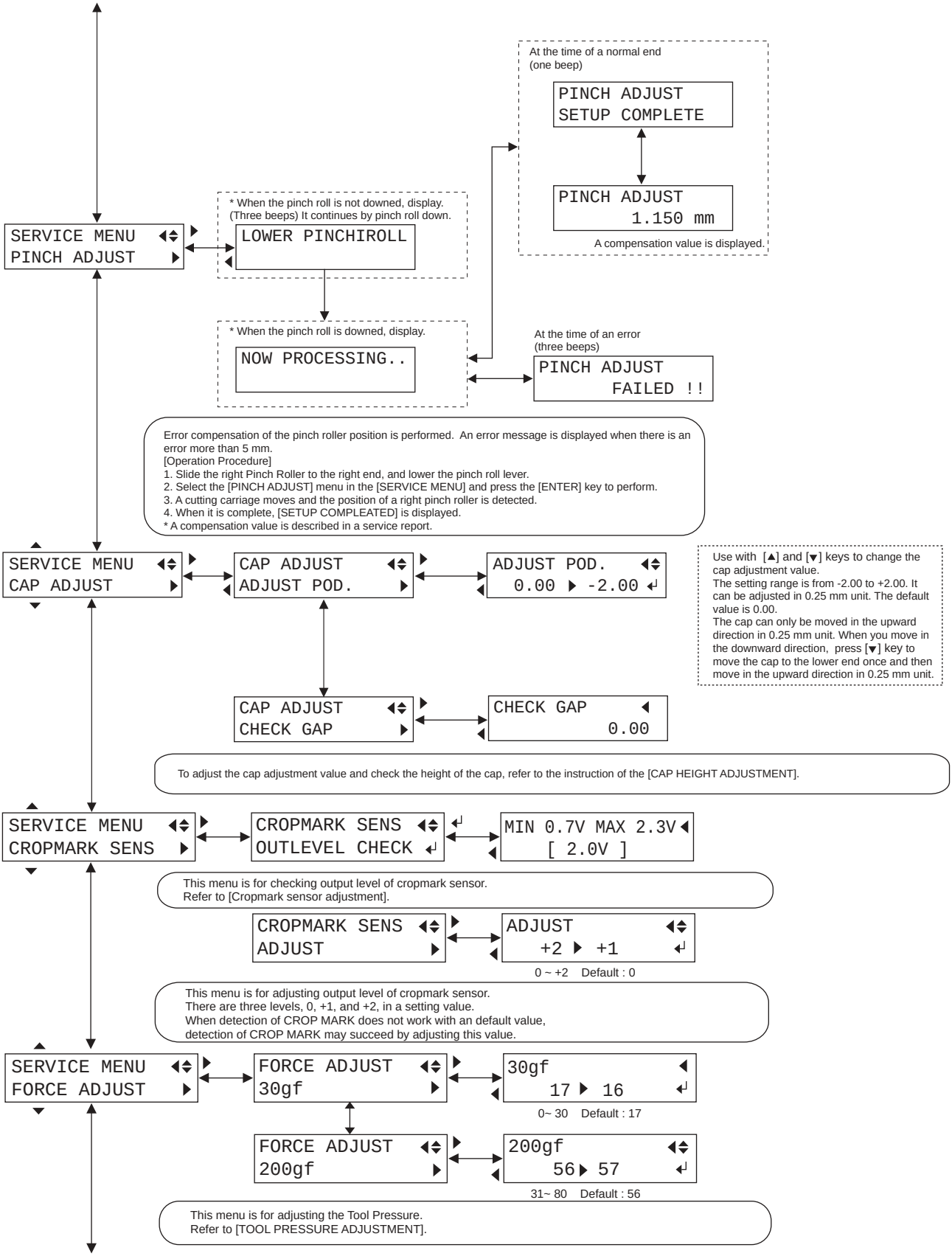
```
SLOT1
     DATA ERROR
```
Data error

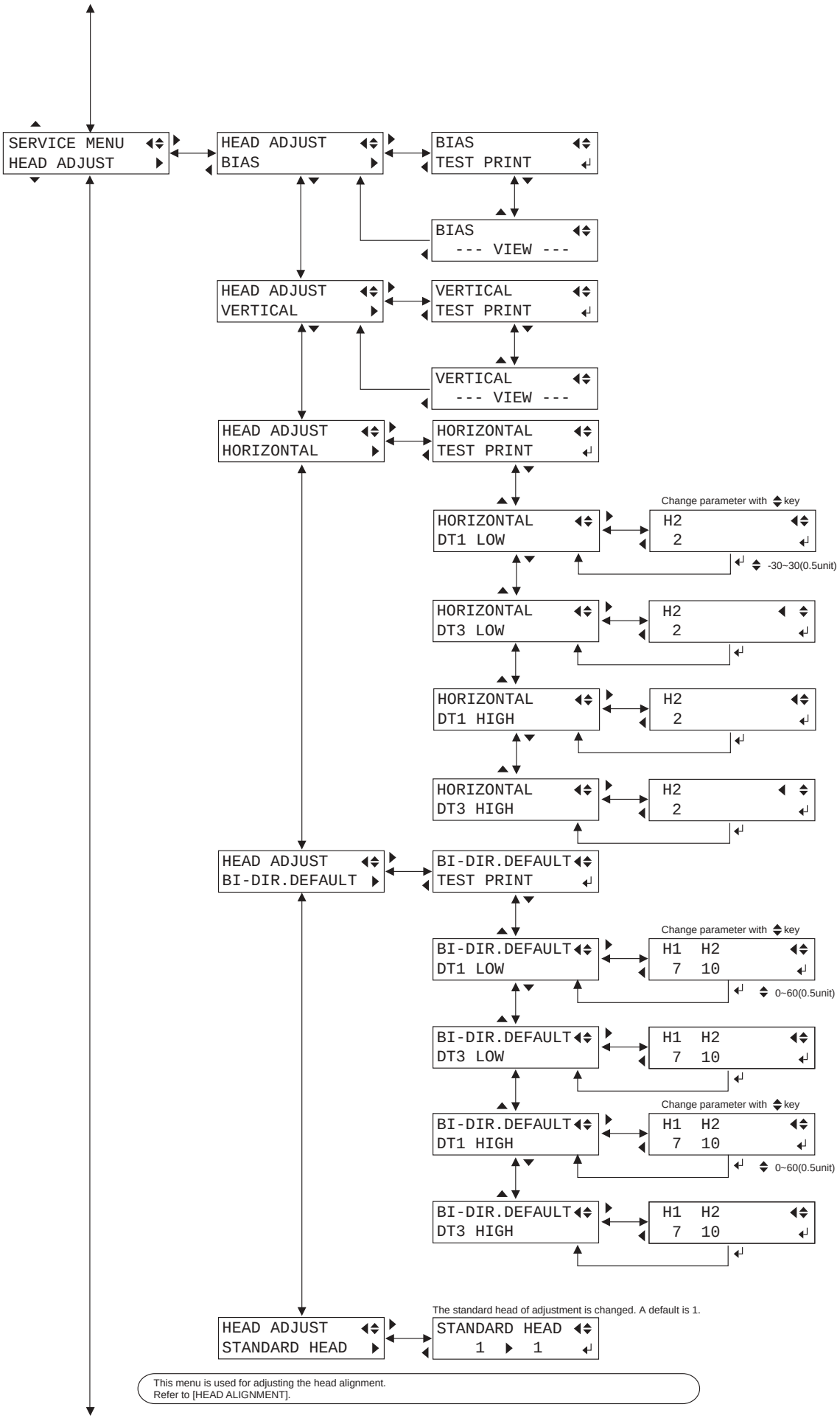
```
SERVICE MENU
KEY CHECK
```

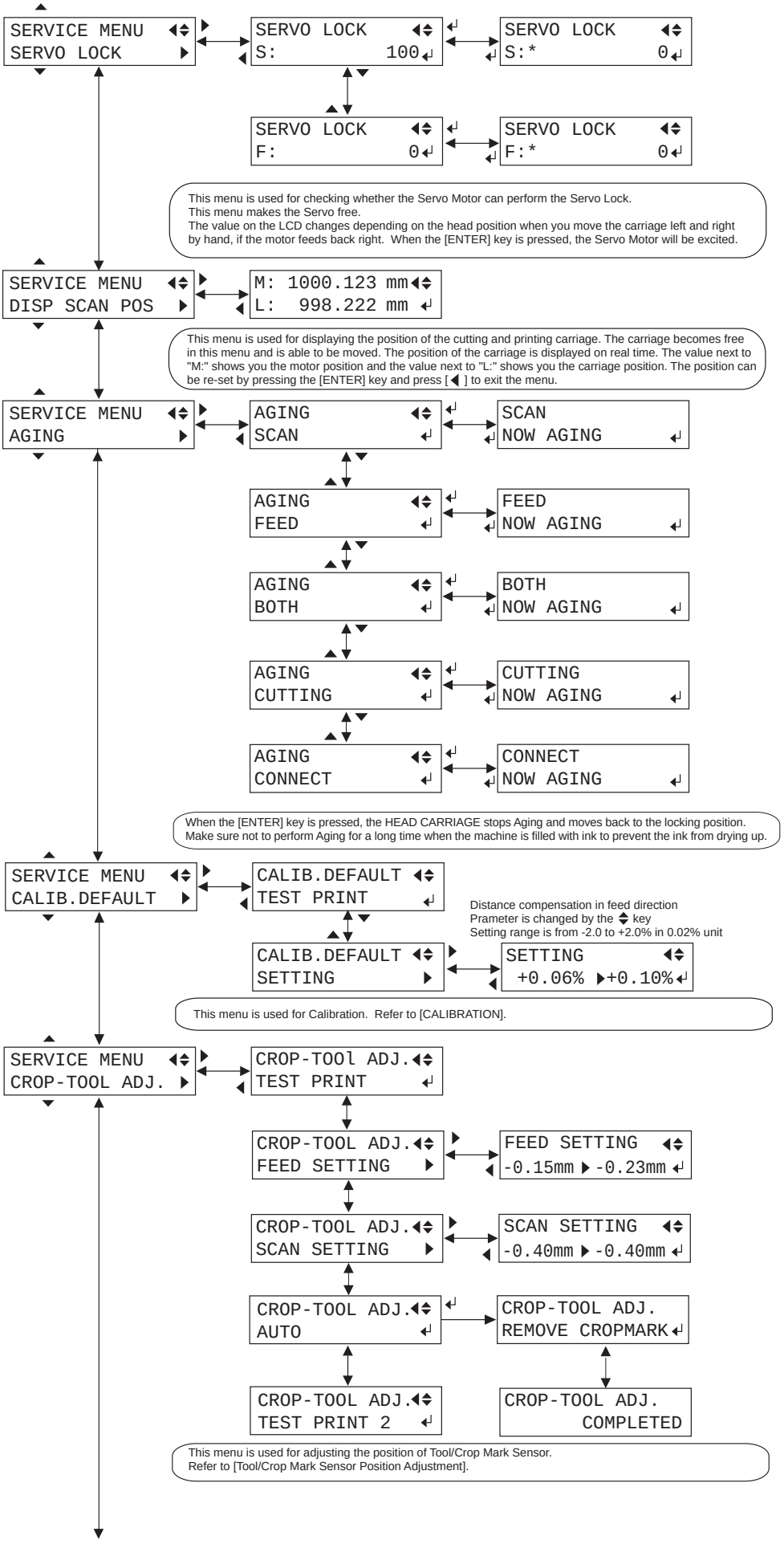
```
KEY CHECK
NONE
```

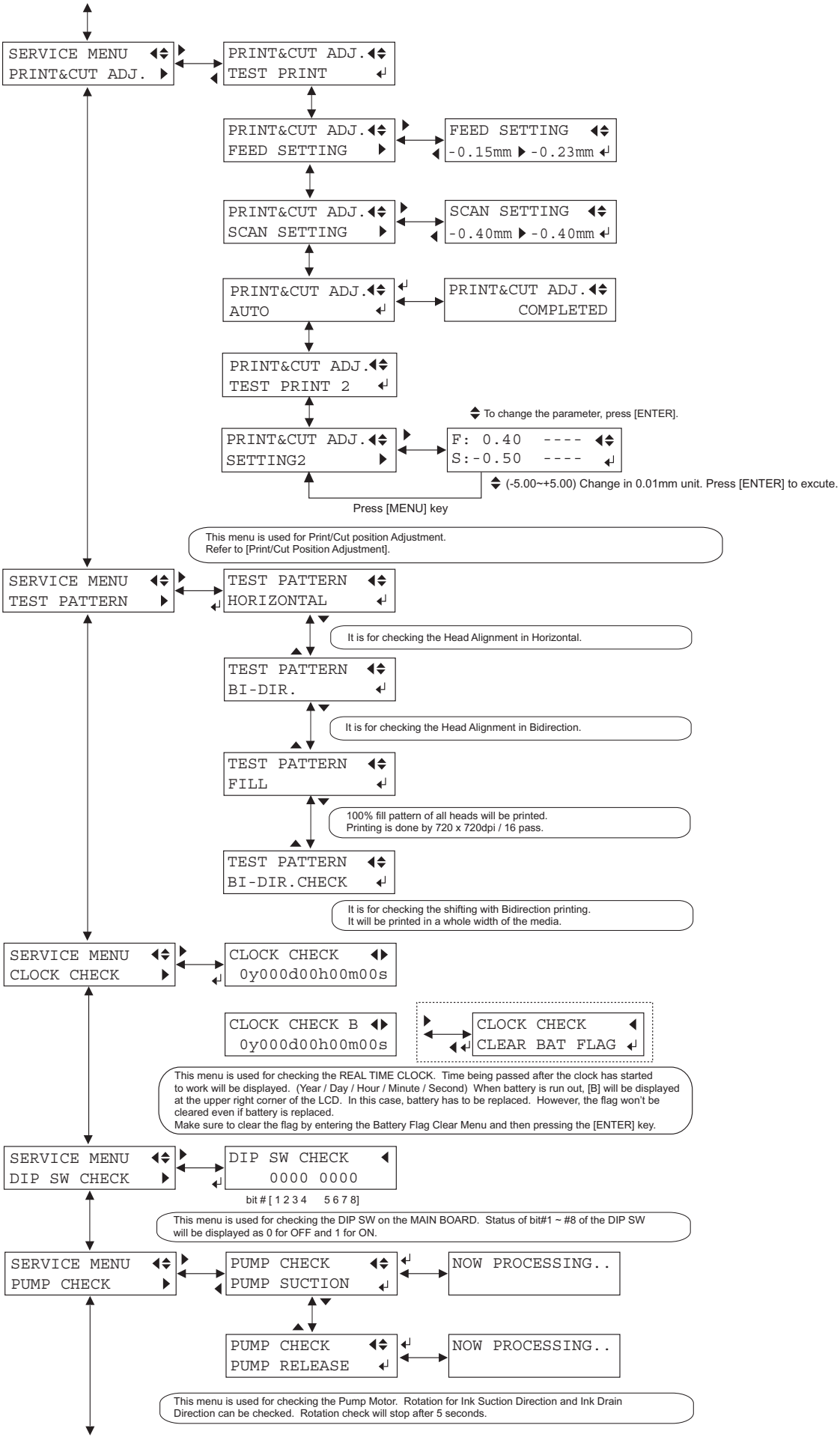
This menu is used for checking the panel keys. [NONE] will be displayed at the bottom row of the LCD if no key is pressed. The name of the key being pressed will be displayed This menu finishes when the [◀] key is pressed or it is left without pressing any key for 10 seconds. When there is any key that has not been pressed, the name of the key will be indicated with the beep sound.
Secondary power cannot be turned off even if pressing the SUB POWER SW in this mode.

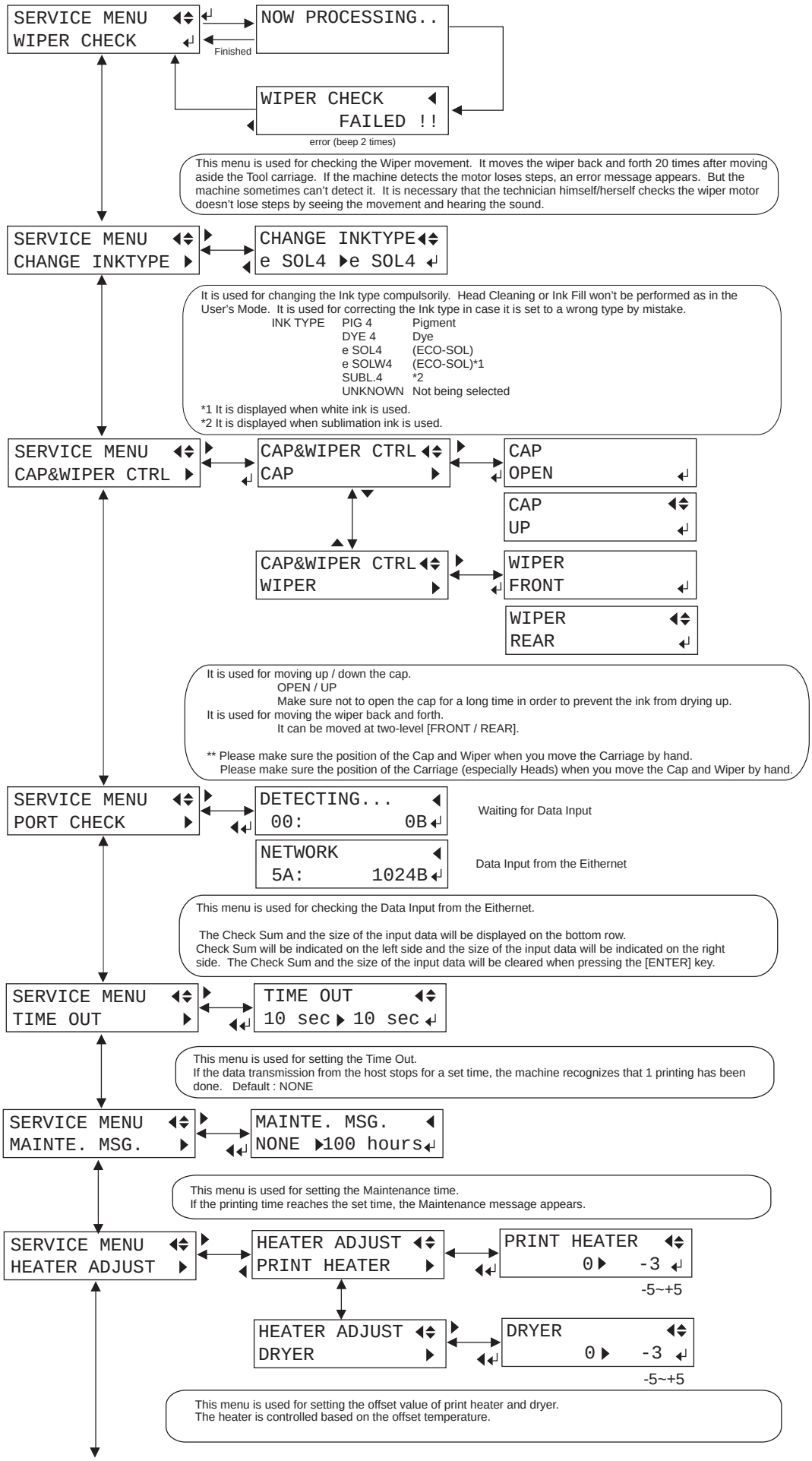

SERVICE MENU
LCD/LED/BUZ CHK
As per display
This menu is used for checking the LCD, LED and the Buzzer. While in this mode, the function check of the LCD, LED and the Buzzer can be performed. All turning ON/OFF test of the LED, Contrast ON/OFF test of the LCD, back light test of LCD, Buzzer ON/OFF test, Displaying the Cursor key of the LCD, all characters of LCD will be displayed.
SERVICE MENU
FAN CHECK
FAN CHECK
This menu is used for checking the FAN. FAN will be ON (HIGH) while in this mode.
SERVICE MENU
HEATER CHECK
PRINT _ 25°C
DRYER 25°C
PRINT * 40°C
DRYER 25°C
This menu is used for checking the heater and thermistor.
When this menu is selected, detected temperature of the PRINT HEATER and the DRYER will be displayed.
You can select PRINT or DRYER with [▲] and [▼] keys.
When ENTER key is pressed, selected heater becomes [ON].
When ENTER key is pressed again, selected heater becomes [OFF].
*In this menu, you can just turn ON and OFF the heater, and the temperature can not be controlled.
Please note the heater may be overheated, if you keep the heater turned on.
When you go out of this menu,heater becomes off automatically.
Please check if the heater temperature goes up if it is turned on, and the heater temperature is near the ambient temperature if it is off.
SERVICE MENU
THERMISTOR CHK
THERMISTOR CHK
HEAD :25°C/ 77°F
The temperature detected by the thermistor on the Head will be displayed. Temperature will be displayed in Celsius on the left side and in Fahrenheit on the right side. It tends to display a higher temperature than the environment temperature because there is a possibility that the device temp. of the Head Board goes up. Check and make sure that the temperature displayed on the LCD is not extremely low or high.
SERVICE MENU
LINEAR ENCODER
LOWER PINCHROLL
*This menu is displayed when the pinch rolls are not downed. This menu is continued when the pinch rolls are downed.
NOW PROCESSING..
normal
(beep 1 time)
LINEAR ENCODER
SETUP COMPLETED
error
(beep 2 times)
LINEAR ENCODER
SETUP FAILED
This menu is for checking the Linear Encoder.
Refer to [LINEAR ENCODER SETUP].
SERVICE MENU
LINEAR CALIB.
NOW PROCESSING..
normal
(beep 1 time)
LINEAR CALIB.
SETUP COMPLETED
LINEAR CALIB.
0.18%
error
(beep 2 times)
LINEAR CALIB.
SETUP FAILED
This menu is used for checking the calibration value for Encoder Scale.
Refer to [Linear Encoder Setup].

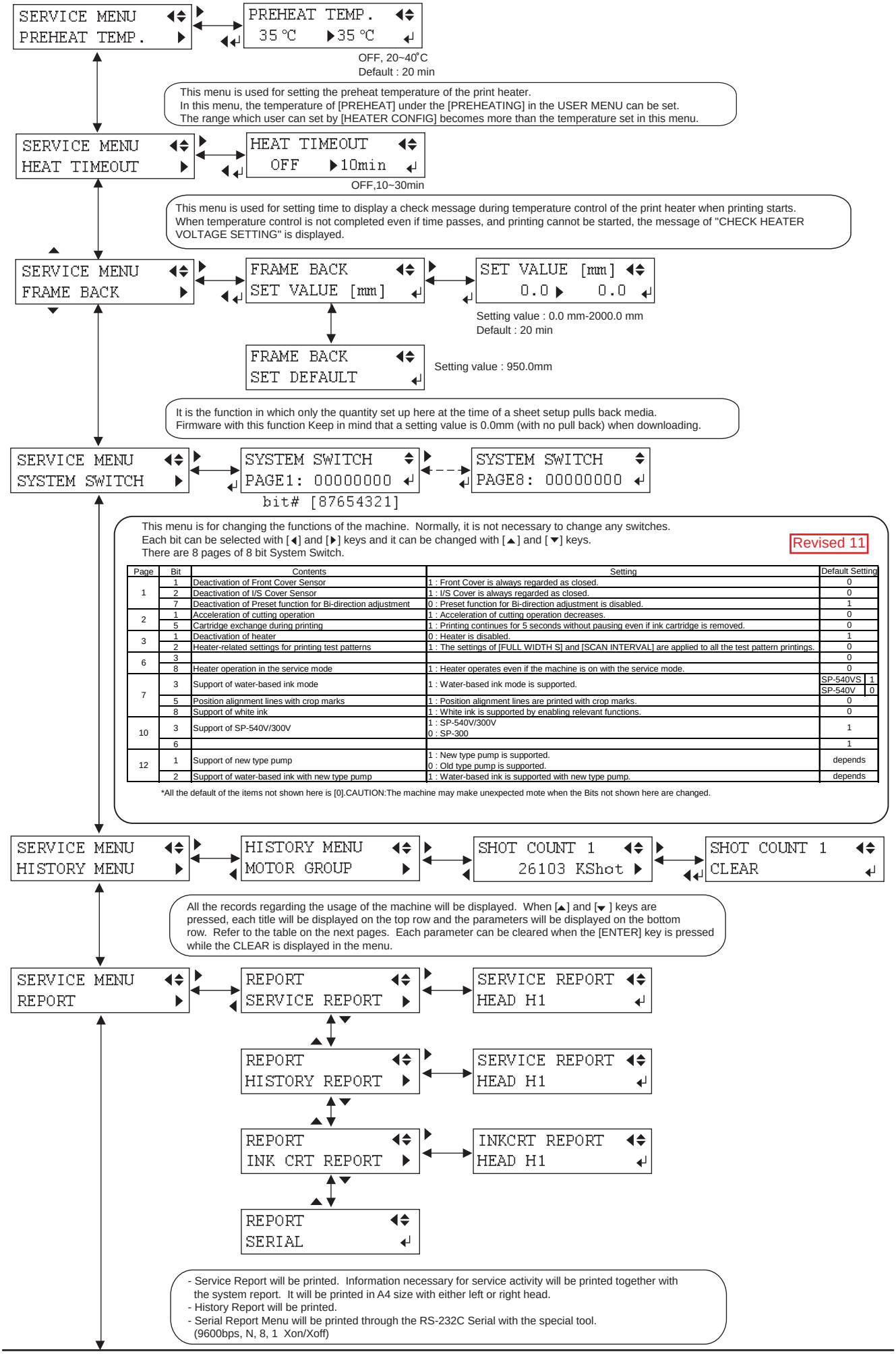

At the time of a normal end
(one beep)
PINCH ADJUST
SETUP COMPLETE
PINCH ADJUST
1.150 mm
A compensation value is displayed.
* When the pinch roll is not downed, display.
(Three beeps) It continues by pinch roll down.
SERVICE MENU
PINCH ADJUST
LOWER PINCHIROLL
* When the pinch roll is downed, display.
NOW PROCESSING..
At the time of an error
(three beeps)
PINCH ADJUST
FAILED !!
Error compensation of the pinch roller position is performed. An error message is displayed when there is an error more than 5 mm.
[Operation Procedure]
1. Slide the right Pinch Roller to the right end, and lower the pinch roll lever.
2. Select the [PINCH ADJUST] menu in the [SERVICE MENU] and press the [ENTER] key to perform.
3. A cutting carriage moves and the position of a right pinch roller is detected.
4. When it is complete, [SETUP COMPLEATED] is displayed.
* A compensation value is described in a service report.
SERVICE MENU
CAP ADJUST
CAP ADJUST
ADJUST POD.
ADJUST POD.
0.00 -2.00
Use with [▲] and [▼] keys to change the cap adjustment value.
The setting range is from -2.00 to +2.00. It can be adjusted in 0.25 mm unit. The default value is 0.00.
The cap can only be moved in the upward direction in 0.25 mm unit. When you move in the downward direction, press [▼] key to move the cap to the lower end once and then move in the upward direction in 0.25 mm unit.
CAP ADJUST
CHECK GAP
CHECK GAP
0.00
To adjust the cap adjustment value and check the height of the cap, refer to the instruction of the [CAP HEIGHT ADJUSTMENT].
SERVICE MENU
CROPMARK SENS
CROPMARK SENS
OUTLEVEL CHECK
MIN 0.7V MAX 2.3V
[2.0V]
This menu is for checking output level of cropmark sensor.
Refer to [Cropmark sensor adjustment].
CROPMARK SENS
ADJUST
ADJUST
+2 +1
0 ~ +2 Default : 0
This menu is for adjusting output level of cropmark sensor.
There are three levels, 0, +1, and +2, in a setting value.
When detection of CROP MARK does not work with an default value, detection of CROP MARK may succeed by adjusting this value.
SERVICE MENU
FORCE ADJUST
FORCE ADJUST
30gf
30gf
17 16
0~ 30 Default : 17
FORCE ADJUST
200gf
200gf
56 57
31~ 80 Default : 56
This menu is for adjusting the Tool Pressure.
Refer to [TOOL PRESSURE ADJUSTMENT].


SERVICE MENU
HEAD ADJUST
HEAD ADJUST
BIAS
BIAS
TEST PRINT
BIAS
--- VIEW ---
HEAD ADJUST
VERTICAL
VERTICAL
TEST PRINT
VERTICAL
--- VIEW ---
HEAD ADJUST
HORIZONTAL
HORIZONTAL
TEST PRINT
Change parameter with key
HORIZONTAL
DT1 LOW
H2
2
-30~30(0.5unit)
HORIZONTAL
DT3 LOW
H2
2
HORIZONTAL
DT1 HIGH
H2
2
HORIZONTAL
DT3 HIGH
H2
2
HEAD ADJUST
BI-DIR.DEFAULT
BI-DIR.DEFAULT
TEST PRINT
Change parameter with key
BI-DIR.DEFAULT
DT1 LOW
H1 H2
7 10
0~60(0.5unit)
BI-DIR.DEFAULT
DT3 LOW
H1 H2
7 10
Change parameter with key
BI-DIR.DEFAULT
DT1 HIGH
H1 H2
7 10
0~60(0.5unit)
BI-DIR.DEFAULT
DT3 HIGH
H1 H2
7 10
The standard head of adjustment is changed. A default is 1.
HEAD ADJUST
STANDARD HEAD
STANDARD HEAD
1 1
This menu is used for adjusting the head alignment.
Refer to [HEAD ALIGNMENT].


SERVICE MENU
SERVO LOCK
SERVO LOCK
S: 100
SERVO LOCK
S:* 0
SERVO LOCK
F: 0
SERVO LOCK
F:* 0
This menu is used for checking whether the Servo Motor can perform the Servo Lock.
This menu makes the Servo free.
The value on the LCD changes depending on the head position when you move the carriage left and right by hand, if the motor feeds back right. When the [ENTER] key is pressed, the Servo Motor will be excited.
SERVICE MENU
DISP SCAN POS
M: 1000.123 mm
L: 998.222 mm
This menu is used for displaying the position of the cutting and printing carriage. The carriage becomes free in this menu and is able to be moved. The position of the carriage is displayed on real time. The value next to "M:" shows you the motor position and the value next to "L:" shows you the carriage position. The position can be re-set by pressing the [ENTER] key and press [◀] to exit the menu.
SERVICE MENU
AGING
AGING
SCAN
SCAN
NOW AGING
AGING
FEED
FEED
NOW AGING
AGING
BOTH
BOTH
NOW AGING
AGING
CUTTING
CUTTING
NOW AGING
AGING
CONNECT
CONNECT
NOW AGING
When the [ENTER] key is pressed, the HEAD CARRIAGE stops Aging and moves back to the locking position.
Make sure not to perform Aging for a long time when the machine is filled with ink to prevent the ink from drying up.
SERVICE MENU
CALIB.DEFAULT
CALIB.DEFAULT
TEST PRINT
Distance compensation in feed direction
Prameter is changed by the ▲▼ key
Setting range is from -2.0 to +2.0% in 0.02% unit
CALIB.DEFAULT
SETTING
SETTING
+0.06% ▶+0.10%
This menu is used for Calibration. Refer to [CALIBRATION].
SERVICE MENU
CROP-TOOL ADJ.
CROP-TOOl ADJ.
TEST PRINT
CROP-TOOL ADJ.
FEED SETTING
FEED SETTING
-0.15mm ▶-0.23mm
CROP-TOOL ADJ.
SCAN SETTING
SCAN SETTING
-0.40mm ▶-0.40mm
CROP-TOOL ADJ.
AUTO
CROP-TOOL ADJ.
REMOVE CROPMARK
CROP-TOOL ADJ.
TEST PRINT 2
CROP-TOOL ADJ.
COMPLETED
This menu is used for adjusting the position of Tool/Crop Mark Sensor.
Refer to [Tool/Crop Mark Sensor Position Adjustment].


SERVICE MENU
PRINT&CUT ADJ.
PRINT&CUT ADJ.
TEST PRINT
PRINT&CUT ADJ.
FEED SETTING
FEED SETTING
-0.15mm ▶ -0.23mm
PRINT&CUT ADJ.
SCAN SETTING
SCAN SETTING
-0.40mm ▶ -0.40mm
PRINT&CUT ADJ.
AUTO
PRINT&CUT ADJ.
COMPLETED
PRINT&CUT ADJ.
TEST PRINT 2
To change the parameter, press [ENTER].
PRINT&CUT ADJ.
SETTING2
F: 0.40 ----
S:-0.50 ----
(-5.00~+5.00) Change in 0.01mm unit. Press [ENTER] to excute.
Press [MENU] key
This menu is used for Print/Cut position Adjustment.
Refer to [Print/Cut Position Adjustment].
SERVICE MENU
TEST PATTERN
TEST PATTERN
HORIZONTAL
It is for checking the Head Alignment in Horizontal.
TEST PATTERN
BI-DIR.
It is for checking the Head Alignment in Bidirection.
TEST PATTERN
FILL
100% fill pattern of all heads will be printed.
Printing is done by 720 x 720dpi / 16 pass.
TEST PATTERN
BI-DIR.CHECK
It is for checking the shifting with Bidirection printing.
It will be printed in a whole width of the media.
SERVICE MENU
CLOCK CHECK
CLOCK CHECK
0y000d00h00m00s
CLOCK CHECK B
0y000d00h00m00s
CLOCK CHECK
CLEAR BAT FLAG
This menu is used for checking the REAL TIME CLOCK. Time being passed after the clock has started to work will be displayed. (Year / Day / Hour / Minute / Second) When battery is run out, [B] will be displayed at the upper right corner of the LCD. In this case, battery has to be replaced. However, the flag won't be cleared even if battery is replaced.
Make sure to clear the flag by entering the Battery Flag Clear Menu and then pressing the [ENTER] key.
SERVICE MENU
DIP SW CHECK
DIP SW CHECK
0000 0000
bit # [1 2 3 4 5 6 7 8]
This menu is used for checking the DIP SW on the MAIN BOARD. Status of bit#1 ~ #8 of the DIP SW will be displayed as 0 for OFF and 1 for ON.
SERVICE MENU
PUMP CHECK
PUMP CHECK
PUMP SUCTION
NOW PROCESSING..
PUMP CHECK
PUMP RELEASE
NOW PROCESSING..
This menu is used for checking the Pump Motor. Rotation for Ink Suction Direction and Ink Drain Direction can be checked. Rotation check will stop after 5 seconds.


SERVICE MENU
WIPER CHECK
NOW PROCESSING..
Finished
WIPER CHECK
FAILED !!
error (beep 2 times)
This menu is used for checking the Wiper movement. It moves the wiper back and forth 20 times after moving aside the Tool carriage. If the machine detects the motor loses steps, an error message appears. But the machine sometimes can't detect it. It is necessary that the technician himself/herself checks the wiper motor doesn't lose steps by seeing the movement and hearing the sound.
SERVICE MENU
CHANGE INKTYPE
CHANGE INKTYPE
e SOL4 e SOL4
It is used for changing the Ink type compulsorily. Head Cleaning or Ink Fill won't be performed as in the User's Mode. It is used for correcting the Ink type in case it is set to a wrong type by mistake.
INK TYPE PIG 4 Pigment
DYE 4 Dye
e SOL4 (ECO-SOL)
e SOLW4 (ECO-SOL)*1
SUBL.4 *2
UNKNOWN Not being selected
*1 It is displayed when white ink is used.
*2 It is displayed when sublimation ink is used.
SERVICE MENU
CAP&WIPER CTRL
CAP&WIPER CTRL
CAP
CAP
OPEN
CAP
UP
CAP&WIPER CTRL
WIPER
WIPER
FRONT
WIPER
REAR
It is used for moving up / down the cap.
OPEN / UP
Make sure not to open the cap for a long time in order to prevent the ink from drying up.
It is used for moving the wiper back and forth.
It can be moved at two-level [FRONT / REAR].
** Please make sure the position of the Cap and Wiper when you move the Carriage by hand.
Please make sure the position of the Carriage (especially Heads) when you move the Cap and Wiper by hand.
SERVICE MENU
PORT CHECK
DETECTING...
00: 0B
Waiting for Data Input
NETWORK
5A: 1024B
Data Input from the Eithernet
This menu is used for checking the Data Input from the Eithernet.
The Check Sum and the size of the input data will be displayed on the bottom row.
Check Sum will be indicated on the left side and the size of the input data will be indicated on the right side. The Check Sum and the size of the input data will be cleared when pressing the [ENTER] key.
SERVICE MENU
TIME OUT
TIME OUT
10 sec 10 sec
This menu is used for setting the Time Out.
If the data transmission from the host stops for a set time, the machine recognizes that 1 printing has been done. Default : NONE
SERVICE MENU
MAINTE. MSG.
MAINTE. MSG.
NONE 100 hours
This menu is used for setting the Maintenance time.
If the printing time reaches the set time, the Maintenance message appears.
SERVICE MENU
HEATER ADJUST
HEATER ADJUST
PRINT HEATER
PRINT HEATER
0 -3
-5~+5
HEATER ADJUST
DRYER
DRYER
0 -3
-5~+5
This menu is used for setting the offset value of print heater and dryer.
The heater is controlled based on the offset temperature.



Page	Bit	Contents	Setting	Default Setting
1	1	Deactivation of Front Cover Sensor	1 : Front Cover is always regarded as closed.	0
	2	Deactivation of I/S Cover Sensor	1 : I/S Cover is always regarded as closed.	0
	7	Deactivation of Preset function for Bi-direction adjustment	0 : Preset function for Bi-direction adjustment is disabled.	1
2	1	Acceleration of cutting operation	1 : Acceleration of cutting operation decreases.	0
	5	Cartridge exchange during printing	1 : Printing continues for 5 seconds without pausing even if ink cartridge is removed.	0
3	1	Deactivation of heater	0 : Heater is disabled.	1
	2	Heater-related settings for printing test patterns	1 : The settings of [FULL WIDTH S] and [SCAN INTERVAL] are applied to all the test pattern printings.	0
6	3			0
	8	Heater operation in the service mode	1 : Heater operates even if the machine is on with the service mode.	0
7	3	Support of water-based ink mode	1 : Water-based ink mode is supported.	SP-540VS 1 SP-540V 0
	5	Position alignment lines with crop marks	1 : Position alignment lines are printed with crop marks.	0
	8	Support of white ink	1 : White ink is supported by enabling relevant functions.	0
10	3	Support of SP-540V/300V	1 : SP-540V/300V 0 : SP-300	1
	6			1
12	1	Support of new type pump	1 : New type pump is supported. 0 : Old type pump is supported.	depends
	2	Support of water-based ink with new type pump	1 : Water-based ink is supported with new type pump.	depends

*All the default of the items not shown here is [0].CAUTION:The machine may make unexpected mote when the Bits not shown here are changed.

Contents of History Report

MOTOR GROUP

Item	Contents	Unit	Reference
MOTOR HOURS F	Total time that the Feed Motor has been rotated.	hour	
MOTOR HOURS S	Total time that the Scan Motor has been rotated.	hour	Life : 2000 hours
PUMP TIMES	Total time that the Pump Motor has been rotated.	times	Life : 50000 hours
CLEAR ALL	Clear all the values in the Motor Group.		

HEAD GROUP

Item	Contents	Unit	Reference
SHOT COUNT 1	Number of shots fired from the nozzle (H1 left).	Shots/1000	Life : 6 billion Shots / nozzle
SHOT COUNT 2	Number of shots fired from the nozzle (H1 right).	Shots/1000	Life : 6 billion Shots / nozzle
SHOT COUNT 3	Number of shots fired from the nozzle (H2 left).	Shots/1000	Life : 6 billion Shots / nozzle
SHOT COUNT 4	Number of shots fired from the nozzle (H2 right).	Shots/1000	Life : 6 billion Shots / nozzle
WIPE H1	Number of times the Wiping has been performed (H1).	times	Nozzle surface reliability
WIPE H2	Number of times the Wiping has been performed (H2).	times	Nozzle surface reliability
RUB H1	Number of times the Rubbing has been performed (H1).	times	Nozzle surface reliability
RUB H2	Number of times the Rubbing has been performed (H2).	times	Nozzle surface reliability
CLEAN AUTO H1	Number of times the Auto Head Cleaning has been performed (H1).	times	
CLEAN AUTO H2	Number of times the Auto Head Cleaning has been performed (H2).	times	
CLEAN N, H1	Number of times the Normal Head Cleaning has been performed (H1).	times	
CLEAN N, H2	Number of times the Normal Head Cleaning has been performed (H2).	times	
CLEAN M, H1	Number of times the Medium Head Cleaning has been performed (H1).	times	
CLEAN M, H2	Number of times the Medium Head Cleaning has been performed (H2).	times	
CLEAN POW, H1	Number of times the Powerful Head Cleaning has been performed (H1).	times	
CLEAN POW, H2	Number of times the Powerful Head Cleaning has been performed (H2).	times	
FILL INK H1	Number of times the Fill Ink has been performed (H1).	times	
FILL INK H2	Number of times the Fill Ink has been performed (H2).	times	
HEAD WASH H1	Number of times the Head Wash has been performed (H1).	times	
HEAD WASH H2	Number of times the Head Wash has been performed (H2).	times	
PUMP UP H1	Number of times the Pump Up has been performed (H1).	times	
PUMP UP H2	Number of times the Pump Up has been performed (H2).	times	
CLEAR H1	Clear all the values of the H1.		
CLEAR H2	Clear all the values of the H2.		
CLEAR ALL	Clear all the values of all the Head.		

MAINTENANCE GROUP

Item	Contents	Unit	Reference
COUNT	Number of times the Head Maintenance has been performed.	times	
TOTAL TIME	Lapsed time from the last Head Maintenance.	hours	This value is cleared automatically after the Head Maintenance.
PRINTING TIME	Printing time from the last Head Maintenance.	hours	This value is cleared automatically after the Head Maintenance.
SPONGE HOURS	The actual time the machine performs printing.	hours	This value is cleared by pressing the ENTER key after LCD displays [TIME FOR SPONGE REPLACE] or selecting [CLEAR] in [SPONGE HOURS] in [MAINTE. GROUP].
CLEAR ALL	Clear all the values in the MAINTENANCE GROUP.		

WIPE GROUP

Item	Contents	Unit	Reference
WIPING COUNT	Number of times the Wiping has been performed.	times	This value is cleared automatically after replacement.
RUBBING COUNT	Number of times the Rubbing has been performed.	times	This value is cleared automatically after replacement.
WIPE REPLACE	Number of times the Wipe has been replaced.	times	
CLEAR ALL	Clear all the value in the WIPE GROUP.		

PRINT GROUP

Item	Contents	Unit	Reference
PRINTING TIME	Total time of printing performed.	hours	Time of the Test print is not included.
PIGMENT PAGES	Number of pages printed with Pigment Ink.	pages	Counted with 1 page until it carries out printing end operation after starting printing.
DYE PAGES	Number of pages printed with Dye Based Ink.	pages	Counted with 2 page until it carries out printing end operation after starting printing.
ECO-SOL PAGES	Number of pages printed with ECO-Sol Ink.	pages	Counted with 3 page until it carries out printing end operation after starting printing.
SUBL. PAGES	Number of pages printed with Sublimation Ink	pages	Counted with 4 page until it carries out printing end operation after starting printing.
HEAD LOW	Number of pages printed with head low	pages	
HEAD HIGH	Number of pages printed with head high	pages	
CLEAR ALL	Clear all the values in the PRINT GROUP.		

CUTTING GROUP

Item	Contents	Unit	Reference
CUTTING TIME	Total time of cutting performed	hours	Time of the test print is not included.
DISCONNECT	Number of times the cutting carriage is disconnected from printing carriage.	times	
CLEAR ALL	Clear all the values in the CUTTING GROUP.		

INK GROUP

Item	Contents	Unit	Reference
CARTRIDGE 1	Number of times the Ink Cartridge 1 has been changed.	times	
CARTRIDGE 2	Number of times the Ink Cartridge 2 has been changed.	times	
CARTRIDGE 3	Number of times the Ink Cartridge 3 has been changed.	times	
CARTRIDGE 4	Number of times the Ink Cartridge 4 has been changed.	times	
CHANGE INK	Number of times the Ink Type has been changed.	times	
CLEAR ALL	Clear all the values in the INK GROUP.		

HEATER GROUP

Item	Contents	Unit	Reference
PRINT USE TIME	Total hours the print heater has been used.	hours	
PRINT ON TIME	Total hours the print heater has been on.	hours	
PRINT ON COUNT	Total hours the print heater has been powered on.	times	
DRYER USE TIME	Total hours the dryer has been used.	hours	
DRYER ON TIME	Total hours the dryer has been on.	hours	
DRYER ON COUNT	Total hours the dryer has been powered on.	times	
CLEAR ALL	Clear all the values in the HEATER GROUP.		

ERROR GROUP

Item	Contents	Unit	Reference
SERVICE CALL	Number of times the Service Call has occurred.	times	
S-CALL HISTORY	Service Call Number in the last 5 times.	No.	
MOTOR ERROR F	Number of times the Servo Error (Feed Motor) has occurred.	times	
MOTOR ERROR S	Number of times the Servo Error (Scan Motor) has occurred.	times	
LOW TEMP.ERR.	Number of times the Low Temperature Error has occurred.	times	
HIGH TEMP.ERR.	Number of times the High Temperature Error has occurred.	times	
PROTECT PUMP	Number of times the Protect Pump Error has occurred.	times	
EMERG. CAPPING	Number of times the Emergency Capping Error has occurred.	times	Number of times it is capped compulsorily to protect the head from drying up when the head is out of the cap more than 10 min..
START UNCAPPED	Number of times the machine starts with the uncapped.	times	
HEATER VOLTAGE	Number of times the Heater Voltage Error has occurred.	times	
I/C IC ERR	Number of times the ink cartridge IC system is unusual.	times	Number of times disconnection, or an error occurs when an ink cartridge IC system causes abnormalities and it becomes impossible to read information from
CLEAR ALL	Clear all the values in the ERROR GROUP.		

SYSTEM GROUP

Item	Contents	Unit	Reference
POWER ON COUNT	Number of times being powered on.	times	
POWER ON TIME	Total times that the machine has been on.	hours	Sleep time is not included.
SLEEP TIME	Total times that the machine has been in sleep mode.	hours	
SHEETCUT COUNT	Number of times the Sheet Cut has been performed,	times	It counts Auto Sheet Cut performed both by command and panel.
CLEAR ALL	Clear all the values in the SYSTEM GROUP.		

Service Report

Roland Versa CAMM

Model	: SP-540V	Ink remain(1-4)	: 99/95/93/94
Version	: 4.00	Head Temperature	: 29 ˚C / 84.2 ˚F
Serial No.	: XX00002	Heater temp.(Print)	: 37 ˚C / 98 ˚F
Ink type	: ECO-SOL 4Color	Heater temp.(Dryer)	: 41 ˚C / 104 ˚F
Edge detection	: ENABLE	Length unit	:mm
Empty mode	: Stop	Temperature unit	:˚C
Calibration	: 0.00%	Menu language	: English
Media clamp	: SHORT	Sleep	: ENABLE
Full width scanning	: DISABLE	Sleep interval	: 30 min
Sheet remain	: 28.5m	Head height	: HIGH
Sheet remain at loading	: ENABLE	Scan interval	: 0.0 sec.
		Vacuum power	: AUTO
	: H1 H2	Heater setting(Print)	: 37 ˚C / 98 ˚ F
Bi-dir. adjust No.1	: 0 0	Heater setting(Dryer)	: 40 ˚C / 104 ˚ F
No.2	: 0 0	Preheating	: MENU
No.3	: -2 -2	Feed for Dry	: DISABLE
No.4	: -2 -2		
Tool Parameter			
Force	: 105 gf	Cutting calib. (F/S)	:0.00/ 0.00%
Velocity	: 25 cm/s	Print-cut adjust (F/S)	:0.00/ 0.00mm
Offset	: 0.250 mm	Cutting priority	: COMMAND
Up Velocity	: 30cm/s	Prefeed	: DISABLE

Service Report

Head rank H1	: 7CV3738UTVYWXSU . . . . . 40W. . D		
H2	: 7FU3939RUSYXWSV . . . . . 30E. . D		
Dip SW	: 00100000		
System SW page1-4	: 01000000 00000000 01100001 00000000		
page5-8	: 00000000 00000100 00000000 00000000		
page9-12	: 00000000 00000100 00000000 00000000		
	: H1 H2		
Head hori.(DT1.Low)	: +6	Maintenance request	: NONE
(DT3.Low)	: +7	Booter version	: 1.03
(DT1.High)	: +7	Battery	: Charged
(DT3.High)	: +8	Cap adjust	: 0.00 mm
Head bi. (DT1.Low)	: +18 +19	Heater adjust (Print)	: 0˚C
(DT3.Low)	: +16 +17	Heater adjust (Dryer)	: 0˚C
(DT1.High)	: +26 +27	Preheat temperature	: 35˚C
(DT3.High)	: +24 +25	Heating timeout	: 20 min
Limit position	: 20.8 mm	Force adjust 30gf	: 10
Cutter Down Position	: 1828.2 mm	Force adjust 200gf	: 51
Calibration default	: 0.00 %	Crop-tool adjust (F/S)	: - 0.50/ -0.20 mm
Encorder position (L)	: 1575.0 mm	Print-cut adjust (F/S)	: +0.11/ -0.60 mm
Encorder position (R)	: 203.4 mm	Pinch Adjust	: 1.55 mm
		Crop sensor adjust	: 0
Environment match	: +0.181%	Timeout	: NONE
Encoder calibration	: +0.181%		

HISTORY REPORT

History Report

Model : SP-540V
Version : 4.00 Serial No. : XX00002

= = = = Motor group = = = =

Motor hours (feed)	:	0 hours
Motor hours (scan)	:	11 hours
Pump times	:	2,425 times

= = = = Head group = = = =

Shot count H1 (1, 2)	:	4,613	9,042 K	shot / nozzle
H2 (3, 4)	:	11,894	7,711 K	shot / nozzle

		H1	H2	
Wiping count for head	:	50	50	times
Rubbing count for head	:	0	0	times
Auto cleaning count	:	22	22	times
Normal cleaning count	:	4	4	times
Medium cleaning count	:	0	0	times
Powerful cleaning count	:	0	0	times
Fill ink count	:	0	0	times
Head wash count	:	0	0	times
Pump up count	:	0	0	times
Ink renewal (normal)	:	0	0	times
Ink renewal (full)	:	0	0	times

= = = = Ink group = = = =

Cartridge change (1-4)	:	0	0	0	0	times
Change ink type	:		0	times		
Renewal message (N/F)	:	0	0	times		
Renewal canceling (N/F)	:	0	0	times		

= = = = Error group = = = =

Service call count	:	8	times
Service call history	:	0104 0110 0110 0106 0110	
Motor error (feed)	:	0	times
Motor error (scan)	:	1	times
Low temperature error	:	0	times
High temperature error	:	0	times
Protecting pump error	:	0	times
Emergency capping	:	0	times
Start uncapped	:	5	times
Heater voltage error	:	0	times
Ink crt. system error	:	0	times

= = = = Heater group = = = =

Heater used time (P/D)	:	51	47 hours
Heater on time (P/D)	:	17	11 hours
Heater on count (P/D)	:	1,048	835 times

= = = = Maintenance group = = = =

Count	:	1	times
Total time	:	1,978	hours
Printing time	:	15	hours
Sponge hours	:	9	hours

= = = = Print group = = = =

Printing time	:	9	hours
Print pages by Pigment	:	0	pages
by Dye ink	:	0	pages
by ECO-SOL	:	108	pages
by Sublimation	:	0	pages
by Head height low	:	108	pages
by Head height high	:	0	pages

= = = = Wiper group = = = =

Wiping count	:	20	times
Rubbing count	:	0	times
Wiper replace count	:	1	times

= = = = System group = = = =

Power on count	:	168	times
Power on time	:	66	hours
Sleep time	:	391	hours
Sheet cut count	:	24	times

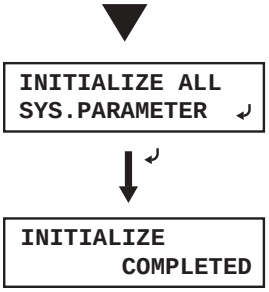
= = = = Cutting group = = = =

Cutting time	:	2	hours
Disconnect carr. count	:	178	times

Other Factory Mode

SYSTEM PARAMETER INITIALIZE

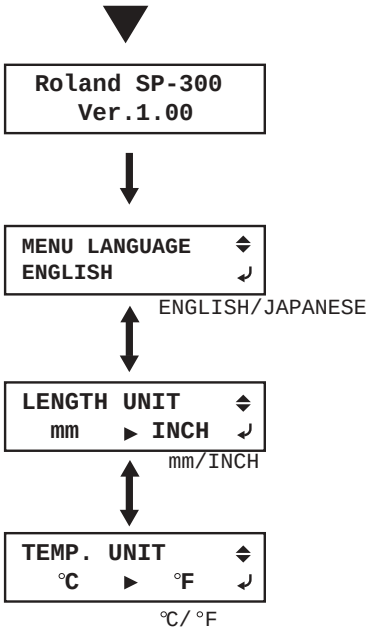
[▲] , [▼] , [ENTER] + POWER ON



The machine becomes on by turning the sub power switch while pressing [▲], [▼] and [ENTER] keys.
Initialize can be performed by pressing the [ENTER] key.
It can also be canceled by pressing the [POWER] key.
The power will be off automatically when initialize is completed.
It is necessary to do the LIMIT POSITION INITIALIZE after this operation.
The error message [SERVICE CALL 0101] will appear if you don't setup the LIMIT POSITION.

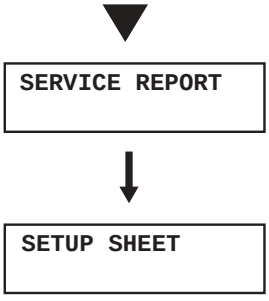
DISPLAYED LANGUAGE AND UNIT

[MENU] + POWER ON



SERVICE REPORT_PRINTING

[▼] + POWER ON



Turn on the sub power switch while pressing [▼] key.
Service Report can be printed on the A4 size media.
The printing will be performed in Black.

* Please print the [History Report] from the Service Mode.

Service Menu

Service Menu	Combination Key Selection	Comments
Service Mode	◀ ▼ ▶ + Sub Power	Press [Menu] and [▶] to enter Service Menu.
Upgrade F/W	◀ ▲ ▼ + Sub Power	[VERSION UP SURE?] will be displayed. Press [ENTER] to upgrade F/W.
Installing F/W	◀ ▲ ▼ + Main Power	Use this when the main board is replaced.
System Parameter Initialize	▲ ▼ ENTER + Sub Power	All parameters will be initialized. Press [ENTER] to start initialize.
Limit/Cut Down	◀ ▲ ▶ + Sub Power	Press [▲] while aligning Carriage to cap Heads. Press [ENTER] and set up Cut Down Pos. Press [ENTER].
History Report (REPORT)	Service menu → ▲ 1 time → REPORT → ▶ Select [HISTORY REPORT]	Select [HISTORY REPORT] and press [▶] and set up Cut Down Pos. Press [ENTER].
Service Report	▼ + Sub Power	Service Report (Adjustment value) will be printed.

Users Menu

Users Menu Item	Combination Key Selection	Comments
Language/Unit	Menu + Sub Power	Press [▲] / [▼] to select Language and Uint.
Manual Cleaning	Cleaning + Sub Power	Select [CLEANING] and press [ENTER]. Carriage moves to the middle of the left I/S cover.
Wiper Replace	Cleaning + Sub Power	Press [▼] one time and press [ENTER].

4-3 HOW TO UPGRADE FIRMWARE (Referential Time : 5min.)

1 Check the SP-540V's IP address.

It is necessary to prepare the followings to upgrade the FIRMWARE.

1. Firmware Disk
2. Windows PC (OS Windows2000/XP)
   * Network port is required.
3. Peck.exe
4. Network cable
   *A cross cable is required when you connect SP-540V to PC directly.

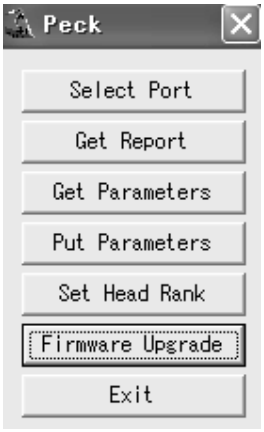
2 Confirm that main power of SP-540V is turned "on " and sub power of SP-540V is turned "off".

Double-click Peck.exe to start the Peck.

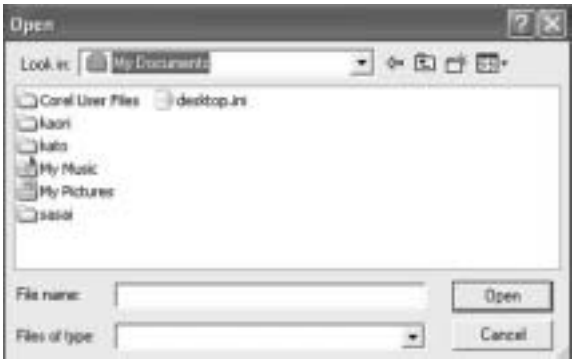
3 [Peck] screen is displayed.
Click [Select Port] button.

4 [Select Port] screen is displayed.
Confirm that [via Network] is checked.
Input the SP-540V's IP address.
Click [OK].

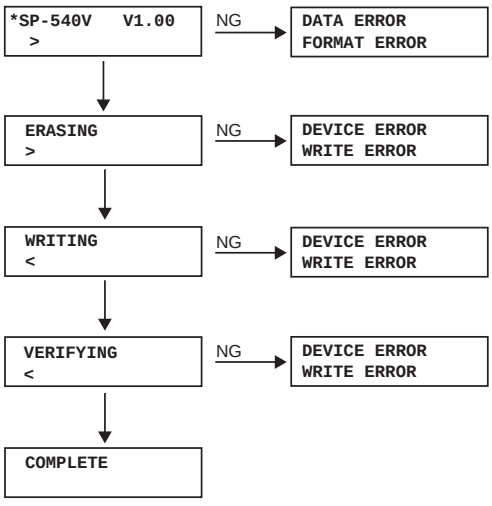
5 [Peck]screen is displayed again.
Click [Firmware Upgrade] button.



6 [Open] screen is displayed.
Select the firmware file, and click [Open].
Peck starts to send the firmware to the SP-540V.

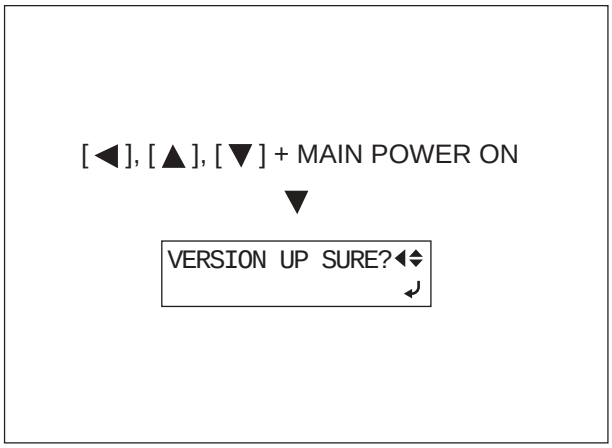


7 Machine goes into Firmware Upgrade mode automatically.
When upgrade is completed, sub power sw will be turned off automatically.



[F/W installation when the Main Board is replaced]

1 Make sure the MAIN POWER SW is OFF and then turn on the MAIN POWER SW again while pressing [◀], [▲] and [▼] keys.
Or since [SUM ERROR] is displayed when the MAIN POWER SW is turned on, [WAITING] is displayed on the LCD if the [ENTER] key is pressed at that time.



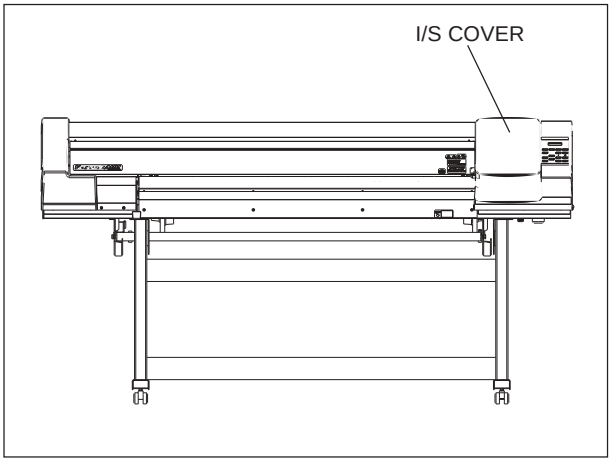
2 Press [ENTER] to excute the installation.

3 Send the firmware using the Peck.

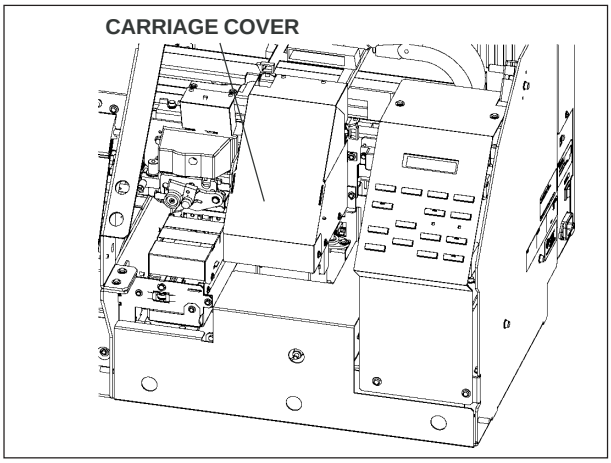
4-4 HEAD ALIGNMENT (Referential Time : 25 min._1 Head Alignment)

[About HEAD ALIGNMENT]
HEAD ALIGNMENT is necessary to obtain the good printing quality.
If the heads are not aligned, printing problems, such as banding, fine lines, gap between bands, could occur.

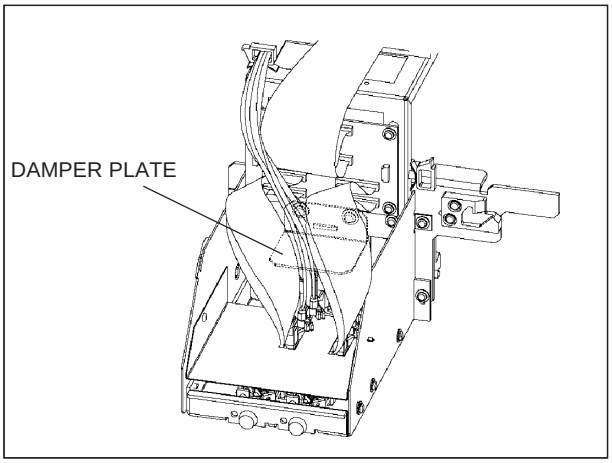
1 Remove the I/S COVER.



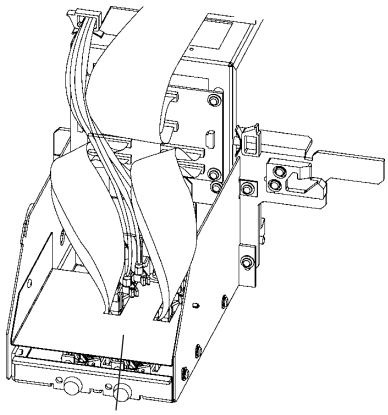
2 Remove the CARRIAGE COVER.



3 Remove the DAMPER PLATE.



4 Remove the HEAD BOARD COVER (Clear Cover).



5 Turn on the SUB POWER SW while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.
Setup the PET film on the machine.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

Menu	◀◆
SERVICE MENU	▶

[BIAS ADJUSTMENT]

6 Select the [BIAS] > [TEST PRINT] menu under the [HEAD ADJUST] menu and press the [ENTER] key.

SERVICE MENU	**◀◆**
HEAD ADJUST	**▶**

[▶]

HEAD ADJUST	**◀◆**
BIAS	**▶**

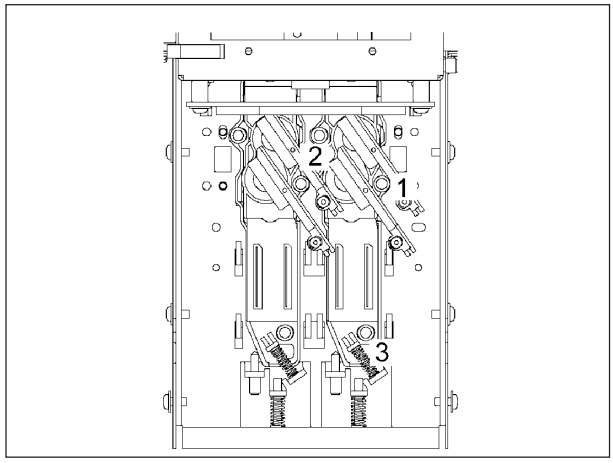
[▶]

BIAS	**◀◆**
TEST PRINT	**↵**

[↵]

7 TEST PATTERN shown in the right figure will be printed.

8 Loosen the 3 screws fixing the Head in order as shown in the figure.

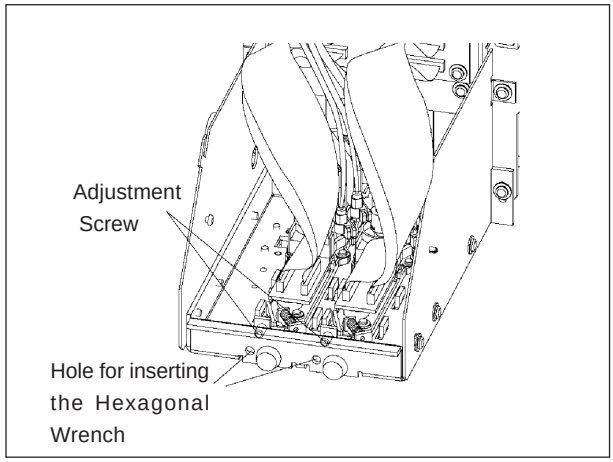


Loosen the screws fixing the Head for 1/2 turn. If the screws are loosened too much, adjustments could not be performed correctly.

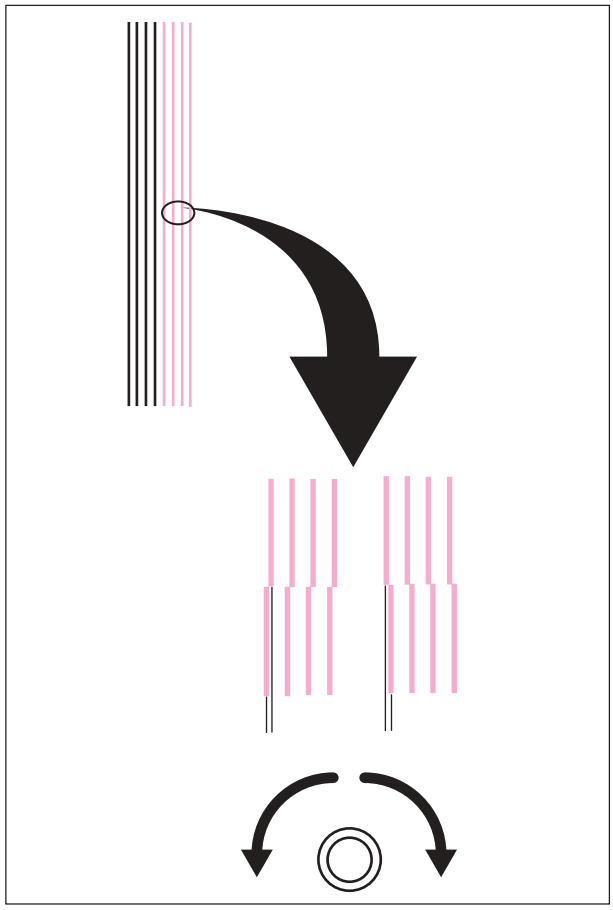
9 Insert the 1.5 mm Hexagonal Wrench to the hole of the HEAD CARRIAGE, then, turn the screw so that the lines of each color in the test pattern will be straight.

Reference

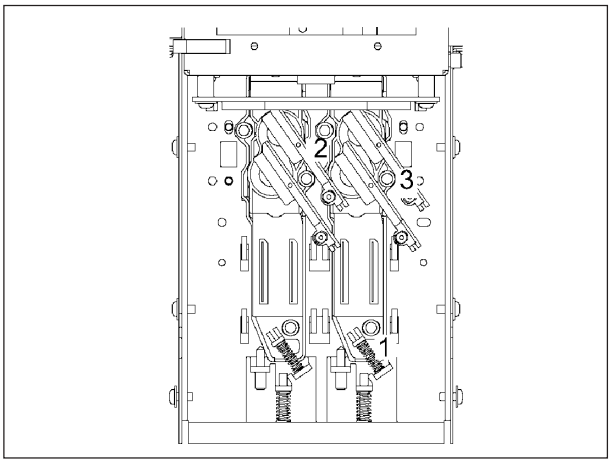
Position of the printing moves 1 line by turning the screw 3/4 turn.



- When the upper lines are the left side of the lower lines, turn the screw CW.
- When the upper lines are the right side of the lower lines, turn the screw CCW.



10 Tighten the screws fixing the Head in the reverse order when fixing with using the TORQUE DRIVER (ST-056).



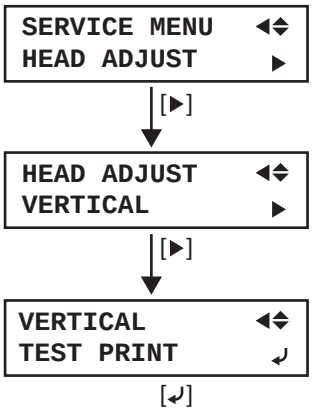
Torque for tightening is **2kgf • cm (20cNm)**.
Make sure not to tighten the screws too tightly.

11 Print the test pattern again.
If the result is NG, repeat 6 ~ 10 .

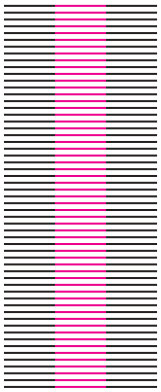
The shifting of lines should be within 1/2 dot.

[VERTICAL ADJUSTMENT]

12 Select the [VERTICAL] > [TEST PRINT] under the [HEAD ADJUST] menu and press the [ENTER] key.

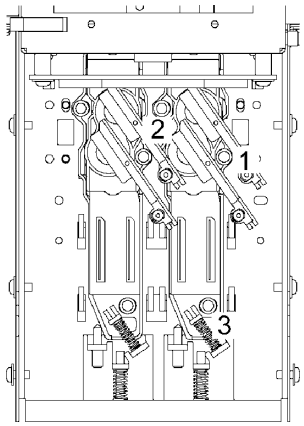


13 TEST PATTERN shown in the right figure will be printed.



14 Loosen the 3 screws fixing the Head in order as shown in the figure.

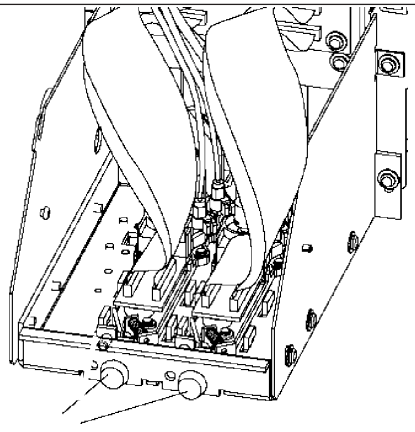
Loosen the screws fixing the Head for 1/2 turn. If the screws are loosened too much, adjustments could not be performed correctly.



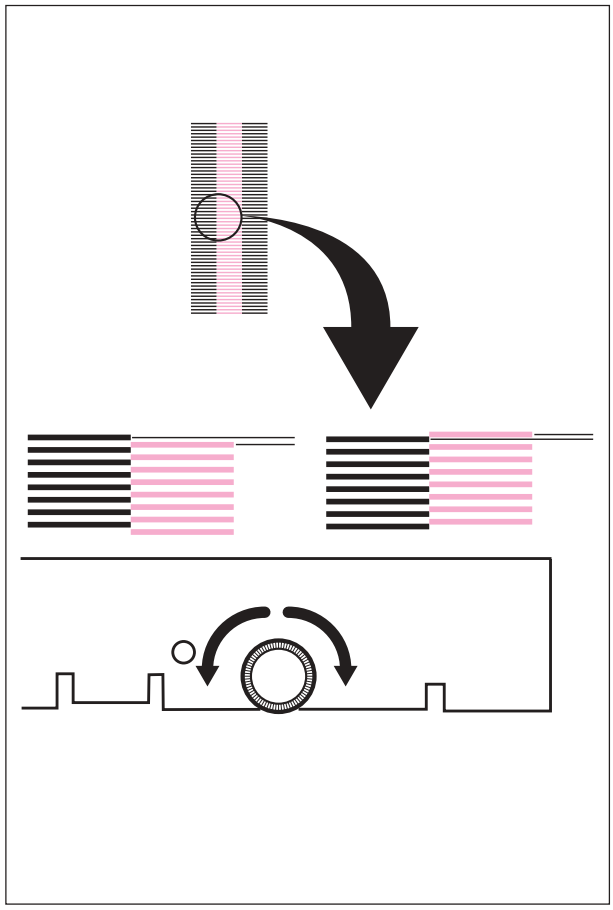
15 Turn the ADJUSTMENT SCREW so that the lines of each color in the test pattern will be straight.

Reference

Position of the printing moves 1 line by turning the screw 30 degrees.

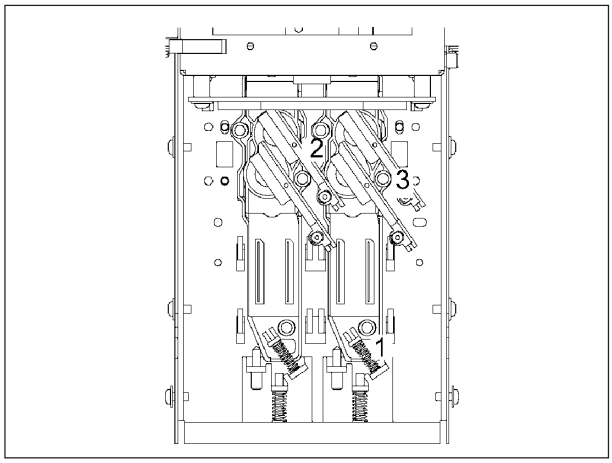


- When the M lines are above the K lines, turn the Adjustment Screw CW.
- When the M lines are below the K lines, turn the Adjustment Screw CCW.



Adjust the M/Y Head on the basis of the K/C Head.
It is not necessary to adjust the K/C Head.

16 Tighten the screws fixing the Head in the reverse order when fixing with using the TORQUE DRIVER (ST-056).



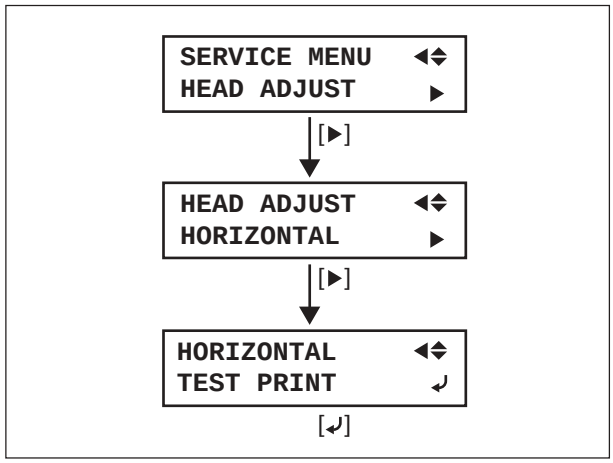
Torque for tightening is **2kgf • cm (20cNm)**.
Make sure not to tighten the screws firmly.

17 Print the test pattern again.
If the result is NG, repeat 12 ~ 16.

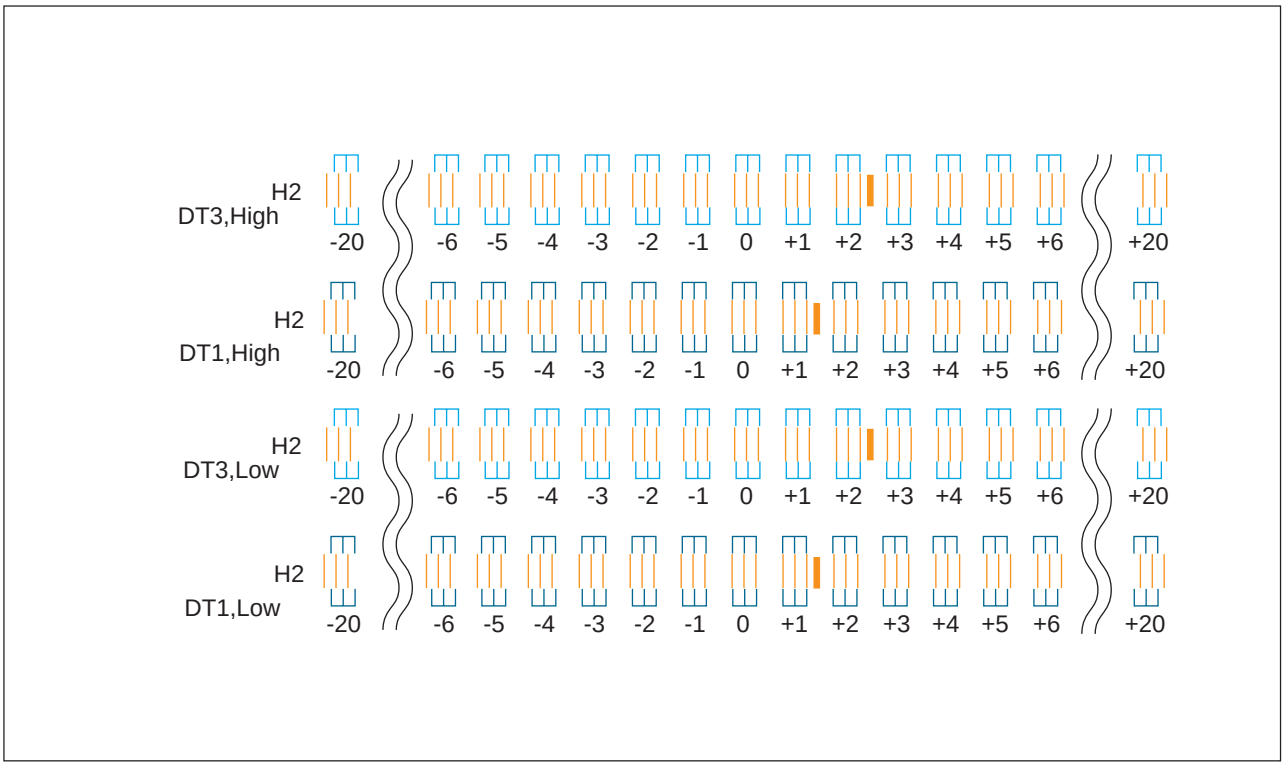
The shifting of lines should be within 1/2 dot.

[HORIZONTAL ADJUSTMENT]

18 Select the [HORIZONTAL] > [TEST PRINT] in the [HEAD ADJUST] menu and press the [ENTER] key.

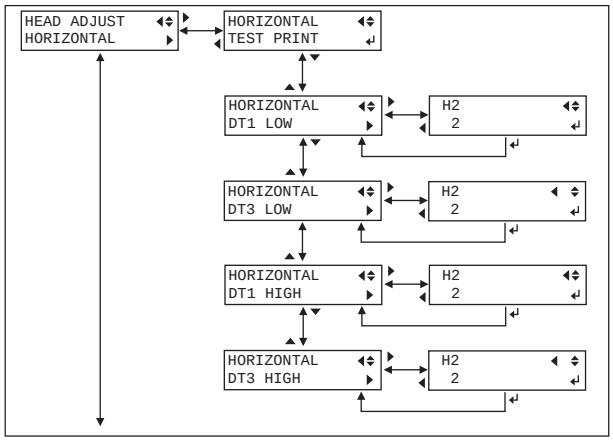


19 Following TEST PATTERN will be printed.
Find the position where the block of M and Y color matches that of the K and C color and check the number.
In case of having problem deciding the number, the number between the 2 numbers can be selected.
The number with ▮ is the current setting.



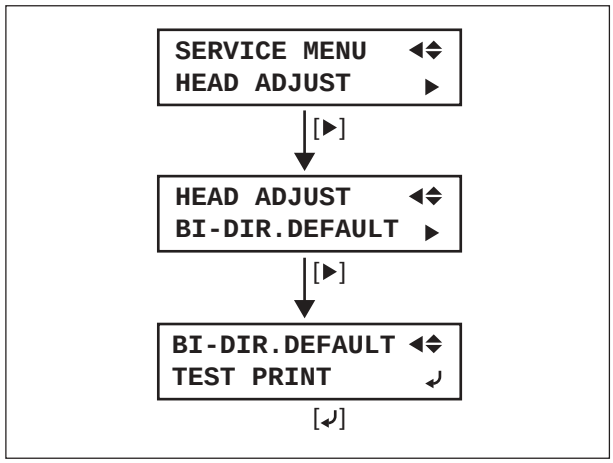
20 Select [DT1] and [DT3] in the [HORIZONTAL] menu and enter the parameters checked at 19 with [▲] and [▼] keys.
Press the [ENTER] key to save the settings.

Parameters can be entered with an increment of 0.5.

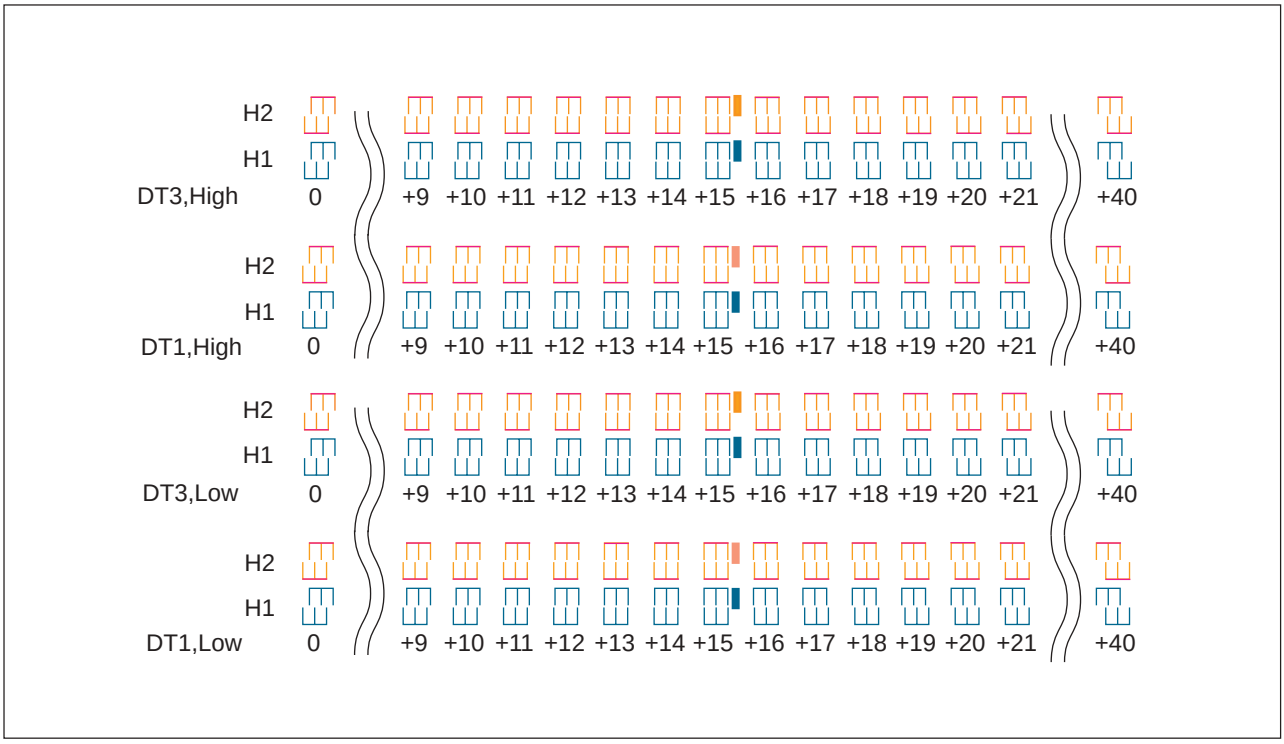


[BIDIRECTION ADJUSTMENT]

21 Select [BI-DIR.DEFAULT] > [TEST PRINT] in the [HEAD ADJUST] menu and press the [ENTER] key.

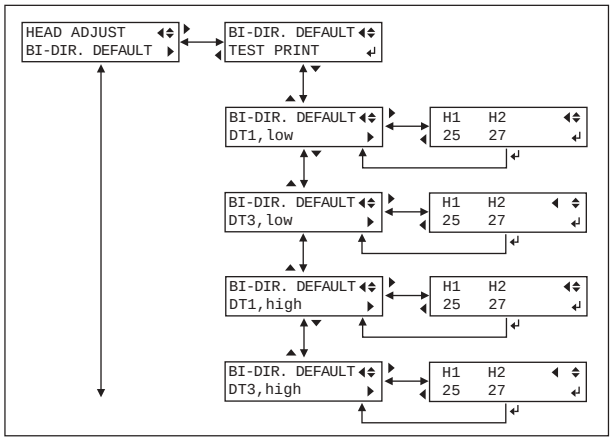


22 Following TEST PATTERN will be printed.
Find the position where the upper block matches the lower block and check the number.
In case of having problem deciding the number, the number between the 2 numbers can be selected.
The number with ▮ is the current setting.

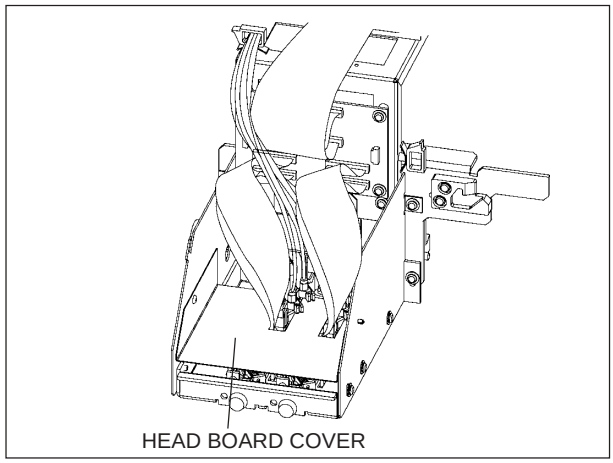


23 Select [DT1] and [DT3] and in the [BI-DIR. DEFAULT] menu and enter the parameters checked at 22 with [▲] and [▼] keys.
Press the [ENTER] key to save the settings.

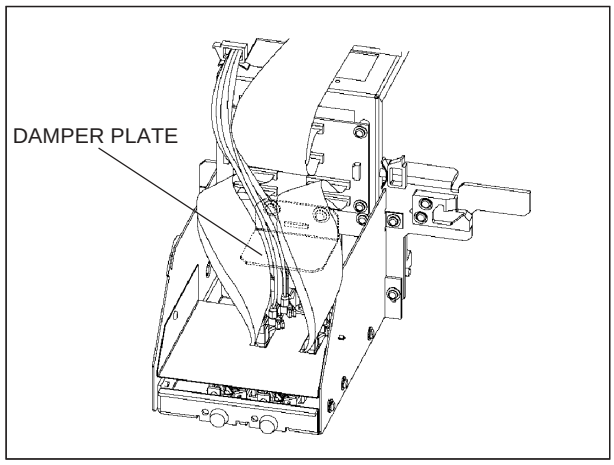
Parameters can be entered with an increment of 0.5.



24 Fix the HEAD BOARD COVER (Clear Cover).



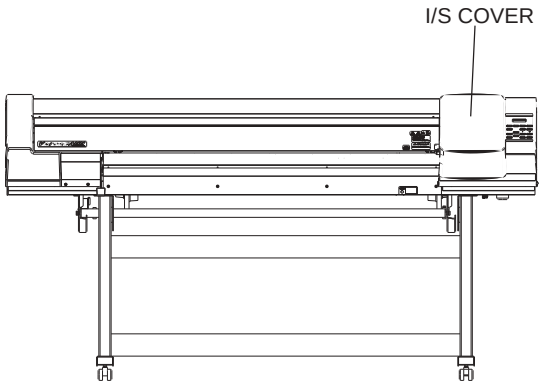
25 Fix the DAMPER PLATE.



4-5 LIMIT POSITION & CUT DOWN POSITION INITIALIZE (Referential Time : 10min.)

[About LIMIT POSITION & CUT DOWN POSITION INITIALIZE]
This is used to compensate the distance between the Capping position and the position where the Limit Sensor is detected. It also detects the distance between the cut down position to the Limit Sensor.

1 Remove the I/S COVER.



2 Turn on the SUB POWER SW while pressing [◀], [▲] and [▶] keys.

[◀] , [▲] , [▶] + POWER ON

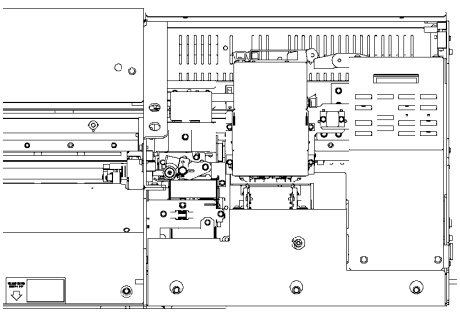
▼

LIMIT INITIALIZE
MENU

▼

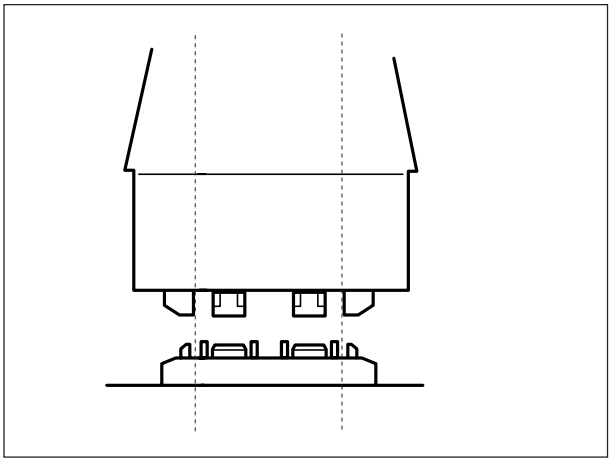
MOVE TO CAP POS ⬍
↵

3 Connect the Tool carriage and Head carriage.
Push the HEAD CARRIAGE leftward and check if it is locked.
If it is locked, proceed to the next step.
If it is not locked, move the HEAD CARRIAGE rightward until it will be locked.

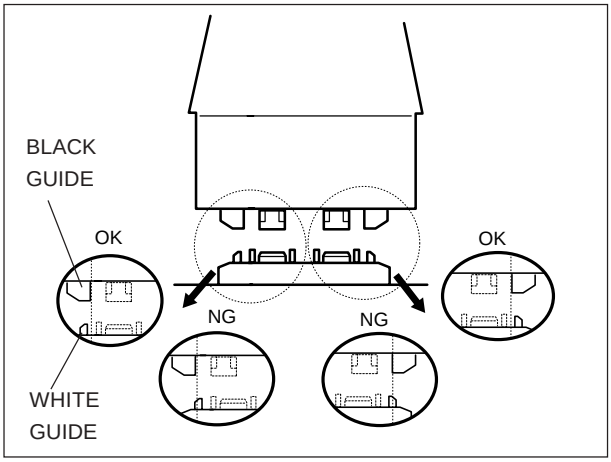


After the HEAD CARRIAGE is locked, push the Head Carriage to the left until it stops because there is a play with the HEAD CARRIAGE.

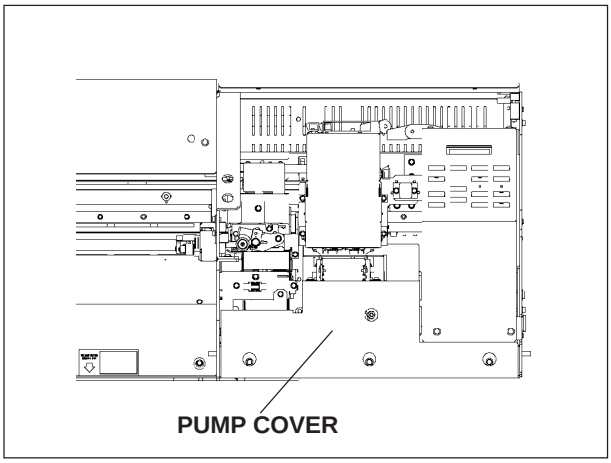
4 Cap the HEADs by moving the CAPPING UNIT with [▲] and [▼] keys.



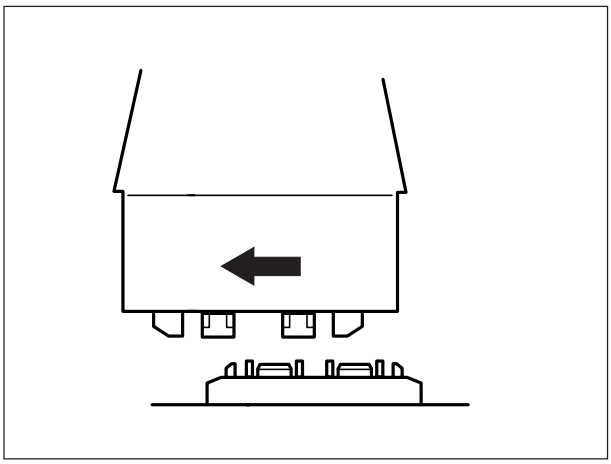
Make sure the HEADs are capped correctly.
If the WHITE GUIDEs of the CAPPING UNIT come inside from the BLACK GUIDEs of the HEAD CARRIAGE at either side, the capping position is not OK. Proceed to the next step.
If the capping position is OK, press [ENTER] and proceed to 12.



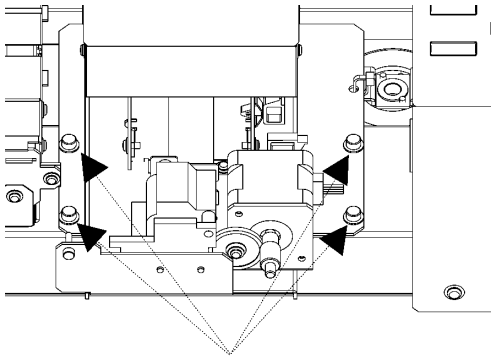
5 Remove the PUMP COVER.



6 Unlock the carriage, and move the carriage out of the CAPPING UNIT leftward by hand.



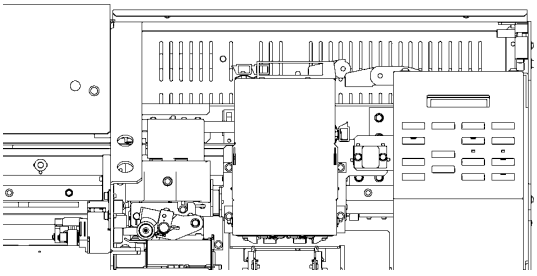
7 Loosen four screws for fixing the CAPPING UNIT.



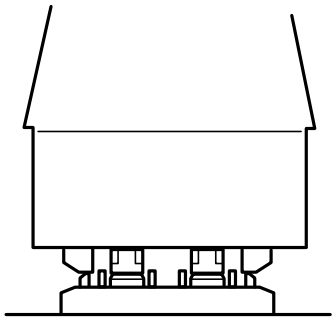
4 screws for fixing the CAPPING UNIT

8 Move the HEAD CARRIAGE to the lock position by hand.

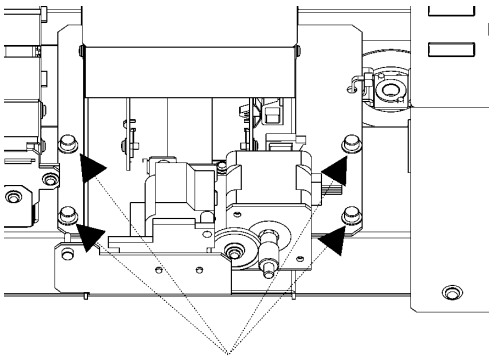
After the HEAD CARRIAGE is locked, push the Head Carriage to the left until it stops because there is a play with the HEAD CARRIAGE.



9 Adjust the position of CAPPING UNIT by moving it left and right by hand so that the caps come straight below the each head.
Move the CAPPING UNIT up and down with the cursor keys, and cap the heads at that position.

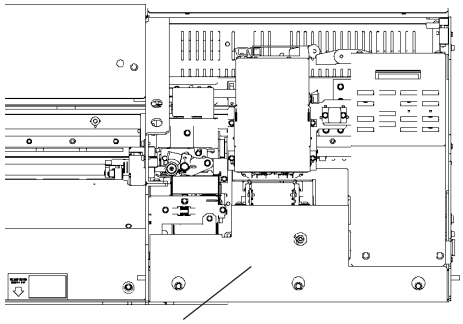


10 Fix the four screws for fixing the CAPPING UNIT at that position.
Press the [ENTER] key.

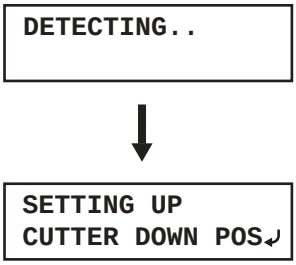


4 screws for fixing the CAPPING UNIT

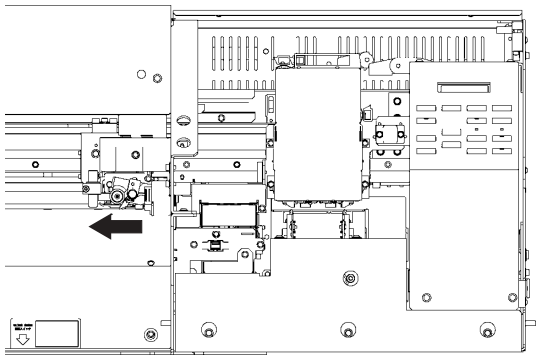
11 Fix the PUMP COVER.



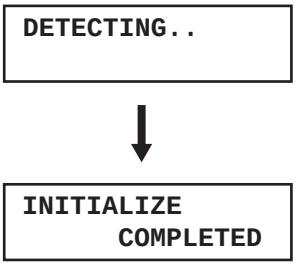
12 Confirm the CAPPING UNIT is capped at correct position, press [ENTER] Key again.
After the LIMIT POSITION INITIALIZE is completed, the message appears as shown in the figure.



13 TOOL CARRIAGE will be separated from the HEAD CARRIAGE.
Move the TOOL CARRIAGE with your hand until it makes full contact with the LEFT FRAME and make the cutter down.



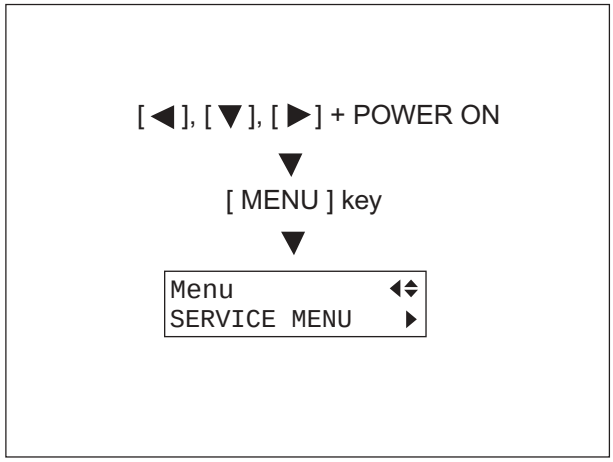
14 Carry out the CUT DOWN POSITION INITIALIZE by pressing [ENTER] key.



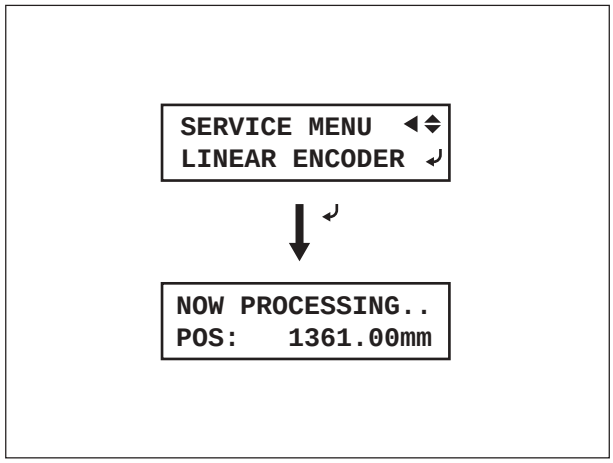
4-6 LINEAR ENCODER SETUP (Referential Time : 5min.)

[About LINEAR ENCODER SETUP]
First, this checks if the linear encoder can be read correctly in the whole width . Next, this calibrates the length of the linear encoder which stretches and shrinkdue to the environmental temperature and humidity.
It is necessary to do this operatio if any of the followings has been performed.
-Limit Sensor is replaced.
-Liner Encorder is replceed
-Encoder Module is replaed.
-Main board is replaced
-SYSTEM PARAMETER INTIALIZE is performed.

1 Lower the Pinch Rollers.
Make sure to unload the media when it is set on the machine.
Then, turn on the SUB POWER SW while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.

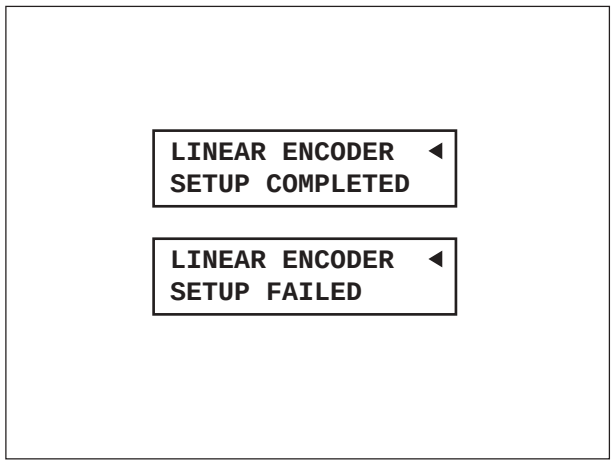


2 Select the [LINEAR ENCODER] menu in the SERVICE MENU and press the [ENTER] key.

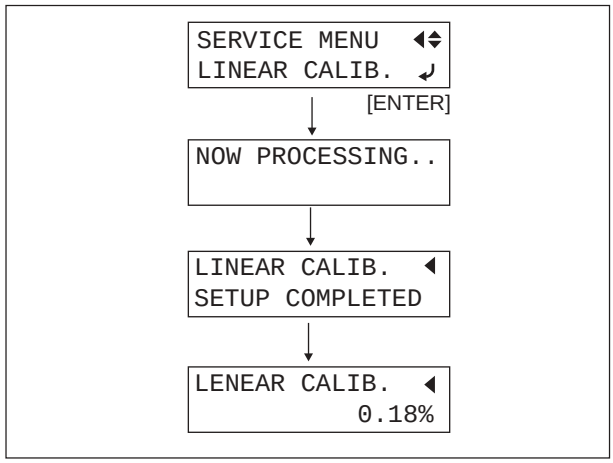


3 Either of the messages will appear at the completion of the set up.
In case of SETUP error, check the followings.

1. Dirt/Scratch on the ENCODER SCALE.
2. Dirt/Scratch on the ENCODER MODULE.
3. ENCODER SCALE is not between the ENCODER MODULE.
4. Backlash of the CARRIAGE MOTOR GEAR and the DRIVE GEAR.
5. Fixation between the CARRIAGE and the CARRIAGE WIRE.
6. Bad Contact in the cables.

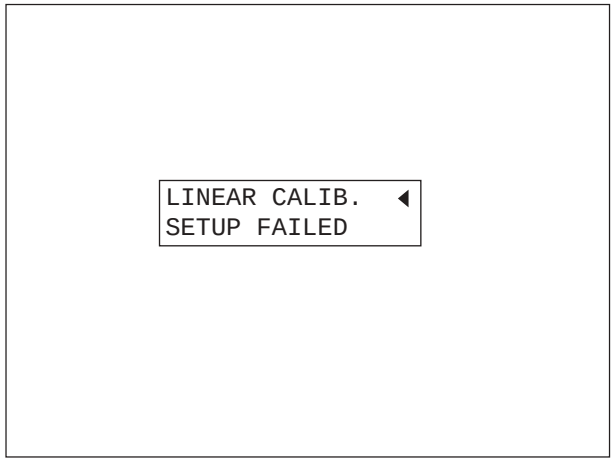


4 When Linear Encoder Setup is completed, carry out the [LINEAR CALIB.] in the Service Menu to press the [ENTER] key.



5 In case of an error, check the followings.

1. Dirt/Scratch on the ENCODER SCALE.
2. Dirt/Scratch on the ENCODER MODULE.
3. ENCODER SCALE is not between the ENCODER MODULE.
4. Backlash of the CARRIAGE MOTOR GEAR and the DRIVE GEAR.
5. Fixation between the CARRIAGE and the CARRIAGE WIRE.
6. Bad Contact in the cables.

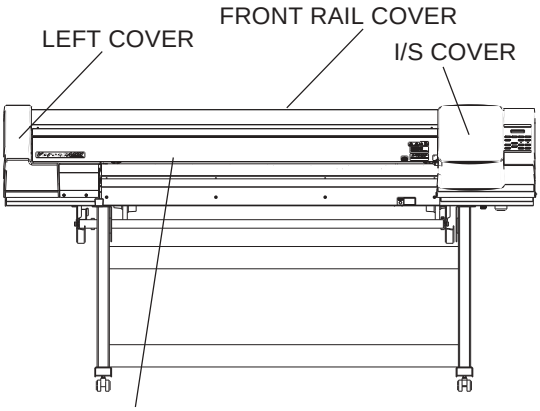


4-7 CROP MARK SENSOR ADJUSTMENT (Referential Time : 10min.)

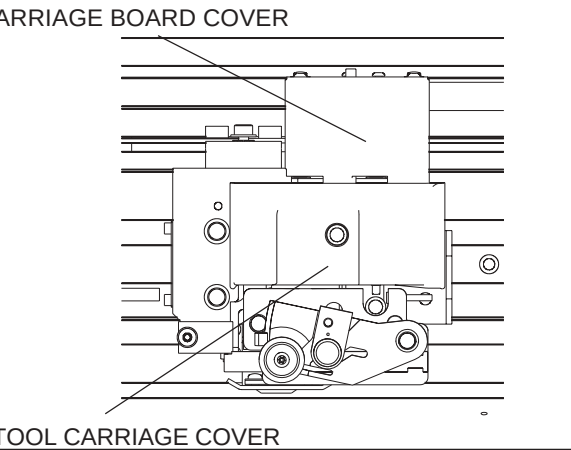
[About CROP MARK SENSOR ADJUSTMENT]

This adjustment is for adjusting the sensitivity of the CROP MARK SENSOR.
If not adjusted, crop marks can not be read correctly and result in a problem that the cutting shifts from the printing.

1 Remove the I/S COVER,LEFT COVER,FRONT COVER and FRONT RAIL COVER.



2 Remove the TOOL CARRIAGE COVER and CARRIAGE BOARD COVER.



3 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.
Set the SV-GG media on the machine, and lower the Pinch Rollers.

[◀], [▼], [▶] + POWER ON

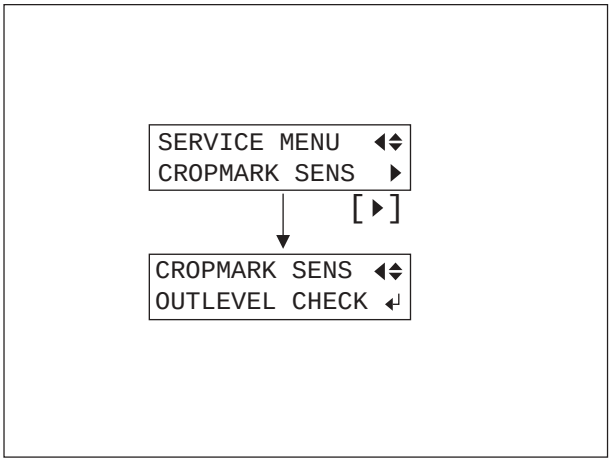
▼

[MENU] key

▼

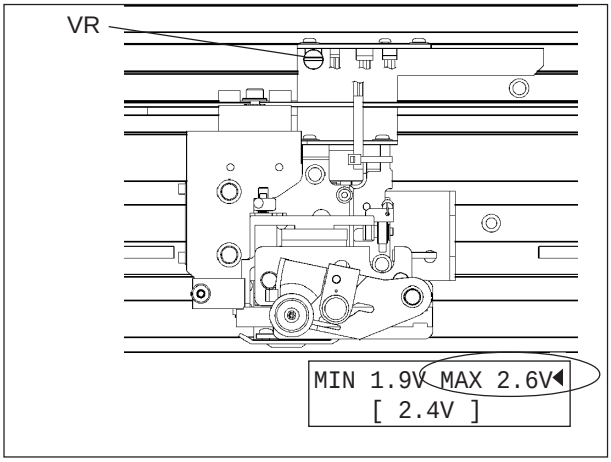
Menu ◀▲▼
SERVICE MENU ▶

4 Select [OUTLEVEL CHECK] under the [CROPMARK SENS] menu.
Press the [ENTER] key, and the Crop Mark will be printed. Then the TOOL CARRIAGE moves on the Crop Mark automatically.

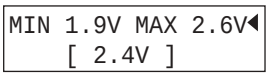


5 Adjust the VR on the CARRIAGE BOARD so that the "MAX" voltage displayed on the LCD will be 2.5 +/- 0.2V.

The voltage displayed in the LCD decreases for some degree due to the ink drying.



6 Perform [OUTLEVEL CHECK] again and make sure that the voltage is correct value.
If it is out of range, adjust it again.



4-8 TOOL / CROP MARK SENSOR POSITION ADJUSTMENT (Referential Time : 10min.)

[About TOOL/CROP MARK SENSOR POSITION ADJUSTMENT]

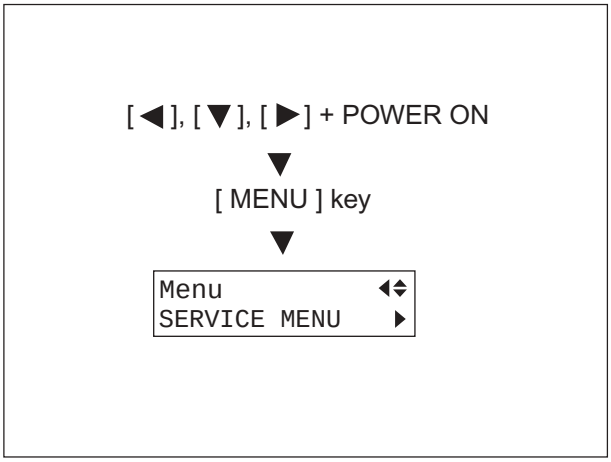
This adjustment is for calibrating the shifting in the relative positions of Tool and Crop Mark Sensor. If it is not adjusted,the cut position to the position of the detected crop mark becomes inaccurate, gap arises in the print and cut when auto detection of a crop mark is performed.

There are two adjusting ways prepared in this Mode, Manual and Auto.

We recommend to carry out the Manual Adjustment for the more accurate adjustment.

1 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.

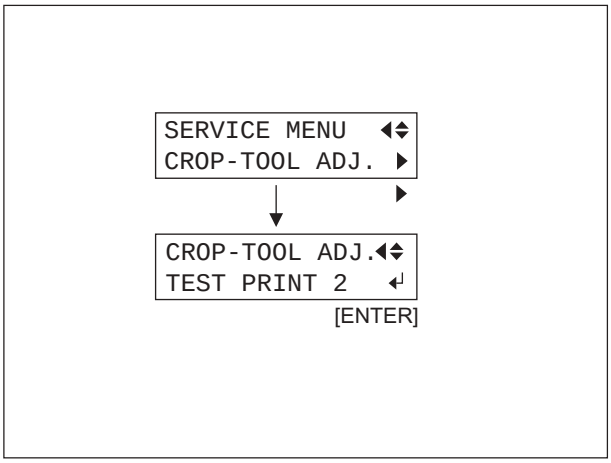
Set the SV-GG media on the machine and lower the Pinch Rollers.



[MANUAL ADJUSTMENT]

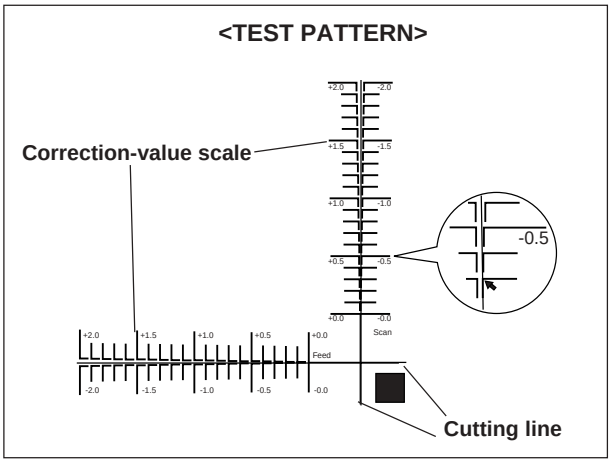
2 Select [TEST PRINT2] under the [CROP-TOOL ADJ.] menu.

Test Pattern will be printed and cut when the [ENTER] key is pressed.

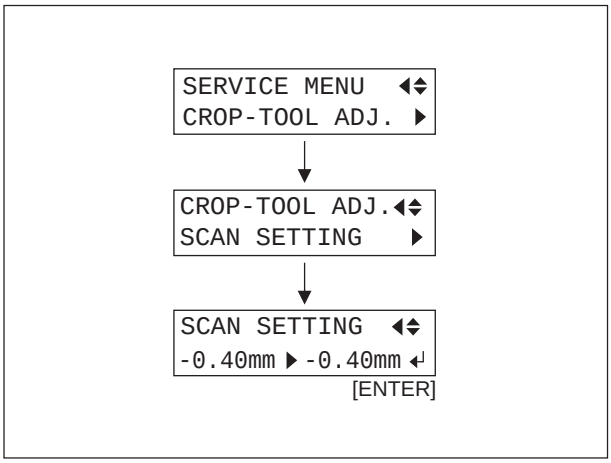


3 From the Test Pattern, find the value where the printing line matches the cutting line.

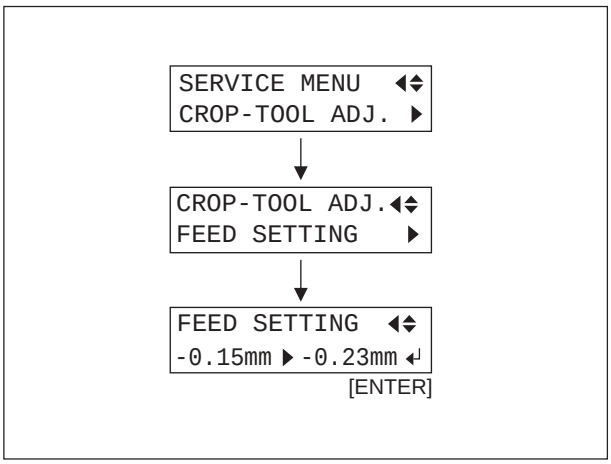
In this case, the correction value for the scanning direction is "-0.3".



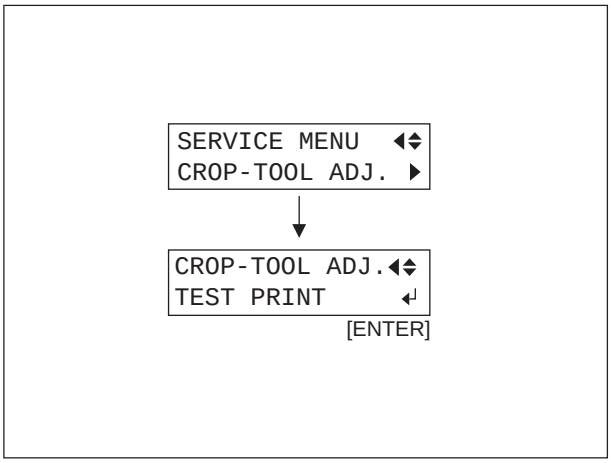
4 Select [SCAN SETTING] from the [CROP-TOOL ADJ.] menu and enter the correction-value found in the Test Pattern.



5 Select [FEED SETTING] from the [CROP-TOOL ADJ.] menu and enter the correction-value found in the Test Pattern.



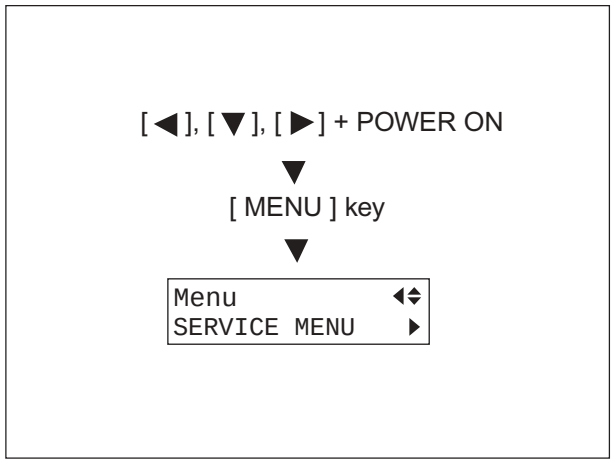
6 Select [TEST PRINT] under the [CROP-TOOL ADJ.] menu.
Test Pattern will be printed and cut when the [ENTER] key is pressed.



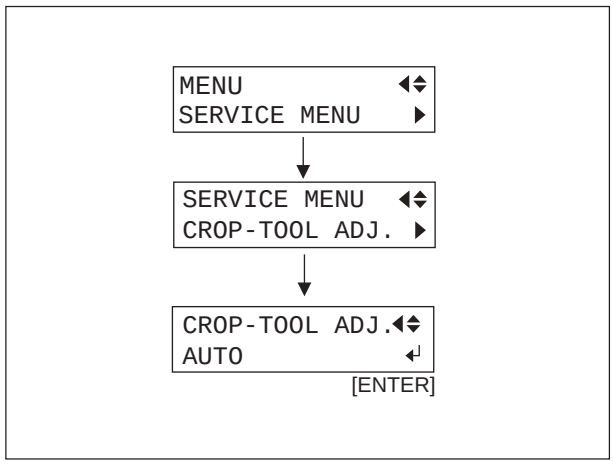
7 If the cutting line is shifted from the printed image, fine adjust the error in Scan Direction and Feed Direction in the step 4 and 5 .

[AUTOMATIC ADJUSTMENT]

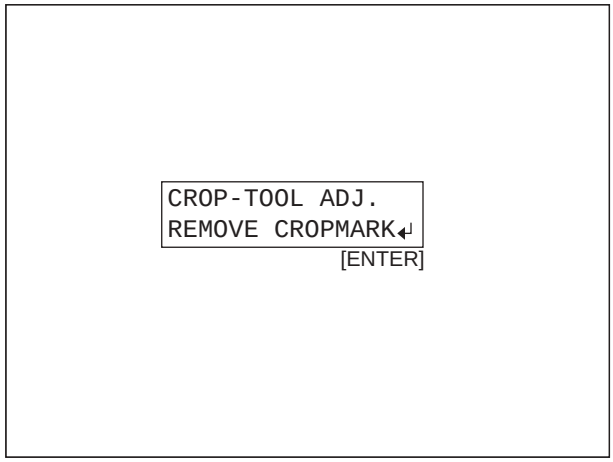
8 Setup the Vinyl Sheet (note : Vinyl should be black and the backing should be white.) on the Machine.
Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.



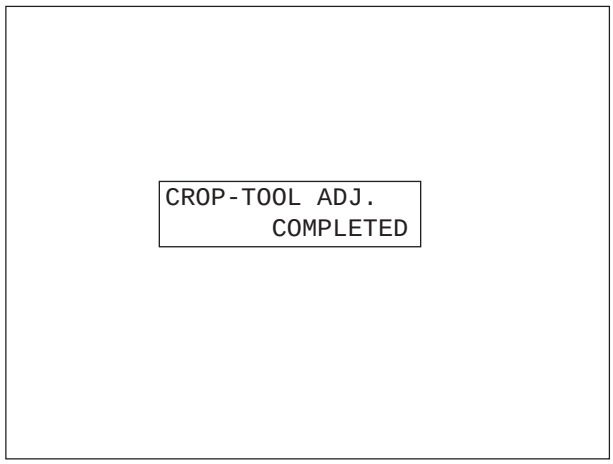
9 Select [AUTO] under the [CROP-TOOL ADJ.] menu.
Crop Mark will be cut when the [ENTER] key is pressed.



10 While the Vinyl is still set on the Machine, peel off the Crop Mark being cut when the message shown in the right figure is displayed on the LCD.
Then, press the [ENTER] key.



11 TOOL / CROP MARK SENSOR ADJUSTMENT will be done automatically.

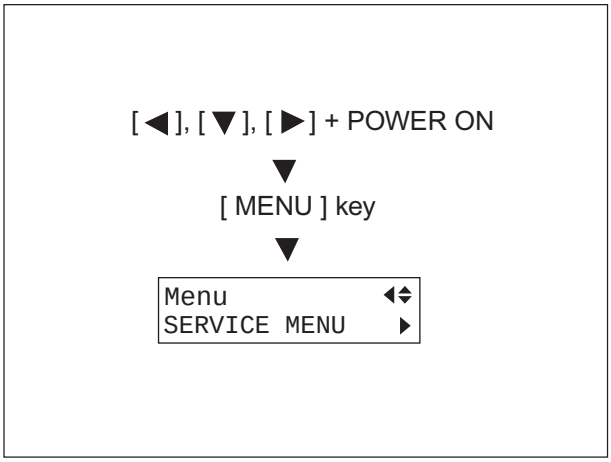


4-9 PRINT / CUT POSITION ADJUSTMENT (Referential Time : 10min.)

[About PRINT / CUT POSITION ADJUSTMENT]

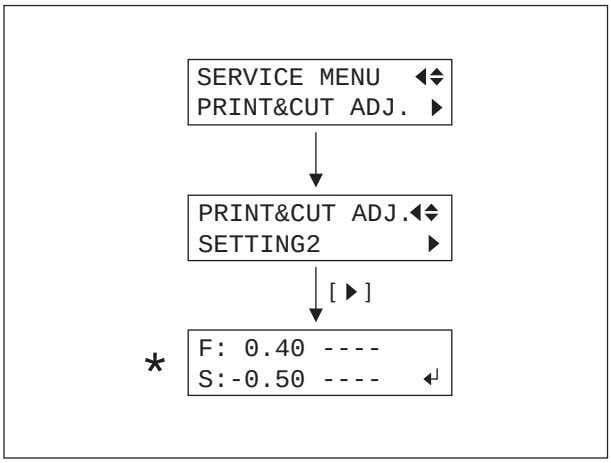
This adjustment is for calibrating the relative positions of printing and cutting.
If it is not adjusted, it could result in a problem that the cutting shifts from printing.
There are two adjusting ways prepared in this Mode, Manual and Auto.
We recommend to carry out the Manual Adjustment for more accurate adjustment.
Before doing this adjustment, perform [ENV. MATCH].

1 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.
Set the SVG-G media on the machine and lower the Pinch Rollers.



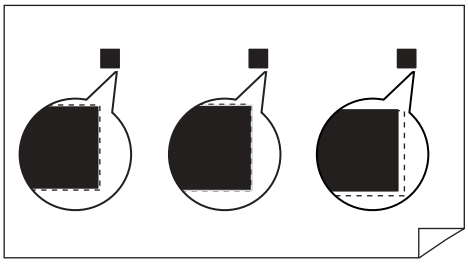
2 Select [SETTING 2] under the [PRINT&CUT ADJ.] menu and press the [▶] key to enter the menu in the right figure.

Three marks are not printed unless [TEST CUT] is pressed in the state of a screen*.

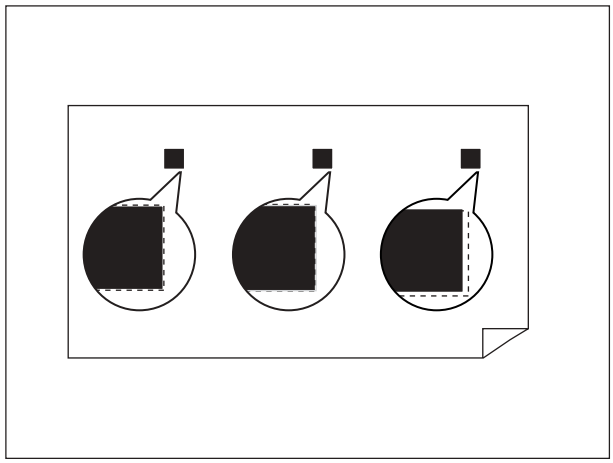


3 Press the [TEST CUT] key to excute printing the Test Pattern. The marks are printed in the right edge, the left edge and middle of the media (Three position) and each frame of the marks is cut.

At this time, if the [TEST PRINT] key is pressed, the mark is printed in the right edge of the media (only one position) and a frame of the mark is cut.

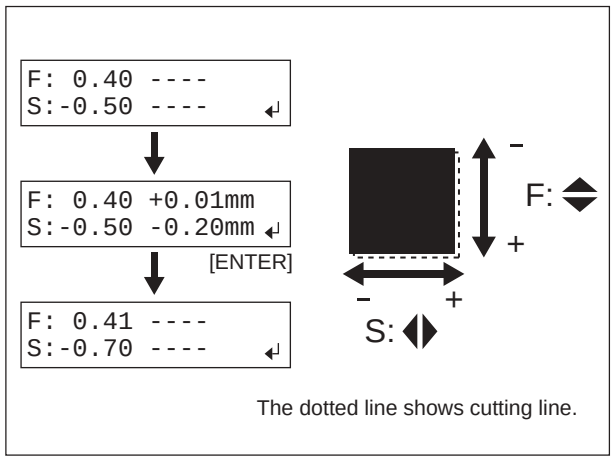


4 Check the gap between the marks and cutting line.



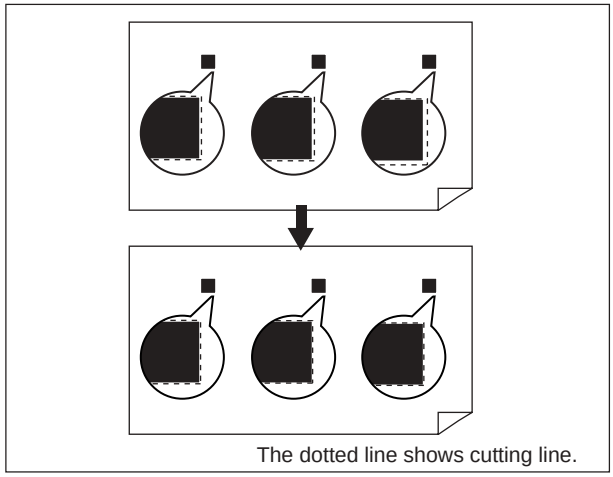
The gap of the print&cut might be different. depends on the position.

5 Input the values by pressing [▲], [▼], [◀] and [▶] keys to minimize the gap between the print and the cut at the 3 positions. An input is performed per 0.01mm unit. (cutting position moves by this operation) Press [ENTER] to save the adjustment value



To escape from the input screen of an adjustment value, press the [MENU] button. Please be careful that the adjustment value changes if the [▲], [▼], [◀] or [▶] key is pressed at this time.

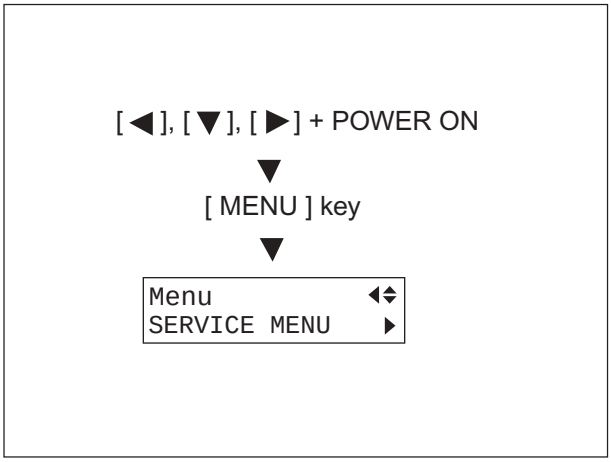
6 For the check, press the [TEST CUT] key again and perform the printing of a test pattern. Check the mark printed / cut and gap of each mark and a cut line. Adjustment has been completed if the quantity of the gap in three points (the right, the left and middle) is the minimum. If you can still see the large gap, repeat the procedures 3-5.



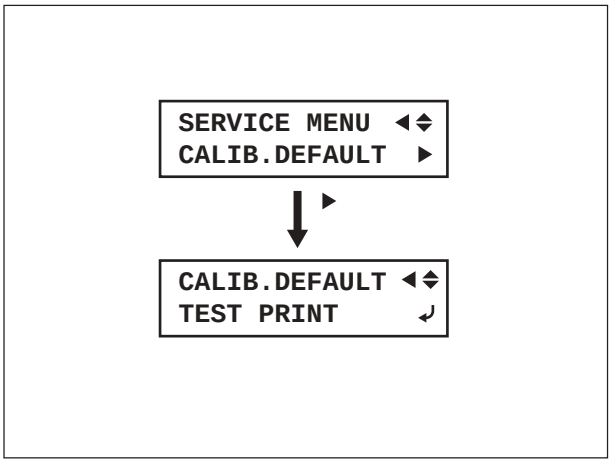
4-10 CALIBRATION (FEEDING DIRECTION) (Referential Time : 15min.)

[About CALIBRATION]
CALIBRATION is for calibrating the media feeding amount.
It calibrates the manufacturing tolerance of the Grit Roller diameter to make it possible to feed media for a correct amount.
Calibration is done by using the PET-G in the Factory.
If it is not adjusted, banding or white lines appears in the printing result with an incorrect printing length.

1 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.
Set the PET-G on the machine and lower the Pinch Rollers.

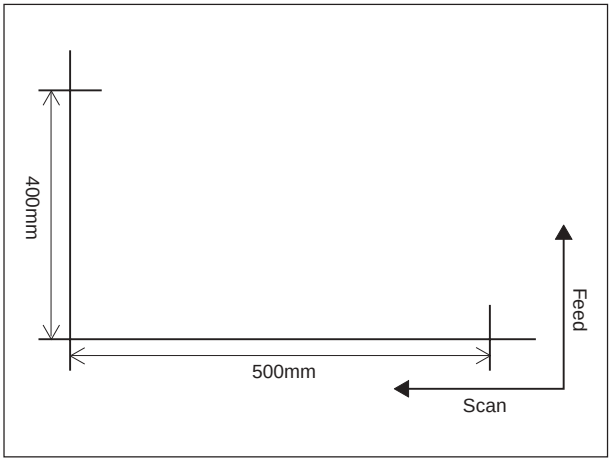


2 Select the [TEST PRINT] menu under the [CALIB. DEFAULT] menu and press the [ENTER] key.



3 TEST PATTERN will be printed.
Calibrating amount can be calculated with the formula shown at 4 based on the printing result.

TEST PATTERN is always printed with Offset 0.00%. Therefore, TEST PATTERN is not changed even if you change the value in the [SETTING] menu.



4 Calculate the amount to be calibrated with the formula shown at the right figure.

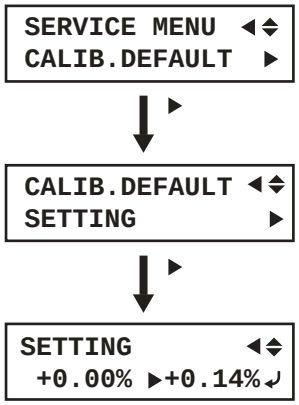
1. CA = Calibrating Amount
2. CL = Commanded Length (=400mm)
3. ML = Measured Length

FORMULA

$$CA = \frac{CL - ML}{ML} \times 100$$

5 Select the [SETTING] menu under the [CALIB. DEFAULT] menu and change the amount to be calibrated with [▲] and [▼] keys.
Press the [ENTER] key to save the setting.

Parameters can be entered with an increment of 0.02%.
(MAX. +2.00% ~ MIN. -2.00%)

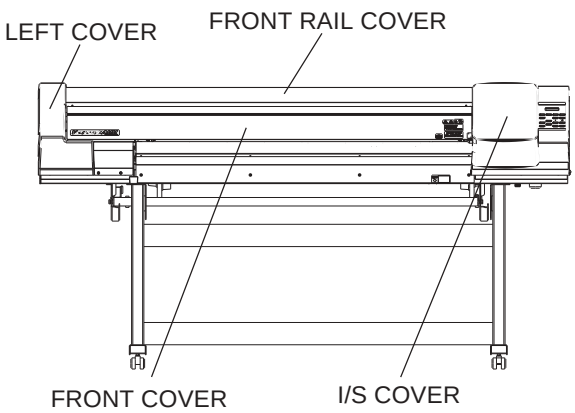


4-11 TOOL HEIGHT ADJUSTMENT (Referential Time : 20min.)

[About TOOL HEIGHT ADJUSTMENT]

This adjustment is for getting correct Tool Pressure when cutting is performed.
When this adjustment is not performed correctly, lines are cut like dashed lines or lines may be cut strongly beyond necessity.

1 Remove the I/S COVER,LEFT COVER,FRONT COVER and FRONT RAIL COVER.



2 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

Menu ◀◆
SERVICE MENU ▶

3 Select [FORCE ADJUST] in the SERVICE MODE.

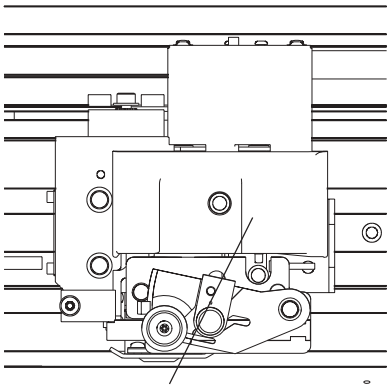
When you enter the [FORCE ADJUST] menu, you can move only the TOOL CARRIAGE.

MENU ◀◆
SERVICE MENU ▶

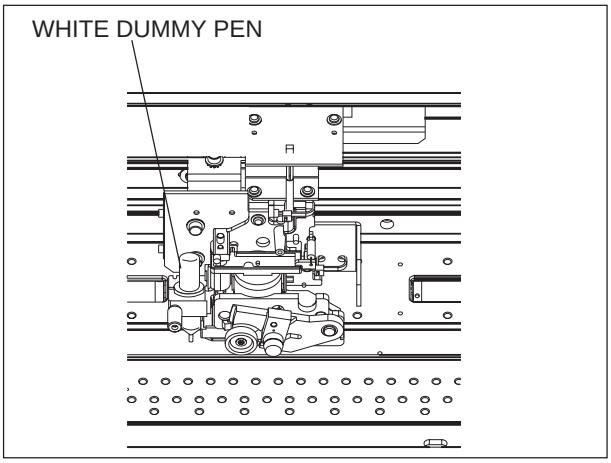
▼

SERVICE MENU ◀◆
FORCE ADJUST ▶

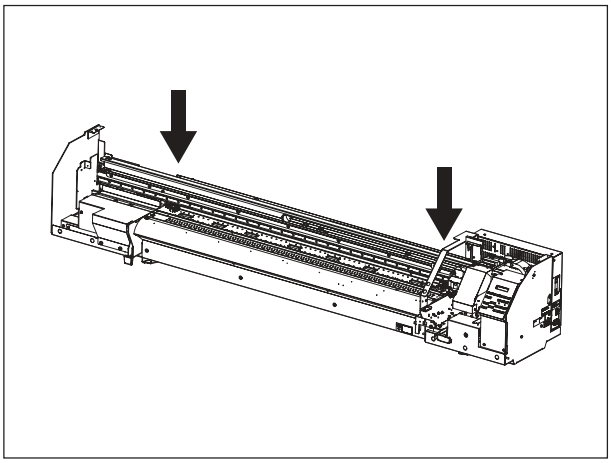
4 Remove the TOOL CARRIAGE COVER.



5 Put the WHITE DUMMY PEN (ST-006) on the TOOL CARRIAGE.



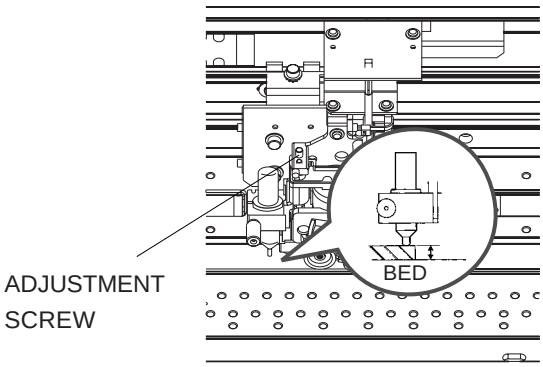
6 Lower the PINCH ROLLERs at both edges of the GRIT ROLLER.



7 Move the carriage to the right end of BED.

There is no H mark on this machine.

8 Turn the ADJUSTMENT SCREW to adjust the clearance between the pen tip and the BED to 2.5 ~ 2.6mm.



9 Carry out [TOOL PRESSURE ADJUSTMENT] after this adjustment.

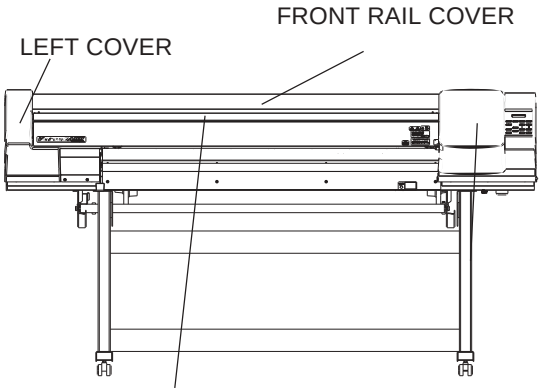
4-12 TOOL PRESSURE ADJUSTMENT (Referential Time : 15min.)

[About TOOL PRESSURE ADJUSTMENT]

This adjustment is for having the correct tool pressure.

Perform this adjustment at the right end of BED. There is no H mark.

1 Remove the I/S COVER,LEFT COVER,FRONT COVER and FRONT RAIL COVER.



2 Turn on the sub power switch while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.

[◀], [▼], [▶] + POWER ON

▼

[MENU] key

▼

```
Menu                ◀▲▼
SERVICE MENU          ▶
```

3 Select [FORCE ADJUST] in the SERVICE MODE.

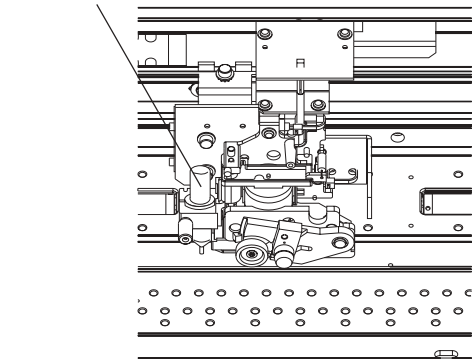
When you enter the [FORCE ADJUST] menu, you can move only the TOOL CARRIAGE.

```
MENU                ◀▲▼
SERVICE MENU          ▶
```

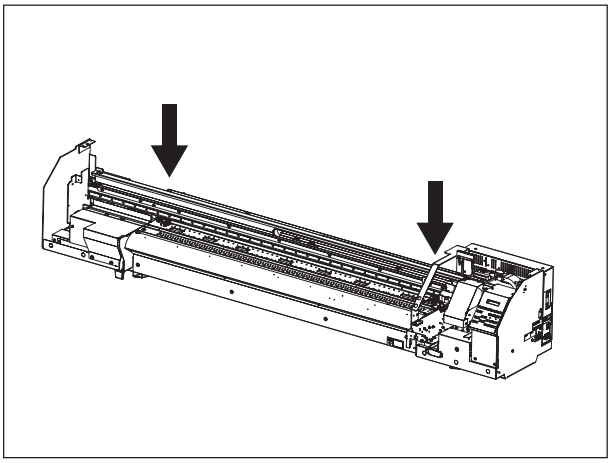
▼

```
SERVICE MENU        ◀▲▼
FORCE ADJUST          ▶
```

4 Put the WHITE DUMMY PEN (ST-006) on the TOOL CARRIAGE.



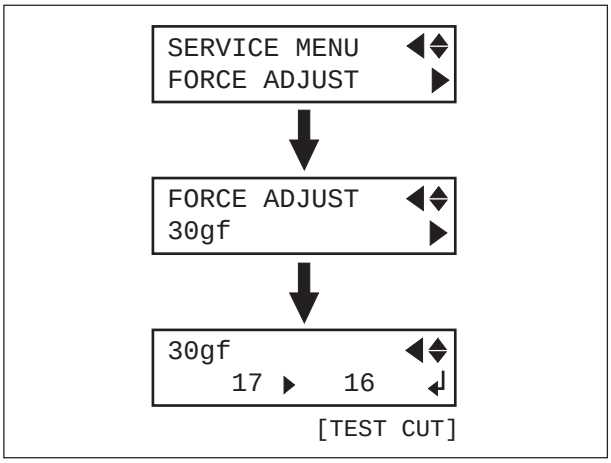
5 Lower the PINCH ROLLERs at both edges of the GRIT ROLLER.



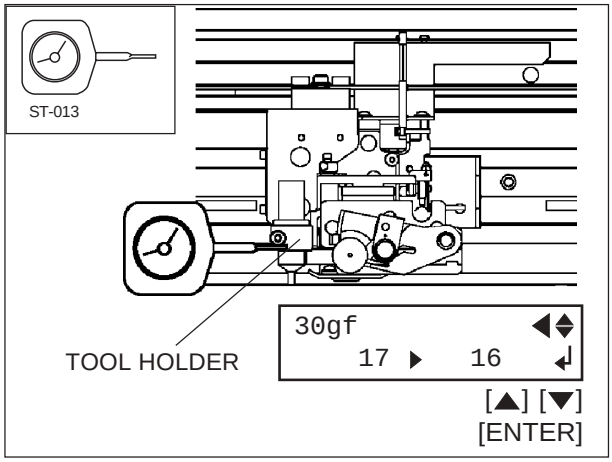
6 Move a carriage to the right end of BED.

There is no H mark on this machine.

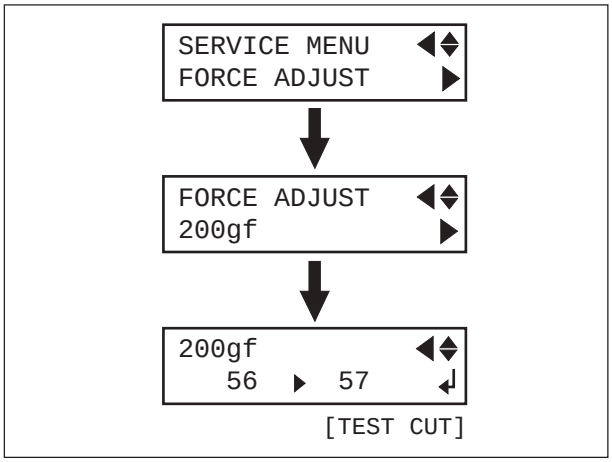
7 Select [30gf] under [FORCE ADJUST] menu.
Press the [TEST CUT] key and move the TOOL down.



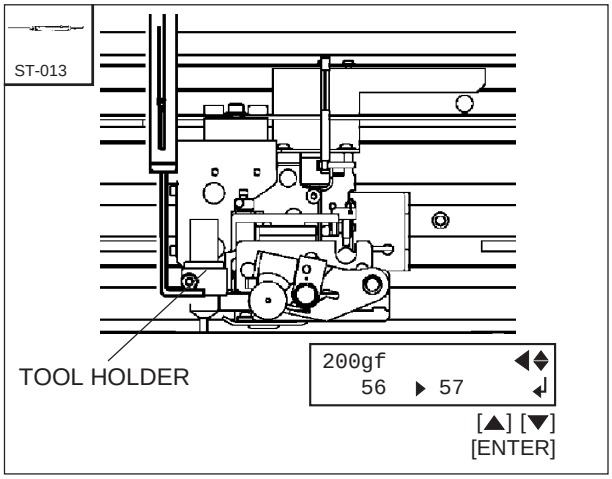
8 Pull up the Handle part of the TOOL HOLDER with the DIAL GAUGE (ST-013) and measure the pressure when the pen tip leaves the BED.
Adjust the parameter in the [30gf] menu with [▲] and [▼] keys so that the pressure will be 25 ~ 35gf(0.25N ~ 0.35N).
Press the [ENTER] key to save the settings.



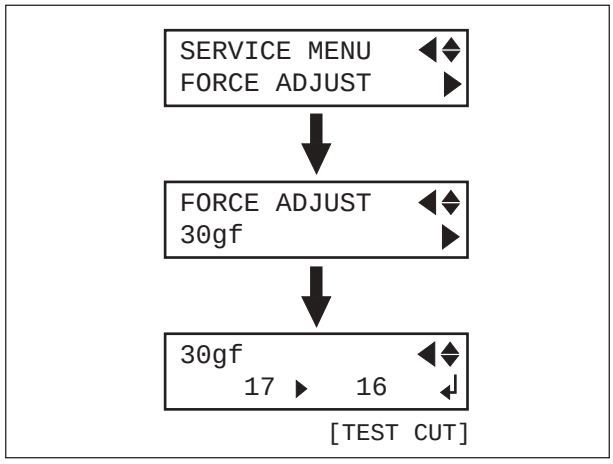
9 Select [200gf] under [FORCE ADJUST] menu.
Press the [TEST CUT] key and move the TOOL down.



10 Pull up the Handle part of the TOOL HOLDER with the TENSION GAUGE (ST-002) and measure the pressure when the pen tip leaves the BED.
Adjust the parameter in the [200gf] menu with [▲] and [▼] keys so that the pressure will be 195 ~ 205gf (1.9N ~ 2.0N).
Press the [ENTER] key to save the settings.

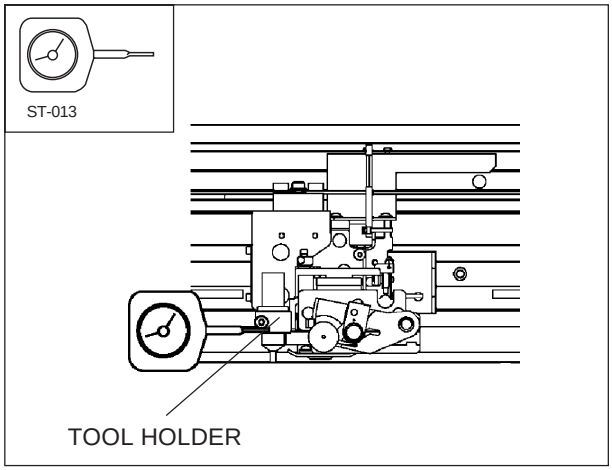


11 Enter [30gf] menu under [FORCE ADJUST] menu for checking again.
Press the [TEST CUT] key and move the TOOL down.



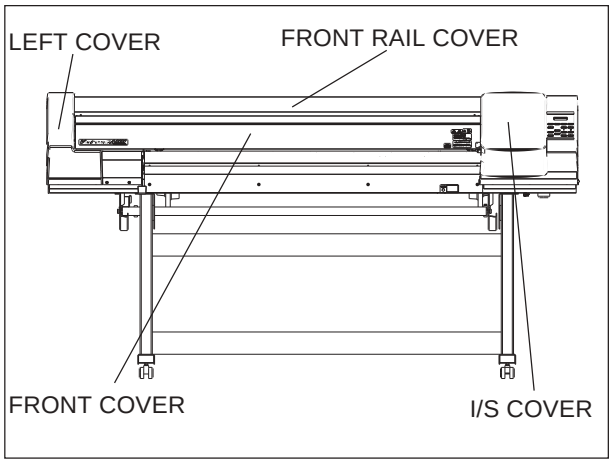
12 Pull up the Handle part of the TOOL HOLDER with the DIAL GAUGE (ST-013) and confirm the value when the pen tip leaves the BED.
If the value is 25 ~ 35gf (0.25N ~ 0.35N), it is OK.

If it is out of the range, adjust it again.

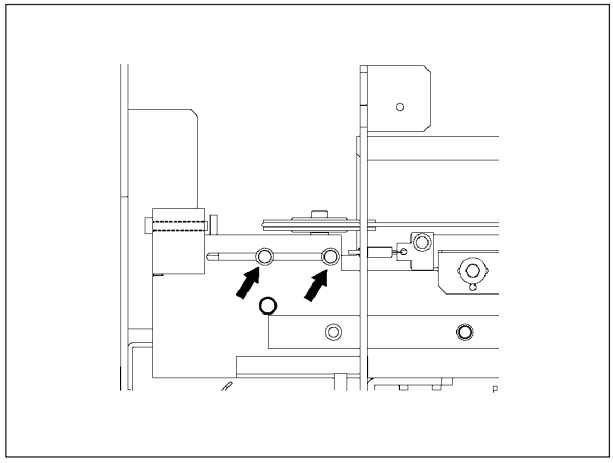


4-13 CARRIAGE WIRE TENSION ADJUSTMENT (Referential Time : 10min.)

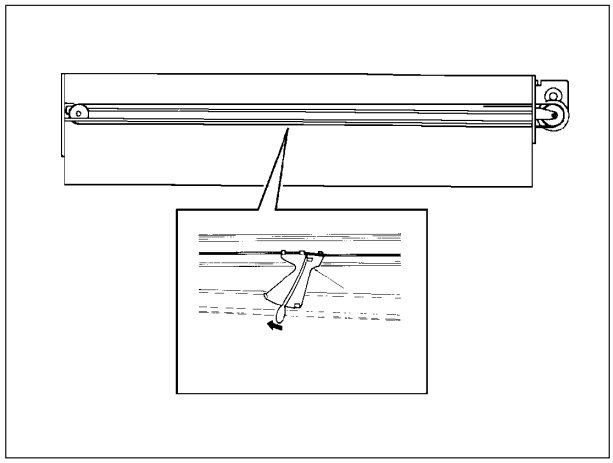
1 Remove the I/S COVER,LEFT COVER,FRONT COVER and FRONT RAIL COVER.



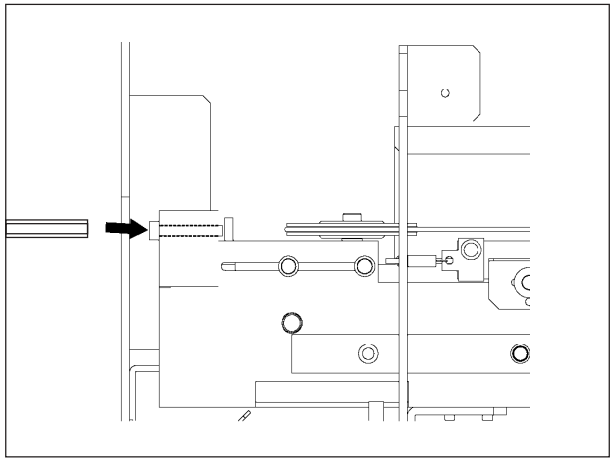
2 Loosen the screws shown in the figure.



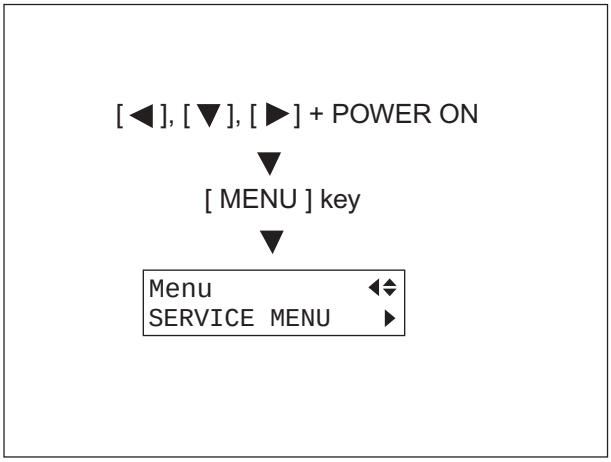
3 Measure the wire tension with the TENSION METER (ST-011) at the center of the LM GUIDE.



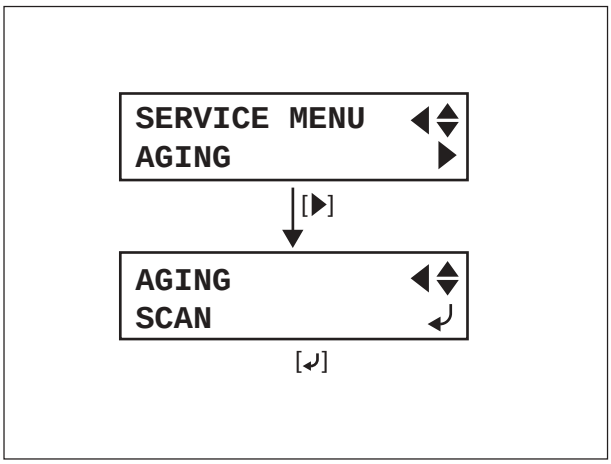
4 Adjust the tension with the ADJUSTMENT SCREW so that it will be as 13lb ~ 15lb when replacing the wire, or 9lb ~ 11lb in other cases.



5 Turn on the SUB POWER SW while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.

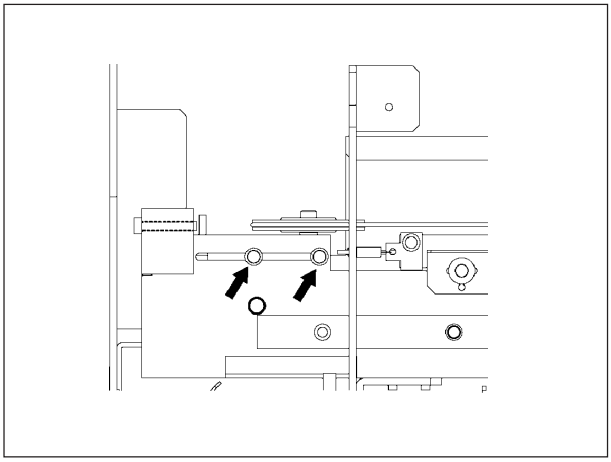


6 Select the [SCAN] menu under the [AGING] menu and press the [ENTER] key to start AGING.



7 After moving the HEAD CARRIAGE back and forth 20 times, press the [ENTER] key to finish the AGING.
Then, check the tension again.
If the tension changes, adjust it again.

8 Tighten the screws shown in the figure after completing the adjustment.

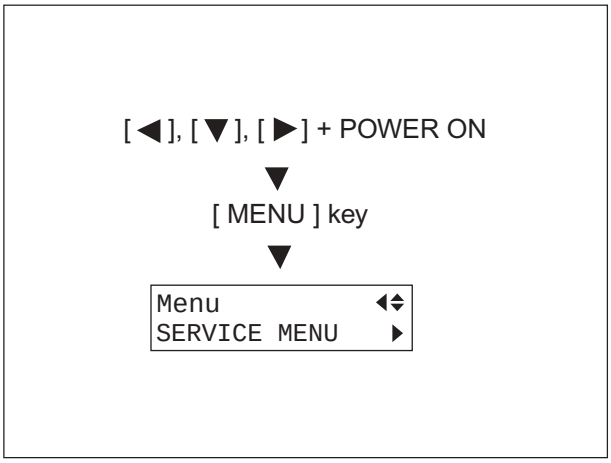


9 Check and make sure that the tension is within the range.
If not, adjust it again.

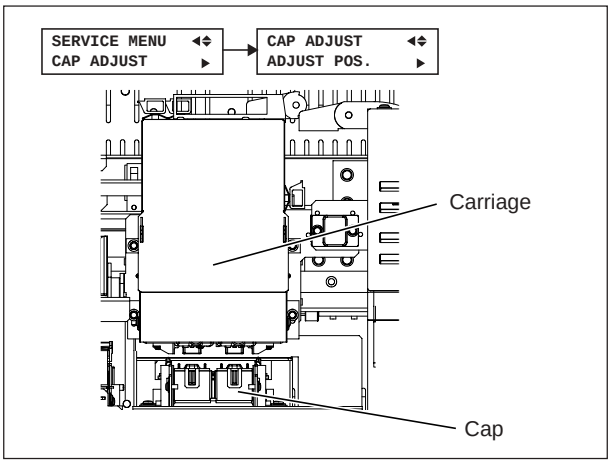
4-14 CAP HEIGHT ADJUSTMENT (Referential Time : 5min.)

[About CAP HEIGHT ADJUSTMENT]
CAP HEIGHT ADJUSTMENT is to adjust the height of the cap.
It must be done when you remove or replace the cap unit and replace and adjust the carriage unit. If this adjustment has not been done there is a possibility that a CAP OPEN SUCTION is not performed correctly.
This adjustment can be performed in firmware version 2.10 and above.
*CAP OPEN SUCTION is an operation to suck ink without the heads capped. This can remove the ink accumulated on the Cap surfaces due to the flushing done above the Caps.

1 Turn on the SUB POWER SW while pressing [◀], [▼] and [▶] keys to enter the SERVICE MODE.



2 Select the [CAP ADJUST] menu in the SERVICE MENU and select [ADJUST POS.].
When the carriage is not in the capping position, press [▼] key to move the cap lower and then move the carriage to the capping position.



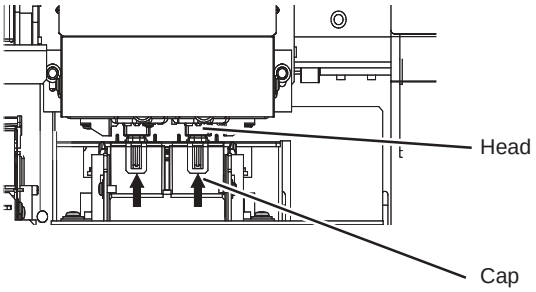
-Note that the caps do not contact the head.
-When you press the [▼] key, the cap moves to the position in the setting value -2.00 mm.
-It is only possible to move the cap stepwise to the upward direction in the [ADJUST POS.] menu. When you move the cap in the downward direction, press [▼] key to move the cap lower end once and then move upward direction in 0.25 mm unit.

3 Move the cap upward to the position that the cap contacts exactly to the head, then press [ENTER] to update the adjustment value.

-When you press [▲] key, the cap moves to the upward direction in 0.25 mm unit.

-When you press [▼] key, the cap moves to the position in the setting value -2.00 mm.

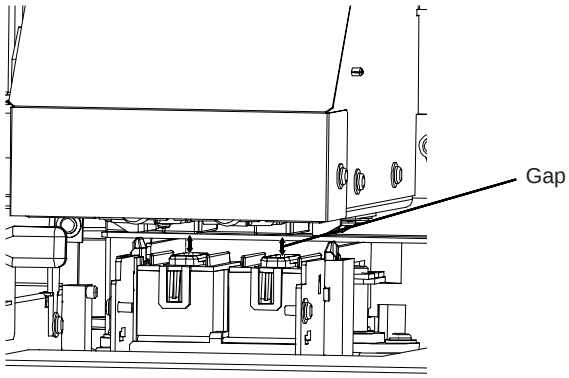
-When you press[◀] key, the adjustment value is not updated and the capping is carried out and then exiting the menu.



4 Enter the [CHECK GAP.] menu in the [SERVICE MODE] to check the cap adjustment value.

The cap moves to the same position as the CAP OPEN SUCTION is performed. Check if there is the gap between the cap and head.

[CHECK GAP.] is the menu to check the gap between the caps and head. For adjustment, use the [ADJUST POS.] menu.



5 Supplemental Information

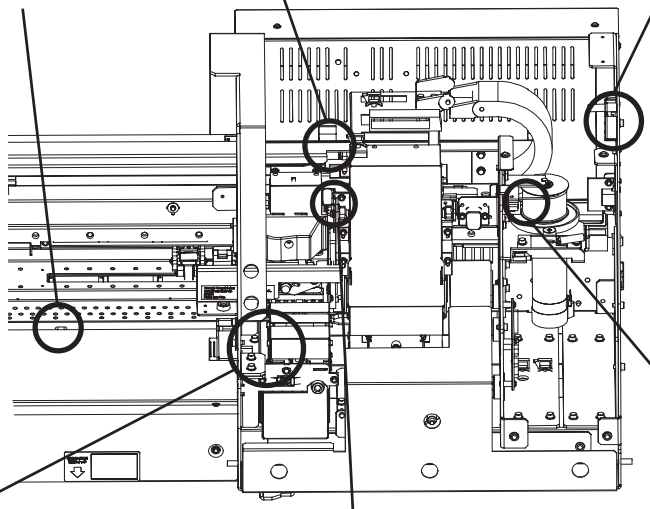
5-1 SENSOR MAP

(Front View of the machine)

LIMIT SENSOR
It detects the origin of the Carriage Moving Direction and the limit.

I/S COVER SENSOR
It detects whether the I/S Cover is opened or closed.

FRONT PAPER SENSOR
It detects the front edge of the media.



FRONT COVER SENSOR
It detects whether the Front Cover is opened or closed.

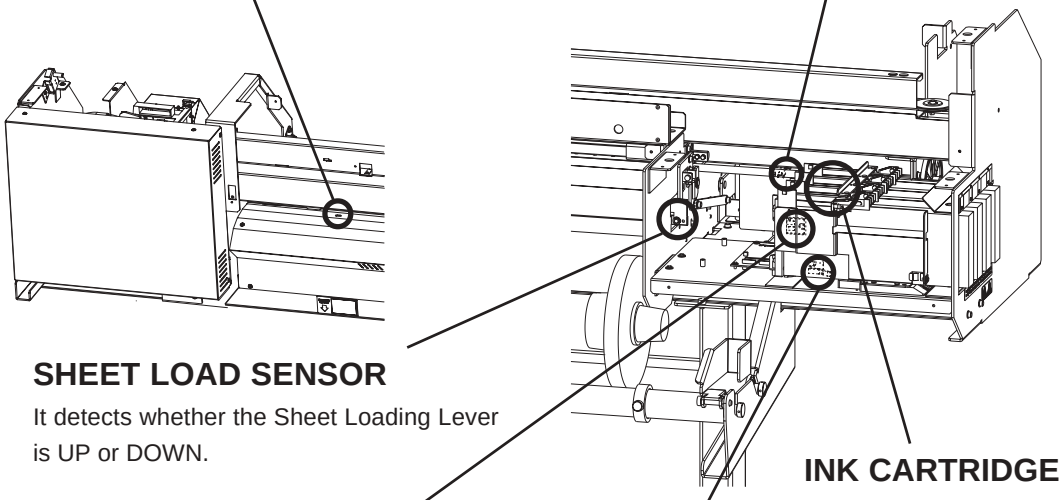
HEAD UP DOWN SENSOR
It detects the position of the head lever.

HEAD LOCK SENSOR
It detects wheter the HEAD CARRIAGE is at locking position or not.

(Rear of the machine)

REAR PAPER SENSOR
It detects the rear edge of the media and also whether the media is set or not.

MAINTENANCE COVER SENSOR
It detects whether the Maintenance Cover is opened or closed.

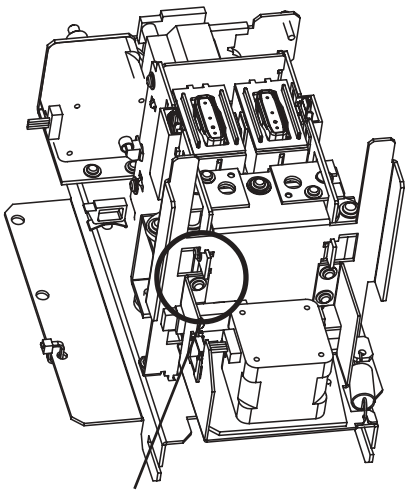


SHEET LOAD SENSOR
It detects whether the Sheet Loading Lever is UP or DOWN.

INK CARTRIDGE IC SENSOR
It detects a quantity of a remaining Ink and Ink type.

INK CARTRIDGE SENSOR
It detects whether the Ink Cartridge is installed or not.

INK EMPTY SENSOR
It detects whether the Ink Cartridge is empty or not.

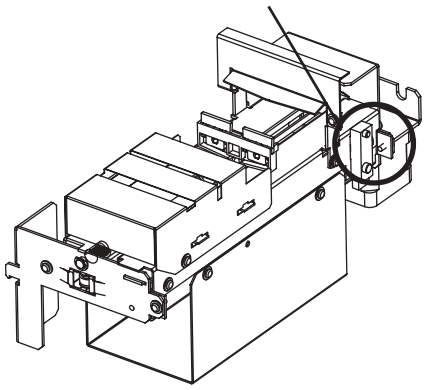


CAPPING SENSOR

It detects the limit position of the Capping Unit.

WIPER SENSOR

It detects the limit position of the Wiper moving in back and forth.

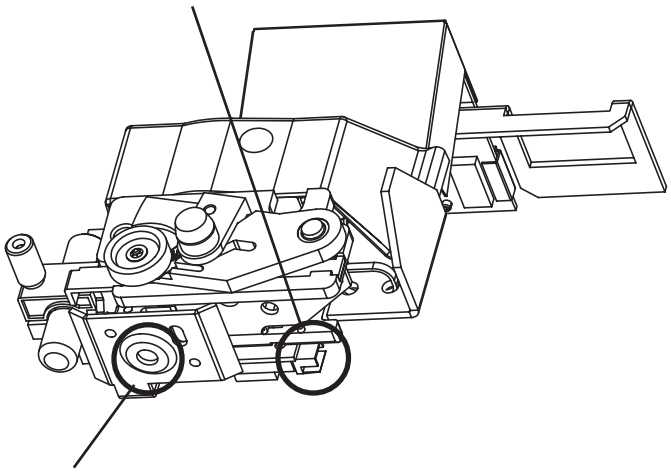


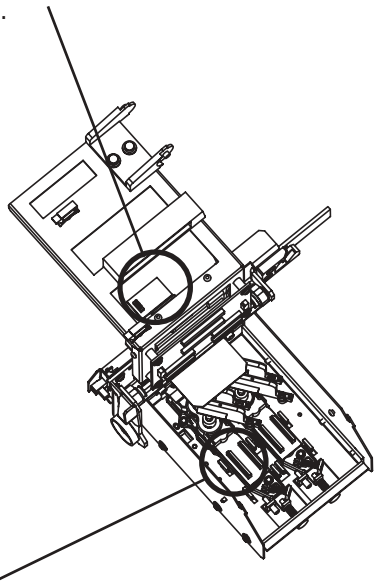
ENCODER MODULE

It detects coordinates for Carriage Moving Direction.

PINCH ROLLER SENSOR

It detects the Pinch Rollers when setting up media.





CROP MARK SENSOR

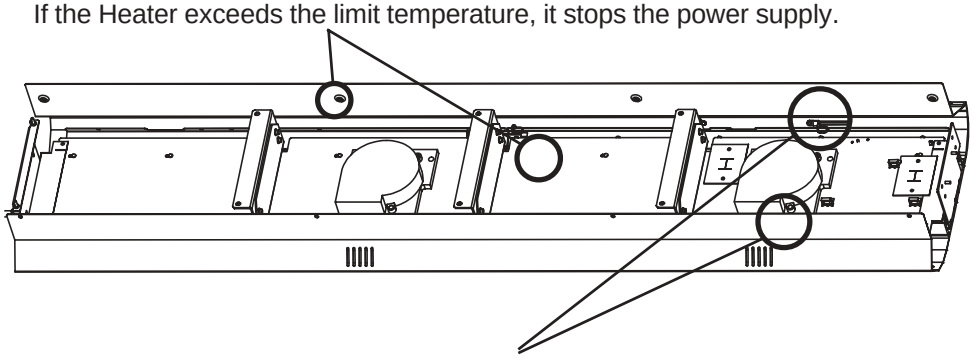
It detects the Crop Mark.

THERMISTOR (HEAD)

It takes the temperature around the Head.
The black and cyan Head is used for the measurement.

THERMOSTAT

If the Heater exceeds the limit temperature, it stops the power supply.



THERMISTOR (HEATER)

It takes the temperature of the Heater.

6 Troubleshooting

6-1 INK DROPS ON MEDIA / WHITE FINE LINE / BANDING / MISSING DOT / SCRATCHY PRINTING / BLURRED PRINTING

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Temporary clogging in nozzles	Manual Head cleaning	Users Manual	Nozzle condition becomes poor due to the foreign substance attached to the surface of the head or very slight drying of the ink.
2	Wrong setting for the media	Apply correct setting		The amount of the ink which can be accepted is different between the each media. If the ink amount is not proper, the printing image becomes blotted or banding appears in the printing image because of too much ink. It is necessary to do the Calibration when printing on the media which has a different thickness. If the Calibration is not adjusted properly, white lines or banding appear because of the bad feeding amount.
3	Transformation of Cap	Cap Top Replacement	[3-3 CAP TOP REPLACEMENT]	Cleaning is not performed efficiently and the white or dark lines appear in the printing image.
4	Wiper wears out	Wiper Replacement	[3-2 WIPER REPLACEMENT]	Wiper cannot remove the foreign substances stuck on the surface of the head. In that condition, ink is not fired properly and the white or dark fine lines appear in the printing image.
5	Foreign substances	Manual Cleaning	Users Manual	When foreign substances are stuck on the surface of the head, ink is not fired properly resulting in the white or dark fine lines in the printing image. The same thing happens when foreign substances are stuck on the cleaning wiper or cap, because the head cleaning cannot be performed efficiently in that condition.
6	Pump tube is clogged	Pump Replacement	[3-6 PUMP REPLACEMENT]	Cleaning is not performed efficiently because ink is not sucked well. As a result, white or dark lines appear in the printing image.
7	Ink Damper is clogged	Replace Ink Damper		Ink is not supplied to the head properly. As a result, the white or dark lines appear in the printing image, or printing becomes scratchy.
8	Ink cartridge is almost empty	Replace Ink Cartridge		When the ink cartridge is approaching to its empty, the negative pressure of the ink increases resulting in the scratchy printing or missing dot due to lack in ink supply. When the [INK CONTROL] in the menu is set to [LATER], the machine doesn't stop the job when the ink cartridge becomes almost empty.
9	Head is out of adjustment	Head Alignment	[4-4 HEAD ALIGNMENT]	When the Bias or Vertical adjustment is not adjusted properly, white or dark fine lines appear in the printing image. When the Horizontal or Bi-direction adjustment is not performed properly, banding appears in the printing image.
10	Head Rank is incorrect	Set Head Rank	[3-1 HEAD REPLACEMENT]	Head rank setting affects the amount of the fired ink. If it is not set properly, the printing image becomes light or dark or blurred.
11	Broken Ink Tube	Ink Tube Replacement	[3-7 INK TUBE REPLACEMENT]	When the Ink Tube is broken, ink flows through the head nozzles and results in ink dropping.
12	Broken head or Life of head	Head Replacement	[3-1 HEAD REPLACEMENT]	Ink cannot be fired correctly and results in missing dot when the head is broken or reaches its life. When the head is electrically broken, it sometimes prints unnecessary lines.
13	Broken Mainboard	Mainboard Replacement		If the signal sent to the Head is not normal, the Head doesn't work properly.

6-2 DOES NOT PRINT AT ALL

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Ink Cartridge is almost empty	Confirm remaining ink. / Replace the Ink Cartridge.	Users Manual	When the ink cartridge is approaching to its empty, the negative pressure of the ink increases and ink is not fired properly due to lack in ink supply. When the [INK CONTROL] in the menu is set to [LATER] the machine doesn't stop the job when the ink cartridge becomes almost empty.
2	Foreign substances	Manual Cleaning	Users Manual	When foreign substances are stuck on the surface of the head, ink is not fired properly.
3	Wiper wears out	Wiper Replacement	[3-2 WIPER REPLACEMENT]	It cannot remove the foreign substances stuck on the surface of the head.
4	Air bubbles in Ink line	Powerful Cleaning	Users Manual	If there are air bubbles in the link line, ink is sometimes not fired. Air bubbles tend to go into the ink line by installing and uninstalling the ink cartridge so many times. All the air bubbles inside the lines can be removed by the powerful cleaning.
5	Pump Tube is clogged	Pump Replacement	[3-6 PUMP REPLACEMENT]	Cleaning is not performed properly because ink is not sucked efficiently.
6	Ink Damper is clogged or broken	Ink Damper Replacement		Ink is not supplied to the head properly.
7	Broken Ink Tube	Ink Tube Replacement	[3-7 INK TUBE REPLACEMENT]	Ink is not supplied to the head properly.
8	Bad contact with Flexible Cable or Cut line in Flexible Cable	Re-fix / Replace Flexible Cable		When there is a bad contact with the Flexible cable connected to the head, or there is a cut line in the Flexible cable, the head doesn't work properly.
9	Broken Head or Life of Head	Head Replacement	[3-1 HEAD REPLACEMENT]	When the head is mechanically or electrically broken, the head doesn't work properly.
10	Broken Mainboard	Mainboard Replacement		If the signal sent to the Head is not normal, the Head doesn't work properly.

6-3 SHIFTING IN PRINTING

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Media is not set correctly.	Set Media correctly.	Users Manual	Media is not set straight. Make sure to set the Media straight referring to the Users Manual.
2	Encoder Scale is dirty / broken.	Clean or Replace Encoder Scale.	[3-10 Encoder Scale Replacement]	When Encoder Scale is dirty or broken, the printing image can be shifted in a staircase pattern because the printing position in the scanning direction cannot be detected correctly.
3	Encoder Module is dirty / broken	Clean or Replace Encoder Module		When Encoder Scale is dirty or broken, the printing image can be shifted in a staircase pattern because the printing position in the scanning direction cannot be detected correctly.
4	Head is out of position.	Head Alignment.	[4-4 HEAD ALIGNMENT]	When the 2 heads are not aligned, the color shifting occurs and when the bidirectional and horizontal adjustment is not correct, the shifting occurs in every band.
5	ABSORPTION FAN is not working.	FAN Replacement		When the ABSORPTION FAN is not working, Media floats on the BED and this results in the Shifting in Printing.

6-4 VERTICAL BANDING

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Encoder Scale is dirty.	Clean / Replace Encoder Scale.	[3-10 Encoder Scale Replacement]	When there is scratch or dirt on the Encoder Scale, the printing image could be affected and the vertical bandings could be appeared at the position where there is scratch or dirt. Use KIMWIPE for cleaning or replace it. Never use chemicals, such as alcohol, for cleaning.
2	LM Guide is dirty.	Clean LM Guide.		When there is dirt on the LM Guide, the Head carriage has the big moving resistance and the printing image becomes to be changed from the other part at the position where there is there is a dirt . And it results in the vertical banding.
3	There is a dirt in teeth of Drive Gear.	Clean Drive Gear.		When there is a dirt in the teeth of the Drive Gear, the movement of the Head Carriage is changed at the position where there is a dirt. And it results in the periodical vertical bandings.
4	There is a dirt in teeth of Motor Gear.	Clean Motor Gear.		When there is a dirt in the teeth of the Motor Gear, the movement of the Head Carriage is changed at the position where there is a dirt. And it results in the periodical vertical bandings.

6-5 PRINT DOES NOT MATCH WITH CUT

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Within tolerance	Explain to User		Shifting of Printing and Cutting Position within +/-0.5mm or within +/-0.3% of distance traveled is in tolerance.
2	Elasticity in Media			Media will expand or shrink depending on the temperature and humidity. Therefore, if the elasticity differs when printing and when cutting, Printing and Cutting Positions will be shifted. By accustoming the media to the environment before printing, it could make the difference of elasticity minimum.
3	The machine's environment is not optimized.	Carry out the Environment Matching.	Uses Manual	Carry out [ENV. MATCH] in User's menu. Cutting position in the carriage moving direction is detected by the Motor ENCODER while the printing position is detected by the ENCODER SCALE. The ENCODER SCALE expands and contracts depending on the environment (temperature & humidity), and it causes the Print/Cut shifting problem in the carriage moving direction. (The shifting amount becomes bigger as it is far from the carriage standby position.) This function adjusts the machine to optimize its state to the environment where it is used. This function is the same adjustment as [LINEAR CALIB.] in Service menu.
4	Offset value of [CUTTING ADJ.] is not zero (0). .	Set the Offset value to zero (0).	Users Manual	When you are performing printing and cutting, use a value of "0" the menu of [CALIBRATION] -- [CUTTING ADJ.]. This setting is using the machine for cutting only.
5	Print / Cut Position Adjustment is not correct	Print / Cut Position Adjustment	[4-9 Print / Cut Position Adjustment]	Print / Cut Position Adjustment is to calibrate the error in the relative positions of Head and Tool Carriage due to the manufacturing tolerance and correct an error in printing and cutting positions. Therefore, if this adjustment is not performed correctly, printing and cutting positions will be shifted.
6	Calibration for Carriage Moving Direction is not correct	Calibration	[4-10 Calibration]	Media Feeding amount is slightly different in each media because of the difference in its thickness. When the feeding amount changes, landing position of the dots will be changed and results in banding.
7	Crop Mark Sensor is dirty	Clean the Crop Mark Sensor		Print / Cut Offset Adjustment can not be done correctly when the Crop Mark Sensor is dirty. When Crop Mark Sensor is dirty, relative positions of Printing and Cutting can not be corrected and cause printing and cutting positions to be shifted.
8	Sensitivity of Crop Mark Sensor is low	Crop Mark Sensor Adjustment	[4-7 Crop Mark Sensor Adjustment]	When the sensitivity of Crop Mark Sensor is low, relative positions of Printing and Cutting can not be corrected and cause printing and cutting positions to be shifted.
9	Tool / Crop Mark Sensor Position Adjustment is not correct	Tool / Crop Mark Sensor Position Adjustment	[4-8 Tool / Crop Mark Sensor Position Adjustment]	Tool / Crop Mark Sensor Position Adjustment is to calibrate the error in the relative positions of Tool and Crop Mark Sensor. Therefore, printing and cutting positions will be shifted when the relative position of Tool and Crop Mark Sensor is shifted from the correct position. And also, the Print / Cut Offset Adjustment is supposed to be done based on this adjustment. Therefore, the printing and cutting position will shift even if not Crop Marks are not used.

6-6 STITCH CUT

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Blade tip is wearing out	Replace the Blade		When blade wears out, it will be caught by the vinyl and results in stitch cut.
2	Blade Holder tip is caught by the media	Don't use Blade Extension Function		Blade holder tip gets caught by the vinyl depending on the surface condition or type of media. In this case, try cutting without using the blade extension function.
3	Scratch in Cutter Protection	Replace the Cutter Protection	[3-12 Cutter Protection _ Replacement]	Cutter Protection is where the blade lands for cutting. If there is scratch in the Cutter Protection, blade is caught by the vinyl because it sticks deeper into the vinyl and results in stitch cut.
4	Bearing inside Blade Holder doesn't rotate smoothly.	Replace the Blade Holder		There are bearings inside the Blade Holder. When the bearings don't rotate smoothly, direction of the blade slightly shifts from the correct direction and therefore, it will be caught by the vinyl which results in stitch cut.
5	Tool Height is not correct	Tool Height Adjustment	[4-11 Tool Height Adjustment]	When Tool Height is not adjusted, blade hits the Bed strongly and bounces which results in stitch cut. In most cases, stitch cut at the beginning is caused by this reason.
6	Tool Pressure is not correct	Tool Pressure Adjustment	[4-12 Tool Pressure Adjustment]	When Tool Pressure is not adjusted, blade hits the Bed strongly and bounces which results in stitch cut.
7	Holder part of Tool Carriage / Tool Carriage ASS'Y are loose.	Fix Holder part of Tool Carriage / Tool Carriage ASS'Y again.	[3-4 Tool Carriage _ Replacement]	When Holder part of Tool Carriage / Tool Carriage ASS'Y are loose, the cutting is unstable and results in the stitch cut.
8	Tool doesn't move up/down smoothly	Replace the Tool Carriage	[3-4 Tool Carriage _ Replacement]	When Tool doesn't move up and down smoothly, blade sometimes hits the Bed strongly and bounces which results in stitch cut. In most cases, stitch cut at the beginning is caused by this reason.
9	Solenoid Driver IC on Servo Board is broken	Replace IC2 on the Servo Board		When Solenoid Driver IC breaks, sometimes high pressure will be generated. In this case, blade hits the Bed strongly and bounces which results in stitch cut.

6-7 START AND END POINTS DO NOT MATCH

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Blade Offset doesn't match with offset set in the machine	Match Offset	User's Manual	Blade used on the machine has offset and therefore, tip is shifted from its center. When the offset setting done on the machine doesn't match with the blade offset, offset correction won't be done. Therefore, the starting and ending points won't match especially when cutting circles.
2	Scratch in Cutter Protection	Replace the Cutter Protection	[3-12 Cutter Protection _ Replacement]	Cutter Protection is where the blade lands for cutting. If there is scratch on the Cutter Protection, blade doesn't rotate smoothly and therefore, starting and ending point won't match.
3	Blade tip is wearing out	Replace the Blade		When blade tip wears out, offset will be changed. Therefore, as same as 1, the starting and ending point won't match especially when cutting circles.
4	Bearing inside Blade Holder doesn't rotate smoothly	Replace the Blade Holder		There are bearings inside the Blade Holder. When the bearings don't rotate smoothly, direction of the blade slightly shifts from the correct direction and therefore, starting and ending points do not match.
5	Holder part of Tool Carriage / Tool Carriage ASS'Y are loose.	Fix Holder part of Tool Carriage / Tool Carriage ASS'Y again.	[3-4 Tool Carriage _ Replacement]	When Holder part of Tool Carriage / Tool Carriage ASS'Y are loose, the cutting is unstable and starting and ending points do not match.
6	Tool Height is not correct	Tool Height Adjustment	[4-11 Tool Height Adjustment]	When Tool Height is not adjusted, blade hits the Bed strongly and bounces. Therefore, the cutting at the very beginning won't be done and cause the starting and ending points to be shifted.
7	Tool Pressure is not correct	Tool Pressure Adjustment	[4-12 Tool Pressure Adjustment]	When Tool Pressure is not adjusted, blade hits the Bed strongly and bounces. Therefore, the cutting at the very beginning won't be done and cause the starting and ending points to be shifted. And also, when the Tool Pressure is set too high by the user, the blade offset changes because the blade tip goes deep into the vinyl. Therefore, the starting and ending points will be shifted.
8	Motor Gear is meshed too tight or too loose	Adjust Backlash		When Motor Gear is meshed too tight or too loose, Tool Carriage and Grit Roller will be driven unstable and results in starting and ending points to shift.

6-8 DISTORTED FIGURE

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Blade Holder is set loose on Tool Carriage	Secure the Blade Holder	User's Manual	When Blade Holder is set loose on Tool Carriage, the blade tip becomes very shaky when cutting and results in distorted figure.
2	Blade Offset doesn't match with offset set in the machine	Match Offset	User's Manual	Blade used on the machine has offset and therefore, tip is shifted from its center. When the offset setting done on the machine doesn't match with the blade offset, offset correction won't be done and results in distorted figure.
3	Blade tip is wearing out	Replace the Blade		When blade tip wears out, offset will be changed. Therefore, it results in distorted figure like the way 2.
4	Bearing inside Blade Holder doesn't rotate smoothly	Replace the Blade Holder		There are bearings inside the Blade Holder. When the bearings don't rotate smoothly, direction of the blade slightly shifts from the correct direction and results in distorted figure.
5	Holder part of Tool Carriage is loose	Replace the Tool Carriage	[3-4 Tool Carriage _ Replacement]	When holder part of Tool Carriage is loose, direction of the blade slightly shifts from the correct direction and results in distorted figure.
6	Tool Carriage is loose	Replace the Tool Carriage	[3-4 Tool Carriage _ Replacement]	When the Tool Carriage is loose, the blade tip becomes shaky and results in distorted figure.
7	Motor Gear is meshed too tight or too loose	Adjust Backlash		When Motor Gear is meshed too tight or too loose, Tool Carriage and Grit Roller will be driven unstable and results in distorted figure.

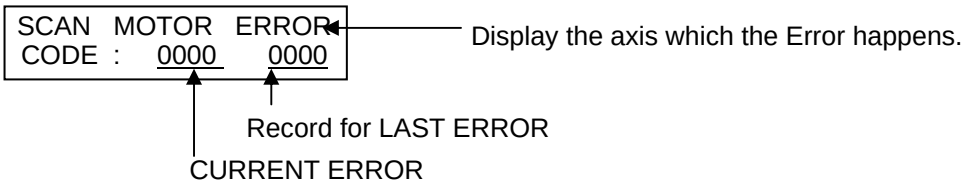
6-9 MEDIA SHIFTING

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Flanges for the Media is loose	Fix the Flanges with Stopper	User's Manual	Media Flanges are fixed by the stoppers. If the stoppers are not fixed, roll shifts to left and right during media feeding and results in media shifting.
2	Flanges are not set correctly to the Media	Setup Media again	User's Manual	When the flanges are not fully inserted to the media tube, media will be fed eccentric and results in media shifting.
3	Media is not set straight to the machine	Setup Media again	User's Manual	The most effective measure against media shifting is to set the media straight to the machine. Small tilting of the media when setting it up could result in big shifting especially doing long print. It is recommended to setup the media by adding tension towards front and check the shifting by prefeed function before actually start printing.
4	Grit Roller is dirty	Clean the Grit Roller		When dust such as pieces of vinyl is stick to the grit roller, power to hold the media will be weakened and results in media shifting. Use brush to clean the Grit Roller.
5	Pinch Roller is wearing out	Replace the Pinch Roller	[3-11 Pich Roller Replacement]	When pinch rollers wear out, power to hold the media will be weakened and results in media shifting. Referential time for replacement of pinch roller is 24 months.
6	Grit Roller is loose	Fix the Grit Roller		When Grit Roller becomes loose, feeding amount between left and right edges will be different and results in media shifting.

6-10 MOTOR ERROR

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Media Jam	Remove cause of Media Jam.		When the edges of the media curls or the media absorbs the Ink and becomes to be irregular surface of the media, the Head Carriage catches on the media during printing and results in the Motor Error.
2	Broken / life of the Motor	Motor Replacement	[3-5 Carriage Motor Replacement]	When the Motor is broken or reaches its life, the Motor cannot obey the order from the CPU and it results in the Motor Error.
3	Power Supply voltage for Motor is not supplied	Replace Switching Power Supply	[3-13 SW Power Supply Replacement]	When the Power Supply voltage for the Motor is not supplied, the Motor cannot move and it results in the Motor Error.
4	Broken Motor Driver	Mainboard Replacement		When the Servo Board is broken, the Power Supply voltage for the Motor is not supplied and the Motor cannot move. It results in the Motor Error.
5	There is a dirt in teeth of Drive Gear.	Clean Drive Gear.		When there is a dirt in the teeth of the Drive Gear and it cannot rotate, the Motor Error occurs.
6	Weight of Media exceeds usable Media.	Use usable Media.		When the weight of Media is too heavy, the Motor Error occurs due to the too much load for feeding Media.

MOTOR ERROR
< ERROR DESCRIPTION



< ERROR LIST >

Bit No.	MEANING	CAUSE
0001	Feed Motor Deviation Error	< User side > 1. Media Jam 2. Pull or Move the Carriage by hands. 3. Carriage runs into a thing/hands. 4. Media is stuck because the media end is not separated from the paper tube. 5. Heavy media is used. < Mechanical Side > 1. There is a bad contact/cut-line in the cable. 2. Screw fixing the tool carriage to wire is shifted. 3. Motor is broken./Life 4. Head/Servo Board is broken.
0004	Feed Motor Overcurrent Error 1 (Big load is put on the motor movement instantaneously.)	
0008	Feed Motor Overcurrent Error 2 (A little load is put on the motor movement for a long time.)	
0005	0001 and 0004 occurred at the same time.	
0009	0001 and 0008 occurred at the same time.	
0010	Scan Motor Deviation Error	
0040	Scan Motor Overcurrent Error 1 (Big load is put on the motor movement instantaneously.)	
0080	Scan Motor Overcurrent Error 2 (A little load is put on the motor movement for a long time.)	
0050	0010 and 0040 occurred at the same time.	
0090	0010 and 0080 occurred at the same time.	

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6-11 HEATER TEMPERATURE FAILS TO REACH THE PRESET VALUE

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Voltage Switches are not set correctly	Set the Voltage Switches	User's Manual	Defalt Setting : 220V to 240V If the voltage switches are set to 230V and the voltage of 115V is applied to the Heater, Heaters don't warm up because enough voltage is not supplied.
2	Fuse is broken	Fuse Replacement		If the fuse is broken, power can't be suppied to the Heaters. Please check the cause of broken fuse before replacing it. (short-circuit and others)
3	Cut-line in the Heater	Heater Replacement		
4	Thermistor is broken	Thermistor Replacement		If the thermistor can't take the temperature of the Heater, the controller can't control the temperature properly.
5	Thermostat is broken	Thermostat Replacement		Thermostat will stop supplying voltage automatically for the safety if the temperature exceeds the limit. If the Thermostat is broken, Heater doesn't warm up.

6-12 DOESN'T CONTROL THE TEMPERATURE

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Voltage Switches are not set correctly	Set the Voltage Switches	User's Manual	Defalt Setting : 220V to 240V If the voltage switches are set to 230V and the voltage of 115V is applied to the Heater, Heaters don't warm up because enough voltage is not supplied.
2	Thermistor is broken	Thermistor Replacement		Controller can not control the temperature because the thermistor doesn't take the temperature of the Heater.

6-13 ERROR MESSAGE

NO	CHECKING POINT	ACTION	REFERENCE	OUTLINE
1	Service Call	Refer to Service Call	Refer to Service Call	
2	Internal Error	Restart machine		This message is displayed when an unexpected error happens. In the most case, the error can be fixed by restarting the machine. If the error still happens in spite of restarting the machine, it sometimes could be solved by carrying out the Limit Initialization or changing some setting values.

6-14 SERVICE CALL

CODE No.	MEANING	CONTENTS	CAUSE	ACTION
0002	Sub CPU Communication Error	Disorder of communication with Sub CPU	Sub Board does not work correctly. Sub CPU does not work correctly. There is a bad connection between Main Board and Sub Board.	1) Check Cable Connection between Main Board and Servo Board 2) Servo Board Replacement 3) Main Board Replacement
0003	DIPSW model setting error	A setup about the model of DIPSW is set up in an unsuitable combination.	DIPSW setup error DIPSW defect Main Board defect	1) Check the DIPSW setup 2) Replacement the Main Board
0101	Limit Position Error	Limit Position Initialize has not been done.	Limit Position Initialize has not been done.	1) Carry out Limit Position Initialize.
0102	Head Lock Sensor Error	Even though the machine carries out the regular movement, the output of the Head Lock Sensor does not reach the expected value.	Head Lock Sensor does not work correctly or is broken.	1) Head Lock Sensor Replacement 2) Check the mechanical Backlash or loose with the scanning axes.
0103	Limit Sensor Error	Even though the machine carries out the regular movement, the output of the Limit Sensor does not reach the expected value.	Limit Sensor does not work correctly or is broken.	1) Limit Sensor Replacement 2) Check the mechanical Backlash or loose with the scanning axes.
0104	Cap Unit Protection Error	Even though the machine carries out the regular movement, the output of Cap Sensor does not reach the expected value.	Disorder of Cap Motor Fault of Cap Unit Fault of Cap Sensor Cut-line or short-circuit of Cable and Flexible Cable	1) Cap Motor Replacement 2) Cap Unit Replacement 3) Cap Sensor Replacement 4) Cable and Flexible Cable Replacement
0105	Tool Carriage Connection Error	Machine fails to connect the Tool Carriage to the Head Carriage.	Fault of Tool Carriage Connection Loose of Connection Part Fault of the Limit Position Initialize value Limit Sensor does not work correctly or is broken.	1) Check the mechanical Backlash or loose with the Tool Carriage part. 2) Lock Position Adjustment 3) Limit Position and Cut Down Position Initialize 4) Limit Sensor Replacement
0106	Tool Carriage Disconnection Error	Machine fails to disconnect the Tool Carriage from the Head Carriage.	Disorder of Cap Motor Loose of Connection Part Fault of the Limit Position Initialize value Limit Sensor does not work correctly or is broken.	1) Check the mechanical Backlash or loose with the Tool Carriage part. 2) Lock Position Adjustment 3) Limit Position and Cut Down Position Initialize 4) Limit Sensor Replacement
0107	Unset up of the Linear Encoder	Linear Encoder Setup has not been done.	Linear Encoder Setup has not been done.	1) Carry out Linear Encoder Setup.
0109	Wiper Protection Error	Even though the machine carries out the regular movement, the output of the Wiper Origin Sensor does not reach the expected value.	Disorder of Wiper Origin Sensor Fault of Wiper Unit Fault of Wiper Origin Sensor Cut-line or short-circuit of Cable and Flexible Cable	1) Wiper Origin Motor Replacement 2) Wiper Unit Replacement 3) Wiper Origin Sensor Replacement 4) Cable and Flexible Cable Replacement
0110	Linear Encoder Error	Input value from Linear Encoder is not changed when Linear Encoder is set up the Origin. When Motor stops during printing, Motor does not complete the movement which is supposed to be done.	Read error of Linear Encoder Read error of Encoder on Scan Motor side Wire is not fixed to Head Carriage firmly.	1) Confirm whether Encoder Scale is between the slit of Encoder Module in a whole width of the machine. 2) Linear Encoder Replacement 3) Scan Motor Replacement 4) Confirm Cable Connection between Linear Encoder Board and Print Carriage Board. 5) Confirm Connection between Wire and Head Carriage.

CODE No.	MEANING	CONTENTS	CAUSE	ACTION
0111	Tool / Crop Error	This error occurs when the machine performs the Auto Crop Mark Detection or the Auto Print / Cut adjustment without the Tool / Crop Mark Sensor Adjustment.	Tool / Crop Mark Sensor Adjustment has not been performed.	1) Tool / Crop Mark Sensor Adjustment
0120	Thermistor Error (Print Heater)	Thermistor of the Print Heater doesn't work correctly.	Thermistor of the Print Heater is broken. There is a cut-line/short in the wiring of the Thermistor.	1) Check the wirings of Print Heater 2) Thermistor Replacement
0121	Thermistor Error (Dryer)	Thermistor of the Dryer doesn't work correctly.	Thermistor of the Dryer is broken. There is a cut-line/short in the wiring of the Thermistor.	1) Check the wirings of Dryer 2) Thermistor Replacement
0125	Heater Error (Print Heater)	Print Heater doesn't work correctly. Temperature of the Print Heater is over 60 degree Celsius.	There is a cut-line/short in the wiring of the Print Heater. Thermostat is broken. Thermistor is broken.	1) Check the wirings of Print Heater 2) Thermostat Replacement 3) Thermistor Replacement
0126	Heater Error (Dryer)	Dryer doesn't work correctly. Temperature of the Dryer is over 60 degree Celsius.	There is a cut-line/short in the wiring of the Dryer. Thermostat is broken. Thermistor is broken.	1) Check the wirings of Dryer 2) Thermostat Replacement 3) Thermistor Replacement

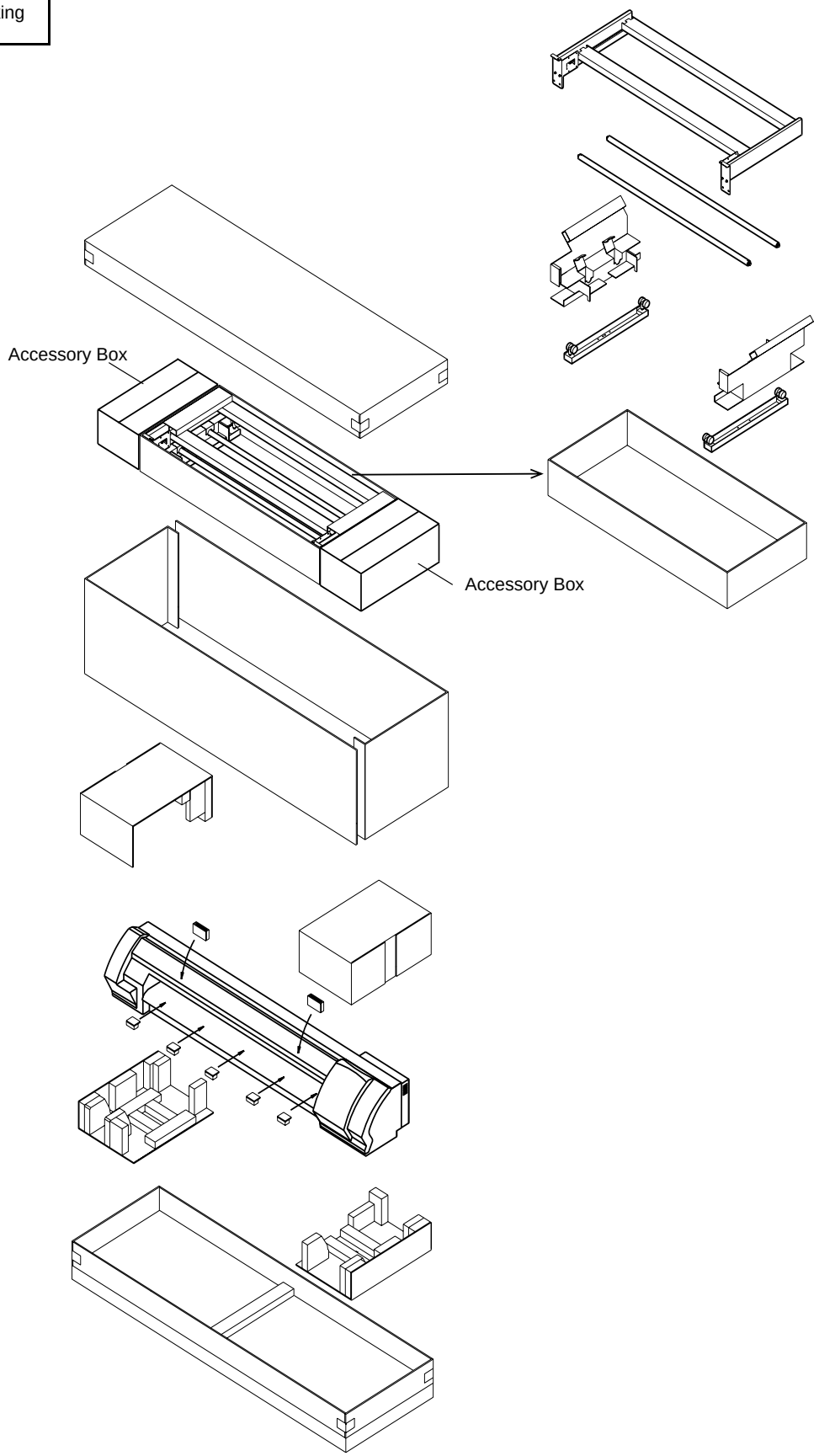
7 Service Activities

7-1 INSTALLATION CHECK LIST

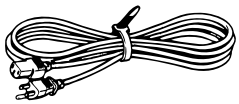
Serial Number	User	Date	Minimum Space Required
			SP-540V : 3.7m(w) x 1.8m(d) x 1.8m(h)

Classification
Purchase Loan Unit Demo Unit Replacement

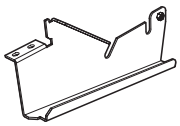
Unpacking



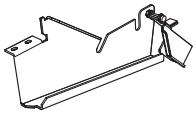
Checking the Accessories



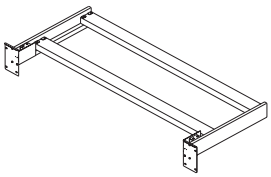
Power cord : 1



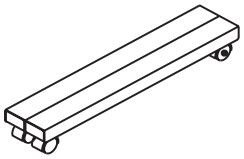
Arm (Right) : 1



Arm (Left) : 1

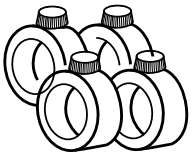


Stand leg : 1

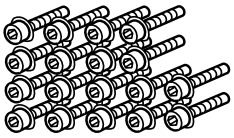


Casters : 2

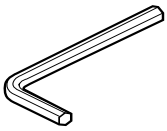
Shafts : 2



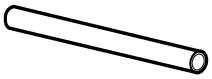
Stoppers : 4



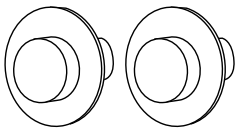
Bolts : 18



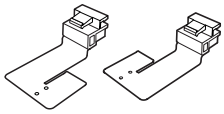
Hexagonal wrench : 1



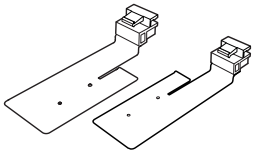
Pipe : 1



Media flanges : 2

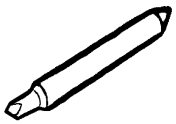


Short Media clamp : 2
(left and right) (*1)

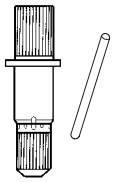


Long Media clamps : 2
(left and right)

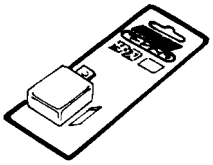
Center pinch rollers : 5 (*2)



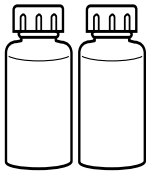
Blade :1



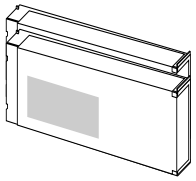
Blade Holder :1 / Pin : 1



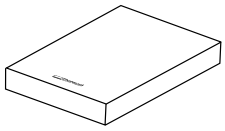
Replacement blade for
separating knife : 1



Drain Bottles : 2



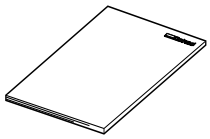
SOL INK Cleaning
cartridges : 2



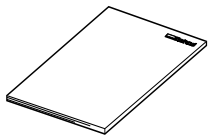
Software RIP : 1 set

Roland Cut Driver
CD-ROM : 1

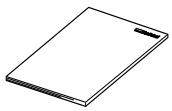
Roland-PrintServer
CD-ROM : 1



User's Manaul : 1



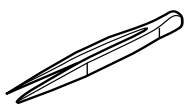
Setup Guide : 1



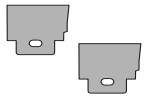
Roland-PrintServer
Network Setup Guide : 1

Cleaning kit

Cleaning sticks : 10



Tweezers : 1



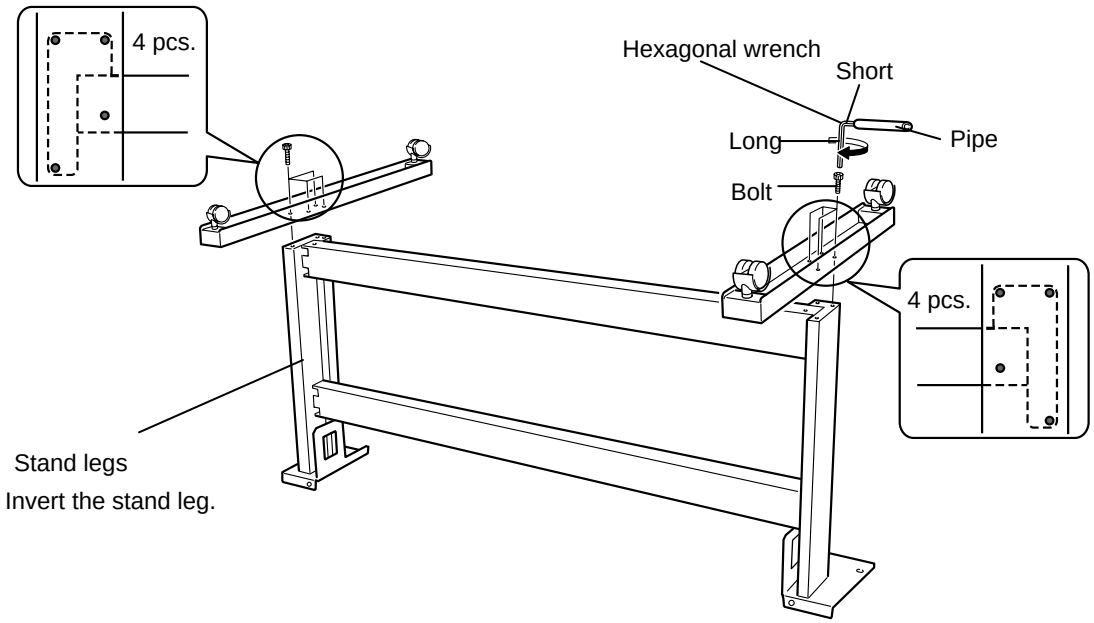
Wipers : 2

* 1 The short media clamps are installed on the machine.

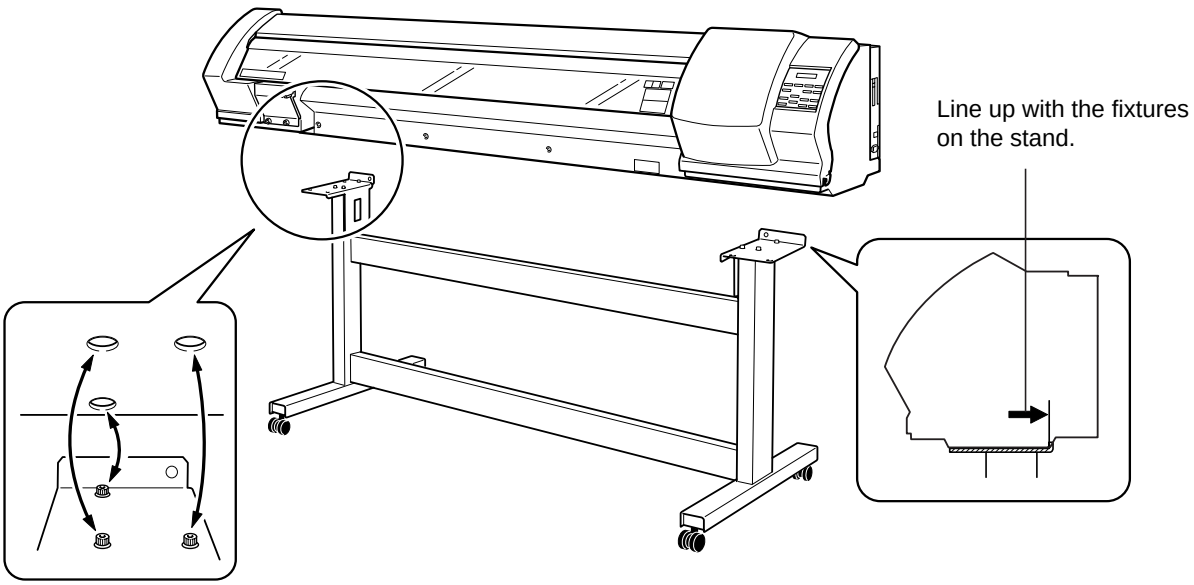
* 2 The two middle pinch rollers are installed on the machine.

Assembling the Stand

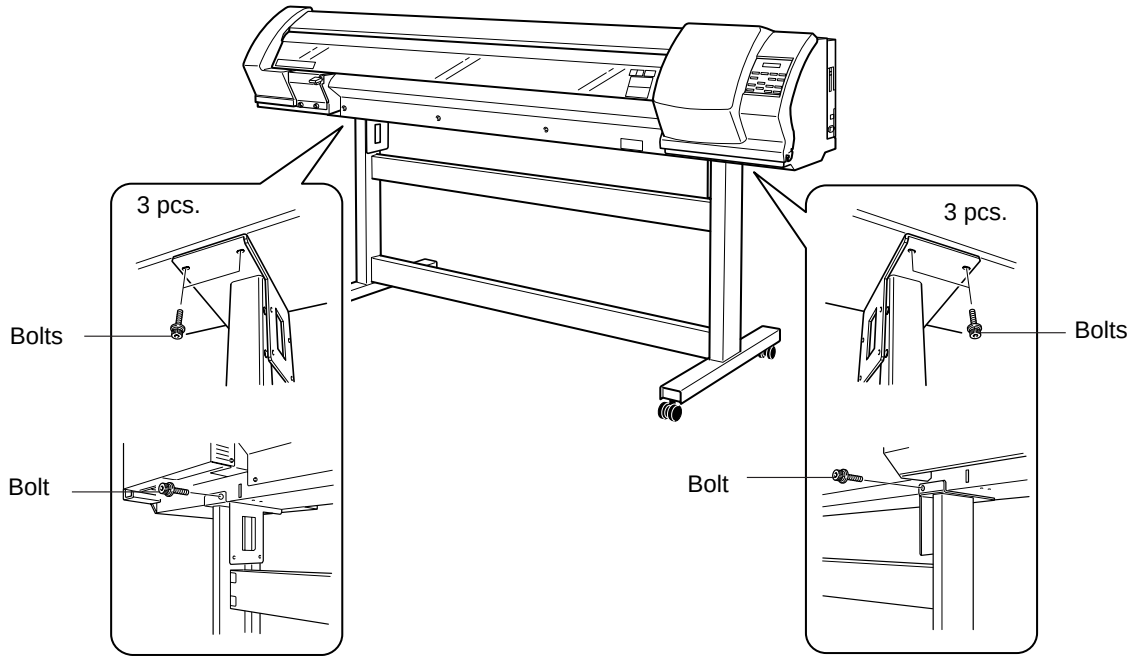
1. Attach the casters onto the stand leg.
   Tighten the bolts securely. Loose bolts may cause the stand to wobble.



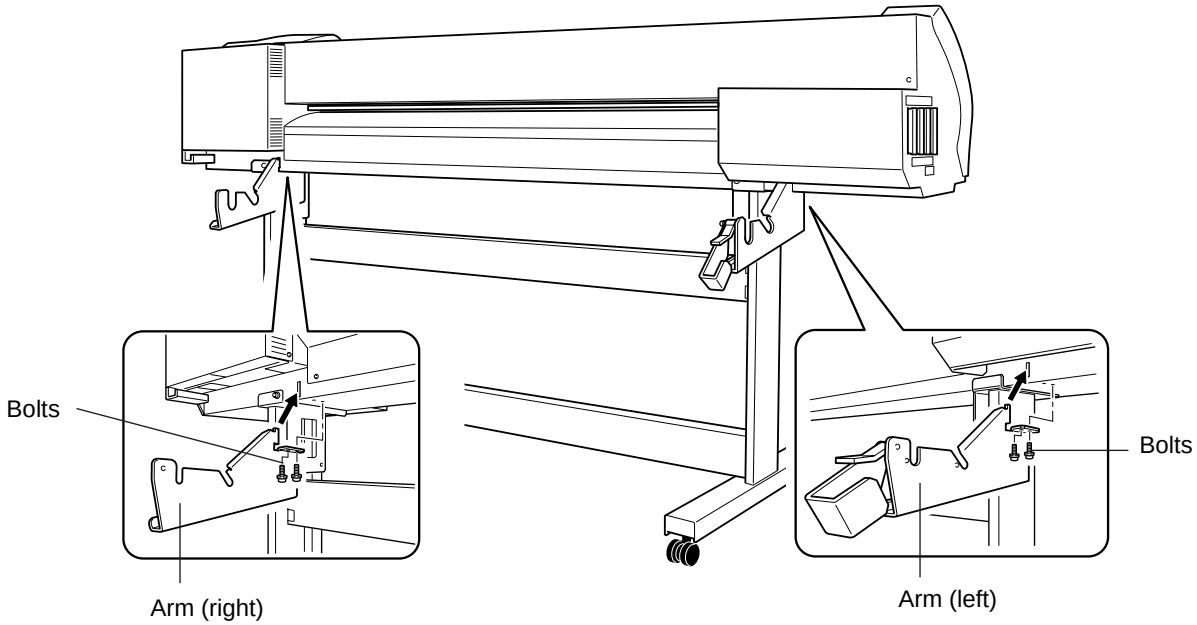
2. Set the stand upright, and place the machine on the stand.



☐ 3. Use the bolts to secure the machine to the stand.
Tighten the bolts securely. Loose bolts may cause the stand to wobble.

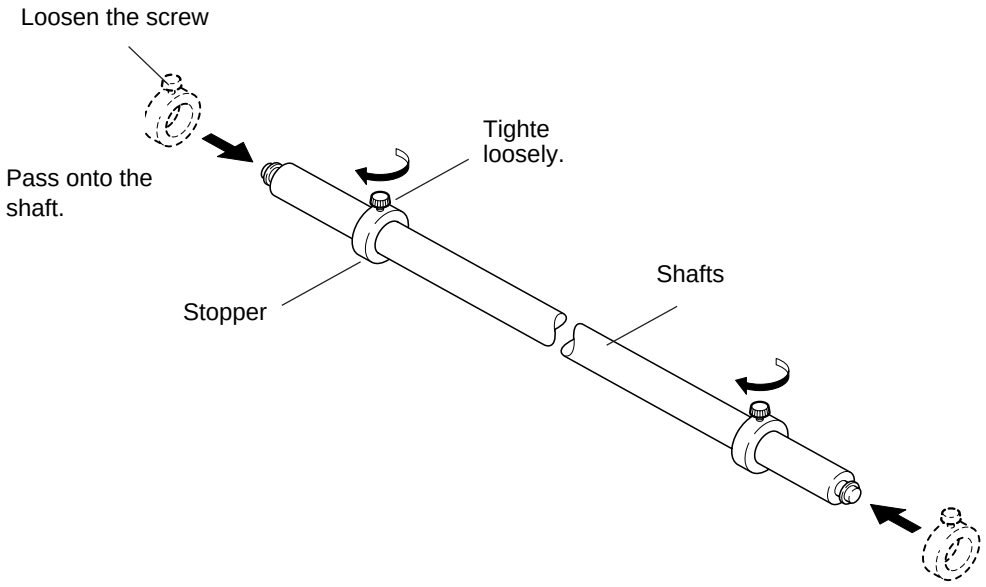


☐ 4. Attach the arms.

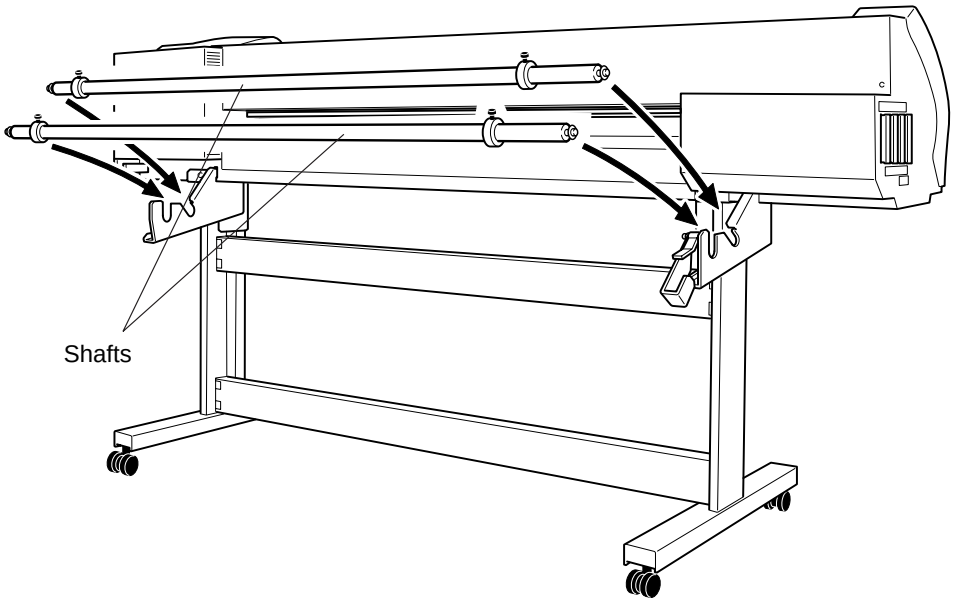


Installing the Included Items

5. Attach the stoppers onto both ends of the shafts.

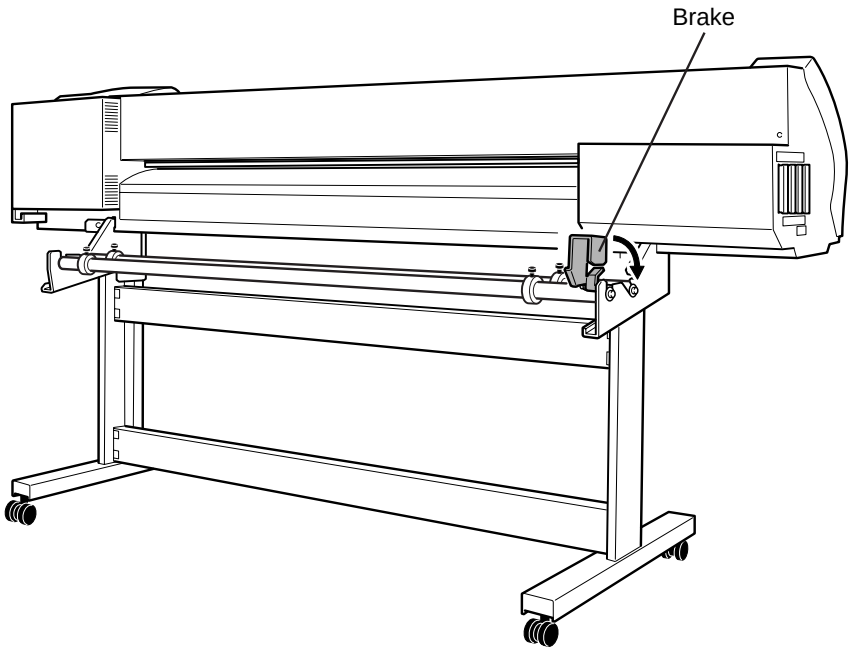


6. Attach the two shafts to the arms.



☐ 7. Engage the brake.

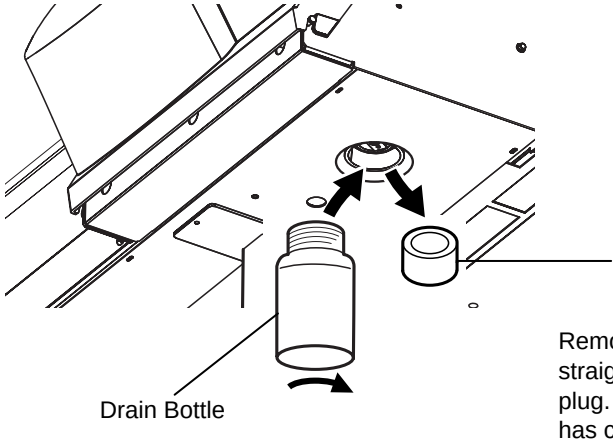
Using the machine with the brake disengaged may result in unstable media feed, leading to poor image quality.



☐ 8. Install the drain bottle.

Remove the bottom plug from the bottom surface on the right side of the machine,
then screw in the drain bottle in the direction indicated by the arrow.
When threading the bottle onto the machine, turn the bottle without applying excessive force.

The bottom of the machine

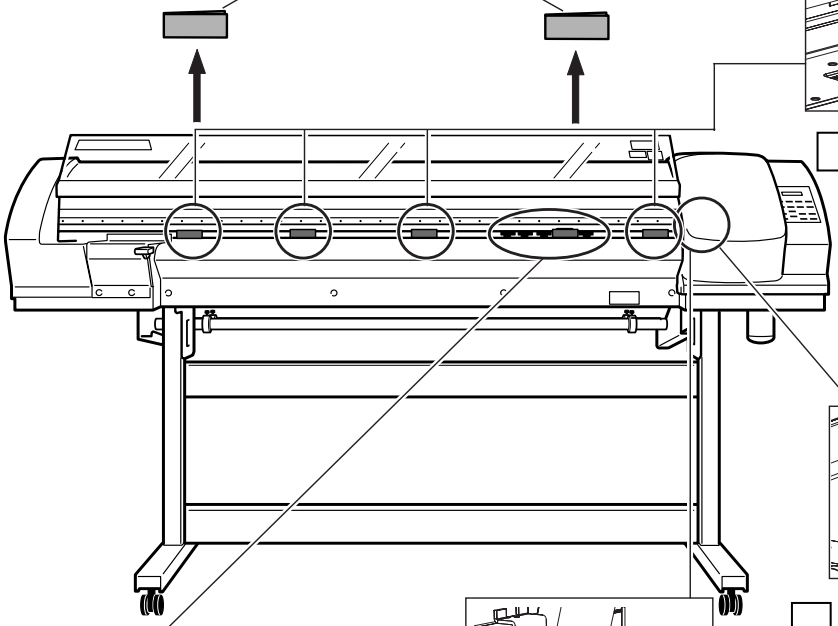


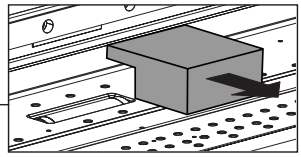
Remove the bottom plug by pulling straight down, without tilting the plug. Otherwise discharged fluid that has collected inside the bottom plug may spill.

Removing the protective stuff

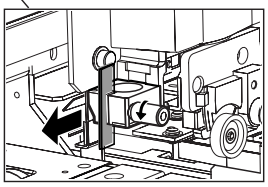
1) Remove the packing.
Then open the front cover.

Front

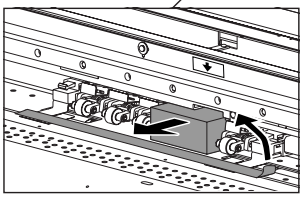




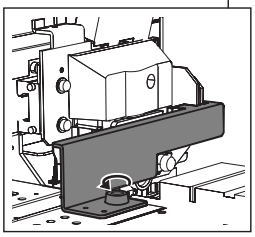
2) Remove the packing inside the front cover.



5) Remove the packing.
Then close the front cover.

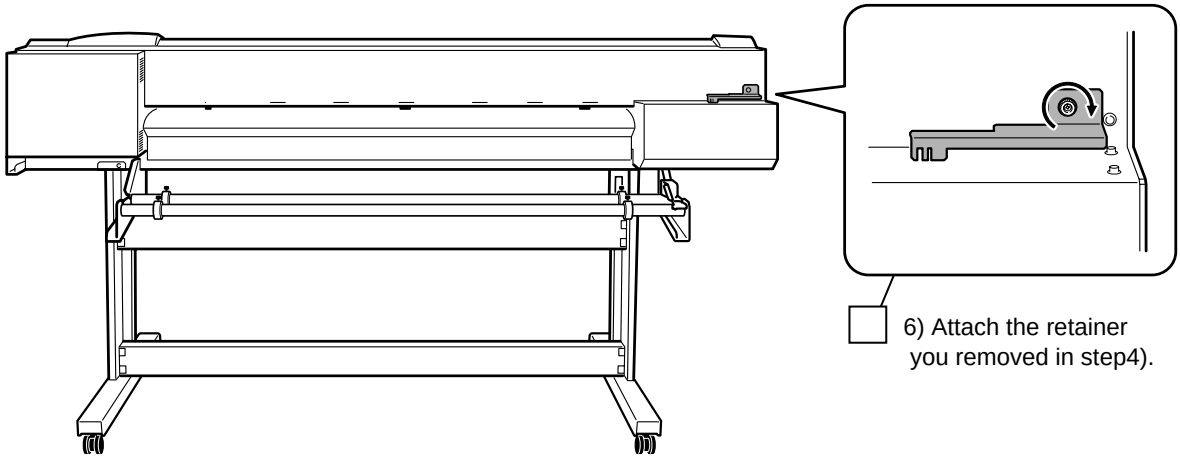


3) Remove the packing and peel off the tape.



4) Remove the retainer.

Rear



6) Attach the retainer you removed in step4).

☐ Connection	☐ Connecting the Power Cord

☐ Installation of VersaWorks

!! IMPORTANT !!
<System Requirements for Installing the Software>
Operating system : Windows XP ServicePack 1 or Windows 2000 Service Pack 4
CPU : Conputer with Pentium 4 2.0GHz or faster recommended
Memory (RAM) : 512 MB (1 GB or more recommended)
Free hard-disk space required for installation : 100 MB
Free hard-disk space required as a working space : 1 GB or more recommended

☐ Before printing

☐ Set the Voltage Switch

!! IMPORTANT !!
Before switching on the power, set the voltage switch for the region where the machine is installed.

☐ Change the setting for the language and Unit of Measurement.

You can change the setting for the language and the measurement unit used for the LCD by turning on the Sub Power while holding down [MENU] key.

☐ Fill Ink

!! IMPORTANT !!
2 pcs. of the SOL INK cleaning cartridges are required in this work.
Always be sure to gently shake the ink cartridge before you install it.

☐ Match the machine to the environment where installed. (Perform [ENV. MATCH])

The printing length in scanning direction may change depending on the operating environment, such as temperature or humidity.
This adjustment is to reduce misalignment between the printing and the cutting in the scanning direction caused by the operating environment.

☐ Install the Blade

☐ Connect to the Computer

☐ Setup IP Address

☐ Switch the Power On and Off.

!! IMPORTANT !!
Once you have switched on the main power, you should normally leave it on.
In day-to-day use, you switch the machine on and off using only the sub power.

☐ Menu Operations

Neither printing nor cutting is performed while menu settings are being made.
When you have finished making menu settings, press the [MENU] key to go back to the top menu.

Before printing	☐ Load Roll Media !! IMPORTANT !! Explain to fix the Media flanges by changing their direction depending on the diameter of the paper tube. Explain to adjust [Feed Correction] and [Bidirectional Correction] when using another type of media. Explain about the thickness of usable media. Refer to the User's Manual [Usable Media]. Explain to use the Media clamps when using the media which curls easily. Explain to remove the roll media from the machine after use. If the roll media is installed on the machine for a long time, the roll media may bend by the weight and it may influence the printing result. ☐ Load Sheet Media ☐ Secure in Place Using the Media Clamps. (Only when printing) !! IMPORTANT !! There are Short Media Clamps and Long Media Clamps. The long Media Clamps interfere with the separating knife. Explain to be sure to set [MEDIA CLAMP] to [LONG] in the menu when using the long media clamps. Making this setting disable the media-cutoff operation. ☐ Heater Operation When no media is loaded. When media is loaded. ☐ Changing the Number of Pinch Rollers to match the Media You can detach the center pinch rollers. This lets you vary the number used to match such conditions as the width or composition of the media. !! IMPORTANT !! Make sure to place all pinch rollers above grit rollers. If not, error message will be displayed when you close the Front Cover. When printing on Banner such as SPVCB, please use all middle pinch rollers (5pcs.) to feed the media smoothly. When cutting on Hi Gloss Vinyl such as SV-GG, please remove the middle pinch rollers.

Operations	☐ Make the Temperature Setting for the Heaters !! IMPORTANT !! Do not touch the platen when the heater is operating. You can set the temperature either to "OFF" or to a value from 30 to 50 degrees C (in steps of 1 degrees C) If the software you're using is provided with a feature for setting the heater temperature, you can use your software to adjust the temperature. ☐ Check the State of the Printing Heads ☐ Check the Cutting Condition Settings The following cutting conditions can be set by [CUT CONFIG] key. * Blade Force * Blade Offset * Tool-up Speed *Cutting Speed

Operations

Explain about [CUTTING PRIOR] menu.
[MENU] ... The machine will cut with the cutting conditions set on the machine.
[COMMAND] ... The machine will cut with the cutting conditions set on the software.

- When Performing Printing Only
- When Performing Cutting Only
- When Performing Printing and Cutting
- Separate the Media
- Stop or Pause Output Operations
- Set the Location Where Printing Starts

!! IMPORTANT !!
When you're performing printing, using the arrow keys to pull back the media should be avoided as much as possible. Otherwise printing accuracy may reduce or printing may sag.

- Make Corrections for Printing
  Feed Correction
  Bidirectional Correction

!! IMPORTANT !!
When correcting the amount of feed, make the settings for the same conditions for the type of media used, the configuration of the media, and the heater temperature as when actually performing printing.
When performing test printing for feed correction, load the media correctly.
When you can make a setting for error in the amount of feed for the grit rollers on the computer, the computer's setting takes priority. To make the machine's setting take priority, turn off the computer's setting.

- Save and Load a Bidirectional-correction Value

Saving different adjustment values for different types of media makes it possible to load the adjustment value simply when changing the media type.

- Detailed Descriptions of Cutting Conditions

!! IMPORTANT !!
Explain not to use the Media Clamps when cutting.
Explain to set the value of [CUTTING ADJ.] in [CALIBRATION] menu to [0] when using the machine for printing & cutting, because this menu is to correct the cutting length when using the machine only for cutting.
[CUTTING ADJ.] menu corrects for the cutting length when using the machine for cutting only.
When using the machine for printing & cutting, always set the offset value to [0].

- Make Corrections for printing and Cutting (Automatically and Manually)
- Print with Crop Marks
- Alignment of the Crop Marks (Automatic and Manual)

!! IMPORTANT !!
Depending on the type of media, it may not be possible to detect crop marks automatically.
When crop marks cannot be detected automatically, you perform alignment manually.

Operations

- [ ] Check the Remaining Ink Level

- [ ] When Not in Use for a Prolonged Period.

!! IMPORTANT !!
Even when the machine is not in use, keep it in an environmental where the temperature is 5 to 40 degrees C (41 to 104 degrees F) and the humidity is 20 to 80% (with no consideration).
Be especially careful not to expose the machine to high temperature of 40 degrees C (104 degrees F) or more.

- [ ] Recording the Amount of Remaining Media

!! IMPORTANT !!
Default value in the Set Length menu is 0. The amount remaining is not displayed when the setting is 0.
The amount of media remaining is not updated automatically when you change the media. Redo the setting.
The remaining amout that is displayed is only an estimate, and its acuracy is not assured.

Maintenance

- [ ] Replace the Ink Cartridge

!! IMPORTANT !!
Once an ink cartridge has been installed, never remove it until the ink has been used up, except when moving the machine.
Frequent insertion and removal may cause air to enter the ink tube, resulting in missing dot or other problems in printing quality.

- [ ] Clean the Printing Head

Explain that the machine will display [PRESS THE POWER KEY TO CLEAN] message if the machine is left without using for 1 month.

- [ ] Clean Using the Cleaning Kit

!! IMPORTANT !!
Instruct users how to perform the cleaning so that they can do it rightly by themselves..
As cleaning is performed while the caps on the printing heads are detached, cleaning must be completed before the heads dry out.
It is suggested that cleaning be completed in thirty minutes or less.

- [ ] Other Cleaning Tasks

* Body
* Platen
* Grit rollers
* Pinch rollers (Raise the Pinch rollers when not in use.)
* Front cover
* Media Clamps

Explain the cleaning method for each part to the customer referring to the Users Manual.

- [ ] Replace the Consumable parts

* Wiper *Blade *Separating Knife

- [ ] Dispose of Discharged Ink

Explain about the time to discard the discharged ink in the Drain bottle.
Explain to switch off the sub power before performing to discard the discharged ink.
Explain to discard carefully the discharged ink from the Drain bottle so that the ink does not spatter.

Maintenance	☐ When Moving the Unit !! IMPORTANT !! When you move the machine, you first clean the Head. Cleaning of the heads requires 4 SOL INK cleaning cartridge. Explain it is necessary to fill ink within 1 week after performing the HEAD WASH. The nozzles of the Heads could be clogged if the machine is left for a long period after removing the ink.

Others	☐ Explain to switch off and on the machine and check the result before calling an engineer when Service Call error occurs. There is a possibility to solve the problem. ☐ Instruct users how to cap the Head. Users need to cap the Head by themselves in case the Head does not return to the standby position for some reason.

	PARTS NAME	Exchange Time
Exchange Time of the Consumable Parts	Printing Head	6 billion shots / nozzle (6000000 kshots) * When the Head is replaced, the Damper should be replaced at the same time.
	Wiper	6 months or Wiping 3000 times or Ribbing 100 times When the cleaning has been done for the 500 times, the message for replacement of the Wiper will be shown on the LCD.
	Carriage Motor	2000 hours
	Cap Top	6 months
	Ink Tube	2000 hours
	Pump Unit	50,000 times
	Ink Tube	2000 hours
	Sponge for Flushing	6 months
	Ink Pad (Pad under the Wiper Unit)	12 months or Sponge Hours : 1920 hours When the printing has been performed for 1920h, the message for replacement of the Ink Pad will be shown on the LCD.
	Battery	24 months
	Cutter Protection	Replace depending on scratches on the Cutter Protection.
	Pinch Roller	Replace it if the rubber part is worn out.

7-2 Maintenance Check List

AFTER 6 MONTHS MAINTENANCE CHECK LIST

Model	Serial Number	User	Date
PC	**OS**	**Application**	

MAINTENANCE

Check Points		Contents	Reference
☐ System Report Output/ Taking with Peck.exe			
☐ Firmware		☐ OK ☐ Upgrade	
☐ Consumables	Head	☐ OK ☐ Cleaning ☐ Replacement	6 billion shots
	Carriage Motor	☐ OK ☐ Replacement	2000 hours
	Cleaning Wiper	☐ OK ☐ Cleaning ☐ Replacement	6 months or Wiping : 3000 times or Rubbing : 100 times
	Cap Top	☐ OK ☐ Cleaning ☐ Replacement	6 months
	Ink Tube	☐ OK ☐ Cleaning ☐ Replacement	2000 hours
	Pump Unit	☐ OK ☐ Cleaning ☐ Replacement	Pump Revolution times : 50000 times
	Sponge for Flushing Unit	☐ OK ☐ Cleaning ☐ Replacement	6 months
	Ink Pad	☐ OK ☐ Cleaning ☐ Replacement	12 months or Sponge Hours:1920 hours
	Lithium Battery	☐ OK ☐ Replacement	24 months
	Cutter Protection	☐ OK ☐ Replacement	Replace it if there are scratches on it.
	Pinch Roller	☐ OK ☐ Replacement	Replace it if the rubber part is worn out.
☐ Mechanical	Carriage Drive Gear	☐ OK ☐ Backlash ☐ Lubrication ☐ Replacement	Grease : FLOIL G902
	Grit Drive Gear	☐ OK ☐ Backlash ☐ Lubrication ☐ Replacement	Grease : FLOIL G902
	Wire	☐ OK ☐ Tension ☐ Replacement	
	Platen	☐ OK ☐ Cleaning	
	Grit Roller	☐ OK ☐ Cleaning	
	Pinch Roller	☐ OK ☐ Cleaning	
	Reflective Tape	☐ OK ☐ Cleaning	
	Sheet Sensor	☐ OK ☐ Cleaning	
	Media Clamp	☐ OK ☐ Cleaning	
	Bed	☐ OK ☐ Cleaning	
	Tool Carriage is fixed on the wire.	☐ OK ☐ Loose	
	Cutter Holder	☐ OK ☐ Loose	
☐ Printing		☐ OK ☐ NG (Reason)	
☐ Cutting		☐ OK ☐ NG (Reason)	
☐ System Report Output/ Taking with Peck.exe		** In case of any changes.	

OPERATION CHECK

Media	☐ Loading	Others
Printing	☐ Setting printing position ☐ Calibration	
Cutting	☐ Alignment of Crop Mark ☐ Setting cutting line	
Maintenance	☐ Cleaning using the cleaning kit	
Reference	☐ Media Type ☐ Printing Area	

7-2 Maintenance Check List

AFTER 12 MONTHS MAINTENANCE CHECK LIST

Model	Serial Number	User	Date
PC	**OS**	**Application**	

MAINTENANCE

Check Points		Contents	Reference
☐ System Report Output/ Taking with Peck.exe			
☐ Firmware		☐ OK ☐ Upgrade	
☐ Consumables	Head	☐ OK ☐ Cleaning ☐ Replacement	6 billion shots
	Carriage Motor	☐ OK ☐ Replacement	2000 hours
	Cleaning Wiper	☐ OK ☐ Cleaning ☐ Replacement	6 months or Wiping : 3000 times or Rubbing : 100 times
	Cap Top	☐ OK ☐ Cleaning ☐ Replacement	6 months
	Ink Tube	☐ OK ☐ Cleaning ☐ Replacement	2000 hours
	Pump Unit	☐ OK ☐ Cleaning ☐ Replacement	Pump Revolution times : 50000 times
	Sponge for Flushing Unit	☐ OK ☐ Cleaning ☐ Replacement	6 months
	Ink Pad	☐ OK ☐ Cleaning ☐ Replacement	12months or Sponge Hours:1920 hours
	Lithium Battery	☐ OK ☐ Replacement	24 months
	Cutter Protection	☐ OK ☐ Replacement	Replace it if there are scratches on it.
	Pinch Roller	☐ OK ☐ Replacement	Replace it if the rubber part is worn out.
☐ Mechanical	Carriage Drive Gear	☐ OK ☐ Backlash ☐ Lubrication ☐ Replacement	Grease : FLOIL G902
	Grit Drive Gear	☐ OK ☐ Backlash ☐ Lubrication ☐ Replacement	Grease : FLOIL G902
	Wire	☐ OK ☐ Tension ☐ Replacement	
	Platen	☐ OK ☐ Cleaning	
	Grit Roller	☐ OK ☐ Cleaning	
	Pinch Roller	☐ OK ☐ Cleaning	
	Reflective Tape	☐ OK ☐ Cleaning	
	Sheet Sensor	☐ OK ☐ Cleaning	
	Media Clamp	☐ OK ☐ Cleaning	
	Bed	☐ OK ☐ Cleaning	
	Tool Carriage is fixed on the wire.	☐ OK ☐ Loose	
	Cutter Holder	☐ OK ☐ Loose	
☐ Printing		☐ OK ☐ NG (Reason)	
☐ Cutting		☐ OK ☐ NG (Reason)	
☐ System Report Output/ Taking with Peck.exe		** In case of any changes.	

NOTE

7-3 Specification

		SP-540V
Printing / Cutting method		Piezo ink-jet method / media-moving method
Acceptable media widths		210 to 1371 mm (8-5/16 to 54 in.)
Printing/Cutting width (*1)		Maximum 1346 mm (53 in.)
Ink cartridges	Capacity	220 cc +/- 5 cc
	Color	Four colors (cyan, magenta, yellow and black)
Printing resolution (Printing dot resolution)		Max. 1440 dpi
Acceptable tool		Special blade for CAMM-1 series
Cutting Speed		10 to 300 mm/s
Blade force		30 to 300 gf
Blade offset compensation		0.000 to 1.500 mm
Software resolution (When cutting)		0.025 mm/step
Distance accuracy (When printing)	While the print heater and dryer are running (*2)	Error of less than +/-0.4% of distance traveled, or +/-0.5 mm, whichever is greater
	While the print heater and dryer are not running (*3)	Error of less than +/-0.3% of distance traveled, or +/-0.3 mm, whichever is greater
Distance accuracy (When cutting) (*4)		Error of less than +/-0.4% of distance traveled, or 0.3 mm, whichever is greater When distance correction has been performed: (when the setting for [CALIBRATION] - [CUTTING ADJ.] has been made) : error of less than +/-0.2% of distance traveled, or +/-0.1 mm, whichever is greater
Repetition accuracy (When cutting) (*4) (*5)		0.1 mm or less
Repetition between printing and cutting (*4)(*6)		+/- 0.5 mm or less
Alignment accuracy for printing and cutting when reloading media (*4)(*7)		Error of less than +/-0.5% of distance traveled, or +/-3mm, whichever is greater
Media dryer (*8)		Heating method, Setting range for the preset temperature : 35 to 50 degrees C (95 to 122 degrees F)
Ink-fixing device (*8)		Print Heater, Setting range for the preset temperature : 35 to 50 degrees C (95 to 122 degrees F)
Interface		Ethernet (10BASE-T/100BASE-TX, automatic switching)
Power-saving function		Automatic sleep feature (compliant with the International ENERGY STAR Office Equipment Program)
Power supply	Voltage and frequency	AC 100 to 120 V +/-10% 50/60 Hz or AC 220 to 240 V +/-10% 50/60 Hz
	Required power capacity	8.8A (100 to 120 V) or 4.7 A (220 to 240 V)
Power consumption	During operation	Approx. 1080W (100 to 120V) or 1230W (220 to 240V)
	Sleep mode	Approx. 30 W
Acoustic noise level	During operation	64 dB (A) or less (according to ISO 7779)
	Standby mode	40 dB (A) or less (according to ISO 7779)
Dimensions (With stand)		2390 [W] x 800 [D] x 1291 [H] mm (94-1/8 [W] x 31-1/2 [D] x 50-7/8 [H] in.)
Weight (With stand)		149 kg (329 lb.)
Packed dimensions		2560 [W] x 830 [D] x 1035 [H] mm (101 [W] x 32- 3/4 [D] x 40-3/4 [H] in.)
Packed weight		200 kg (441 lb.)
Environment	Power on (*9)	Temperature: 15 to 32 degrees C (59 to 90 degrees F) (20 degrees C [68 degrees F] or more recommended), Humidity: 35 to 80% (no condensation)
	Power off	Temperature: 5 to 40 degrees C (41 to 104 degrees F), Humidity: 20 to 80% (no condensation)
Included items		Exclusive stand, power cord, blade, blade holder, replacement blade for separating knife, cleaning kit, software RIP, manuals, etc.

*1
The length of printing or cutting is subject to the limitations of the program or driver.

*2
At Roland SV-G-1270G, print travel : 1m
Preset temperature for the print heater : 37 degrees C (98 degrees F), preset temperature for the dryer : 40 degrees C (104 degrees F)
Temperature : 25 degrees C (77 degrees F), humidity : 50%

*3
At Roland SV-G-1270G, print travel : 1m
Temperature : 25 degrees C (77 degrees F), humidity : 50%

*4
Not assured when the print heater or dryer is used.

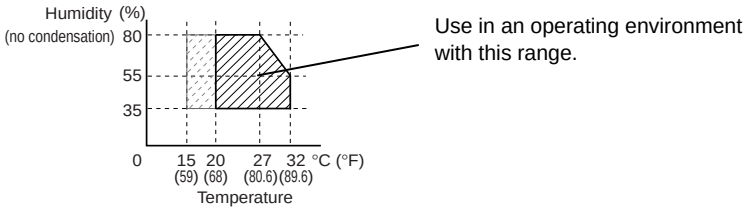
*5
The following conditions must be satisfied:
Media type : 3M Scotchcal Mastercut Film
Roll media must be loaded on the shaft
[PREFEED] menu item must be set to [ENABLE]
Side margins : 25 mm or more for both the left and right margins
Front margin : 35 mm or more
Excluding stretching/contraction of the media
Range for assured repetition accuracy
For media with a width exceeding 610 mm : Length 4,000 mm
For media with a width of 610 mm or less : Length 8,000 mm

*6
Provided that media length is under 3000 mm
Temperature : 25 degrees C (77 degrees F)
Excluding possible shift caused by expansion/contraction of the media and /or by reloading the media

*7
Media type : Roland SV-G-1270G
Data size : 1,000 mm in the media-feed direction, 1,346 mm in the carriage-movement direction
No lamination
Automatic detection of crop marks at 4 points when media is reloaded
During cutting, [PREFEED] menu item must be set to [ENABLE]
Temperature : 25 degrees C (77 degrees F)
Excludes the effects of slanted movement and of expansion and contraction of the media

*8
Warm-up is required after power up. This may require 5 to 20 minutes, depending on the operation environment.
Depending on the ambient temperature and media width, the preset temperature fail to be reached.

*9
Operating environment



Usable Media

Use genuine media for this machine.

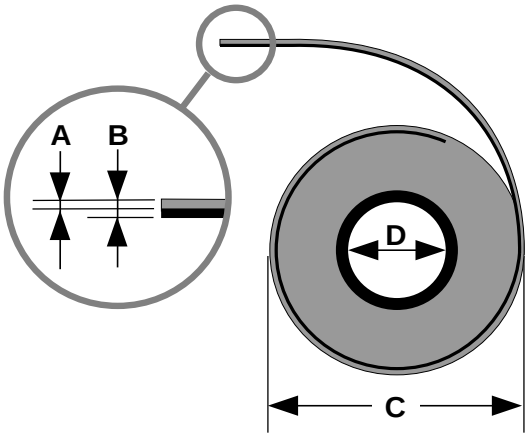
Media width
8-5/16 to 54 inches (210 to 1371 mm)

A) Cuttable media thickness
0.08 to 0.22 mm (3.2 to 8.6 mil)
(depending on media composition)

B) Maximum media thickness (including backing paper)
Printing only: 1.0 mm (39 mil)
When performing cutting: 0.4 mm (15 mil)

C) Roll outer diameter
180 mm

D) Paper tube (core) inner diameter
50.8 mm (2 in.) or 76.2 mm (3 in.)



Side view of roll media

Roll weight
20 kg (44 lb.)

Other conditions
Media such as the following cannot be used.
Media having an inward curl (i.e. media whose print surface is on the inner side of the roll)
Media whose end is attached to the paper pipe (core)
Media which is severely warped or which has a strong tendency to reroll
Media that cannot withstand the heat of the heating devices
Media whose paper pipe (core) is bent or crushed