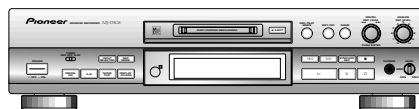


Service Manual

Pioneer



ORDER NO.
RRV2144

MINIDISC RECORDER

MJ-D508

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	Remarks
	MJ-D508		
KUXJ	○	AC120V	
MYXJ	○	AC220-230V	
MYXJGR/FR	○	AC220-230V	
NVXJ	○	AC230V	

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3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM	12	7.1.1 TROUBLESHOOTING	49
4. PCB CONNECTION DIAGRAM	28	7.1.2 DISASSEMBLY	52
5. PCB PARTS LIST	37	7.2 PARTS	55
6. ADJUSTMENT	41	7.2.1 IC	45
		7.2.2 DISPLAY	66
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1. SAFETY INFORMATION

This service manual is intended for qualified service technicians; it is not meant for the casual do-it-yourselfer. Qualified technicians have the necessary test equipment and tools, and have been trained to properly and safely repair complex products such as those covered by this manual. Improperly performed repairs can adversely affect the safety and reliability of the product and may void the warranty. If you are not qualified to perform the repair of this product properly and safely, you should not risk trying to do so and refer the repair to a qualified service technician.

WARNING

This product contains lead in solder and certain electrical parts contain chemicals which are known to the state of California to cause cancer, birth defects or other reproductive harm.

Health & Safety Code Section 25249.6 – Proposition 65

NOTICE

(FOR CANADIAN MODEL ONLY)

Fuse symbols  (fast operating fuse) and/or  (slow operating fuse) on PCB indicate that replacement parts must be of identical designation.

REMARQUE

(POUR MODÈLE CANADIEN SEULEMENT)

Les symboles de fusible  (fusible de type rapide) et/ou  (fusible de type lent) sur CCI indiquent que les pièces de remplacement doivent avoir la même désignation.

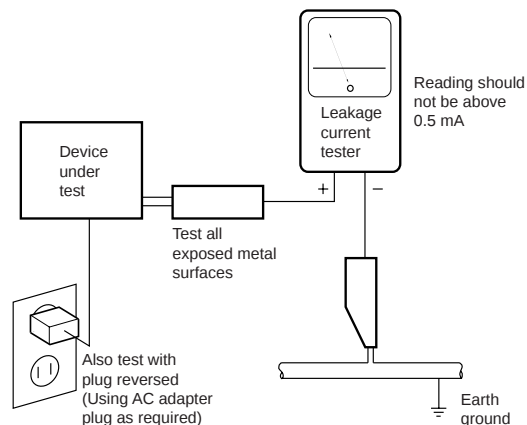
(FOR USA MODEL ONLY)

1. SAFETY PRECAUTIONS

The following check should be performed for the continued protection of the customer and service technician.

LEAKAGE CURRENT CHECK

Measure leakage current to a known earth ground (water pipe, conduit, etc.) by connecting a leakage current tester such as Simpson Model 229-2 or equivalent between the earth ground and all exposed metal parts of the appliance (input/output terminals, screwheads, metal overlays, control shaft, etc.). Plug the AC line cord of the appliance directly into a 120V AC 60 Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5 mA.



AC Leakage Test

ANY MEASUREMENTS NOT WITHIN THE LIMITS OUTLINED ABOVE ARE INDICATIVE OF A POTENTIAL SHOCK HAZARD AND MUST BE CORRECTED BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

2. PRODUCT SAFETY NOTICE

Many electrical and mechanical parts in the appliance have special safety related characteristics. These are often not evident from visual inspection nor the protection afforded by them necessarily can be obtained by using replacement components rated for voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in this Service Manual.

Electrical components having such features are identified by marking with a ⚠ on the schematics and on the parts list in this Service Manual.

The use of a substitute replacement component which does not have the same safety characteristics as the PIONEER recommended replacement one, shown in the parts list in this Service Manual, may create shock, fire, or other hazards.

Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

— IMPORTANT —

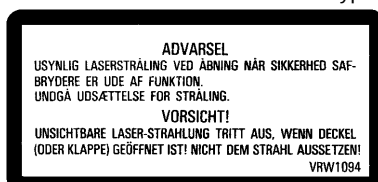
THIS PIONEER APPARATUS CONTAINS LASER OF CLASS 1.
SERVICING OPERATION OF THE APPARATUS SHOULD BE DONE BY A SPECIALLY INSTRUCTED PERSON.

— LASER DIODE CHARACTERISTICS —

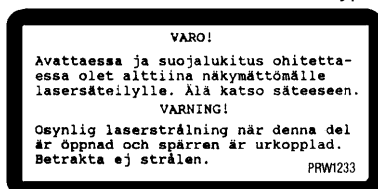
MAXIMUM OUTPUT POWER: 27.4 mW
WAVELENGTH: 785 nm

LABEL CHECK

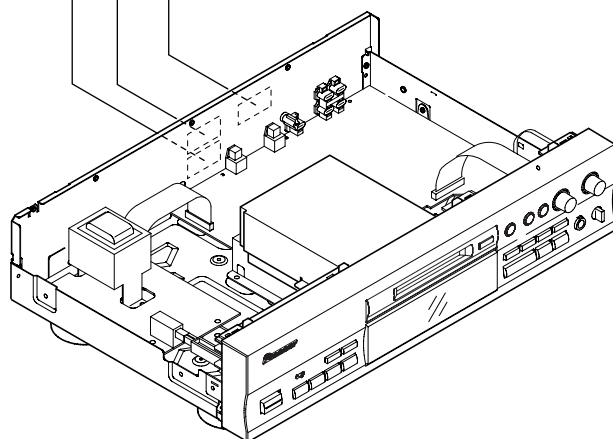
MYXJ and MYXJGR/FR types



MYXJ and MYXJGR/FR types



NVXJ type



— Additional Laser Caution —

Control method of the current through a laser diode.

The resistor R105 on the CORD MAIN UNIT ASSY (For MD mechanism assembly) are for the limiting of current through a laser diode.

Control method of the laser output power

The laser pick-up assembly provide the photo-diodes and APC (Auto Power Control) circuit.

The photo-diode detect output of the laser diode then IC104 control the APC circuit according to the signal voltage of the photo-diode via IC101.

The Variable resistancer on the FPC in the Laser pick-up assembly can be adjusted the output level of Laser diode to fix the rated output level.

Laser Interlock Switch

The loading position detect switch S101 is set to "LOAD ON" (ON: low level, OFF: high level) position, IC104 get the "LOAD" signal, and hand the laser "LDON" signal to No. 9 terminal (LDON) of the Laser pick-up assembly.

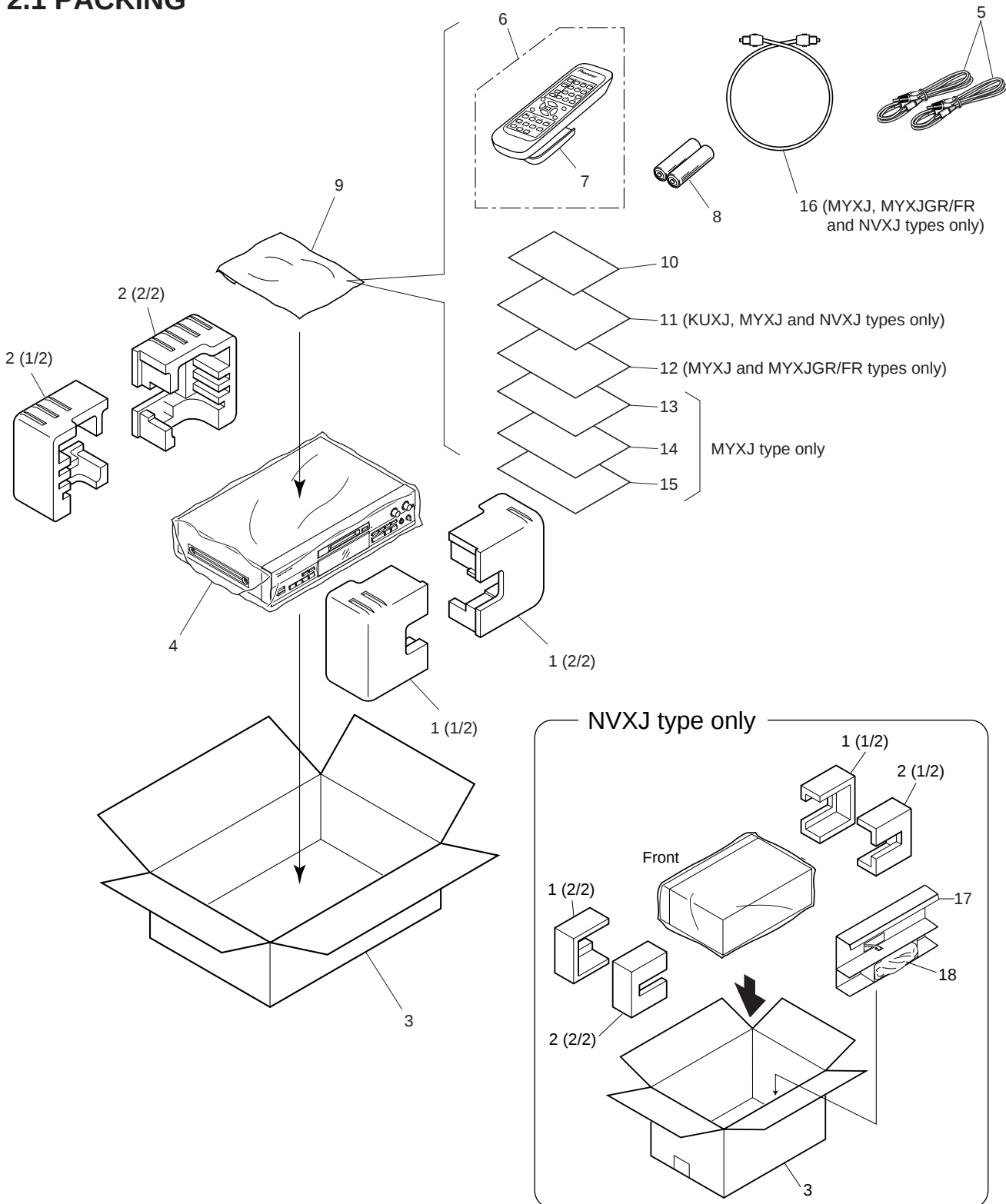
Then a laser diode can be lighted except when the level of signal "LOAD" is low.

* Refer to page 42.

2. EXPLODED VIEWS AND PARTS LIST

- NOTES :
- Parts marked by “ NSP ” are generally unavailable because they are not in our Master Spare Parts List.
 - The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.
 - Screw adjacent to ∇ mark on the product are used for disassembly.

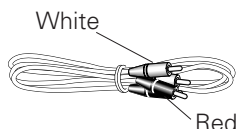
2.1 PACKING



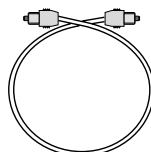
Accessories



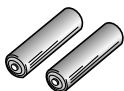
Remote control unit
CU-MJ016 (PWW1157)



Stereo Audio cord x 2
(RDE1036) (L = 1m)



Optical digital cord x 1
(MYXJ, MYXJGR/FR and NVXJ types only)
(ADE7021) (L = 0.8m)



Batteries (AA/R6P) x 2
(VEM-013)

Other included items

- Warranty card (ARY7023: KUXJ type)
(ARY7022: MYXJ, MYXJGR/FR and NVXJ types)
- Operating Instructions
(PRB1285: KUXJ, MYXJ, MYXJGR/FR and NVXJ types)
(PRD1044: MYXJ and MYXJGR/FR types)
(PRD1045: MYXJ type)
(PRD1046: MYXJ type)
(PRD1058: MYXJ type)

(1) PACKING PARTS LIST

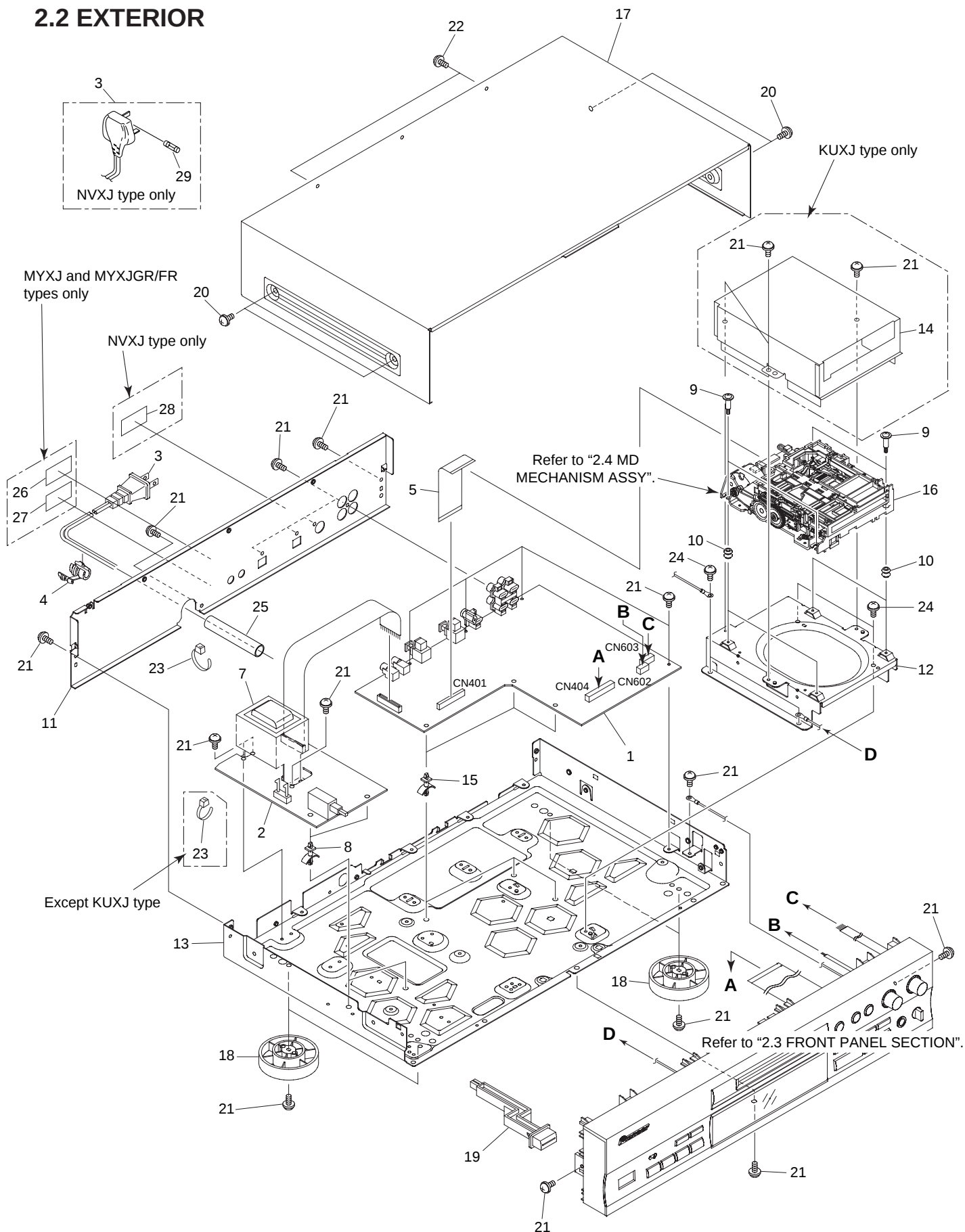
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	Protector (F)	PHA1339		11	Operating Instructions	See Contrast table (2)
	2	Protector (R)	PHA1340		12	Operating Instructions	See Contrast table (2)
	3	Packing Case	See Contrast table (2)		13	Operating Instructions	See Contrast table (2)
	4	Sheet (750 × 600 × 0.5)	Z23-007		14	Operating Instructions	See Contrast table (2)
	5	Stereo Audio Cord (L= 1m)	RDE1036		15	Operating Instructions	See Contrast table (2)
	6	Remote Control Unit (CU-MJ016)	PWW1157		16	Optical Digital Cord	See Contrast table (2)
	7	Battery Cover	RZN1156		17	V Spacer	See Contrast table (2)
NSP	8	Batteries (AA/R6P)	VEM-013		18	Vinyl Bag	See Contrast table (2)
	9	Polyethylene Bag (0.03 × 230 × 340)	Z21-038				
NSP	10	Warranty Card	See Contrast table (2)				

(2) CONTRAST TABLE

MJ-D508/KUXJ, MYXJ, MYXJGR/FR and NVXJ are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.				Remarks
			MJ-D508				
			KUXJ	MYXJ	MYXJGR/FR	NVXJ	
NSP	3	Packing Case	PHG2386	PHG2387	PHG2387	PHG2364	
	10	Warranty Card	ARY7023	ARY7022	ARY7022	ARY7022	
	11	Operating Instructions (English)	PRB1285	PRB1285	not used	PRB1285	
	12	Operating Instructions (French/German)	not used	PRD1044	PRD1044	not used	
	13	Operating Instructions (Italian/Dutch)	not used	PRD1045	not used	not used	
	14	Operating Instructions (Spanish)	not used	PRD1046	not used	not used	
	15	Operating Instructions (Portuguese/Swedish)	not used	PRD1058	not used	not used	
	16	Optical Digital Cord (L= 0.8m)	not used	ADE7021	ADE7021	ADE7021	
	17	V Spacer	not used	not used	not used	PHC1092	
	18	Vinyl Bag	not used	not used	not used	Z21-013	

2.2 EXTERIOR



(1) EXTERIOR PARTS LIST

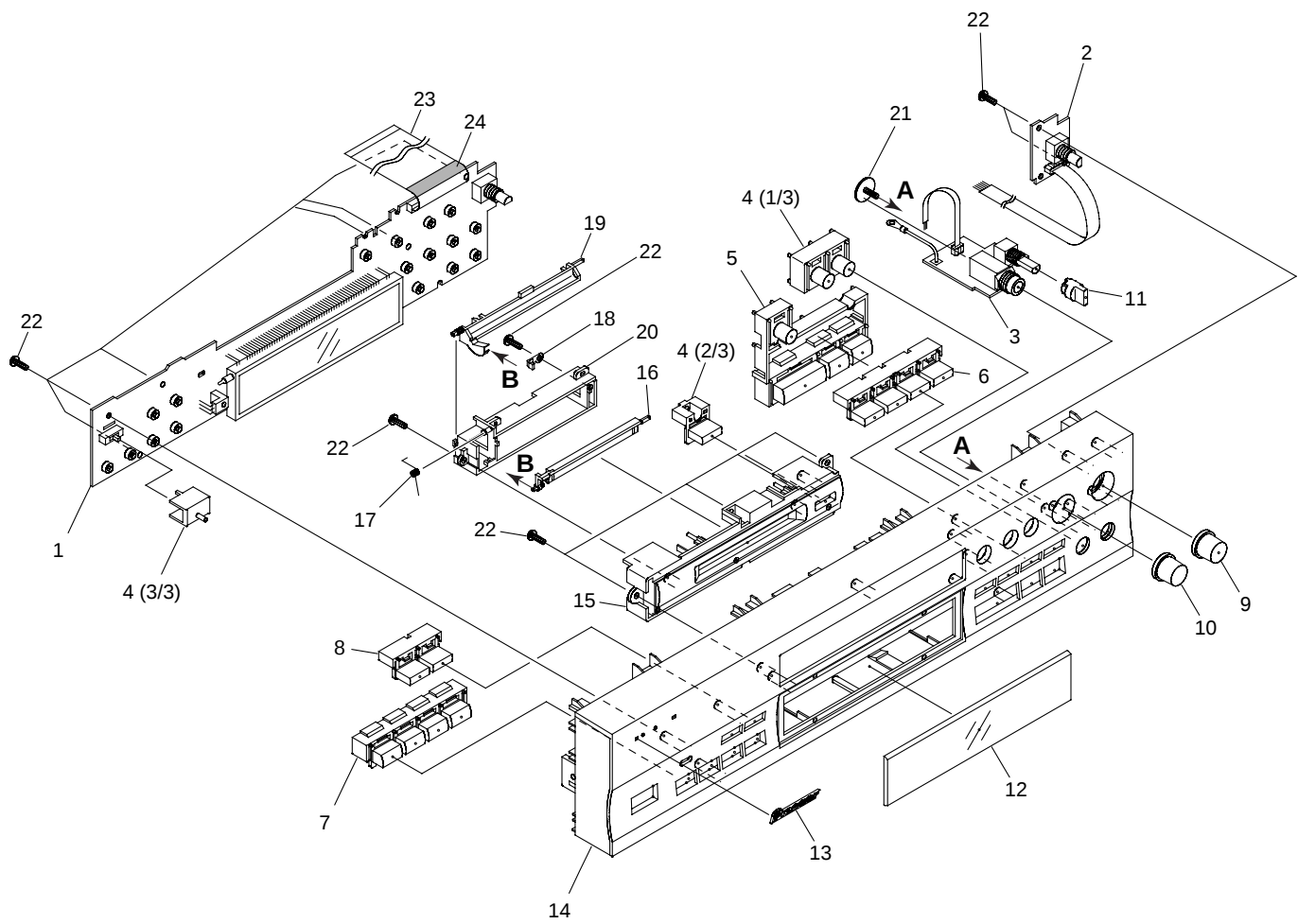
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
	1	MAIN UNIT ASSY	See Contrast table (2)		21	Screw	IBZ30P060FCC
	2	POWER SUPPLY UNIT ASSY	See Contrast table (2)		22	Screw	IBZ30P080FCC
⚠	3	Power Cord	See Contrast table (2)		23	Binder	ZCA-SKB90BK
⚠	4	Cord Stopper	See Contrast table (2)		24	Screw	RBA1132
	5	Lead Card 30P	RDD1402	NSP	25	UL Vinyl Tube	ZUA-AH6-9R5
	6	••••••••			26	Caution Label	See Contrast table (2)
⚠	7	Power Transformer	See Contrast table (2)		27	Caution Label	See Contrast table (2)
NSP	8	PCB Holder	PNW2100		28	Caution Label	See Contrast table (2)
	9	Float Screw	RBA1133	⚠	29	Fuse	See Contrast table (2)
	10	Float Rubber	REB1328				
	11	Rear Panel	See Contrast table (2)				
	12	Mecha Angle	PNB1600				
	13	Under Base	PNA2490				
	14	Shield Case	See Contrast table (2)				
NSP	15	Locking Card Spacer	PNW2917				
NSP	16	MD Mechanism Assy	RXA1777				
	17	Bonnet	PYY1271				
	18	Insulator	PNW2766				
	19	POWER Button (POWER)	PAC1941				
	20	Screw	FBT40P080FZK				

(2) CONTRAST TABLE

MJ-D508/KUXJ, MYXJ, MYXJGR/FR and NVXJ are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.				Remarks
			MJ-D508				
			KUXJ	MYXJ	MYXJGR/FR	NVXJ	
⚠	1	MAIN UNIT ASSY	RWZ4354	RWZ4359	RWZ4359	RWZ4359	
	2	POWER SUPPLY UNIT ASSY	RWZ4358	RWZ4363	RWZ4363	RWZ4363	
	3	Power Cord	PDG1064	PDG1058	PDG1058	PDG1055	
	4	Cord Stopper	CM-22C	CM-22B	CM-22B	CM-22B	
⚠	7	Power Transformer (AC120V)	RTT1346	not used	not used	not used	
⚠	7	Power Transformer (AC220-230V)	not used	RTT1347	RTT1347	RTT1347	
	11	Rear Panel	PNA2478	PNA2479	PNA2479	PNA2480	
	14	Shield Case	PNB1606	not used	not used	not used	
	26	Caution Label	not used	PRW1233	PRW1233	not used	
	27	Caution Label	not used	VRW1094	VRW1094	not used	
⚠	28	Caution Label	not used	not used	not used	PRW1018	
	29	Fuse (5A)	not used	not used	not used	PEK1003	

2.3 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

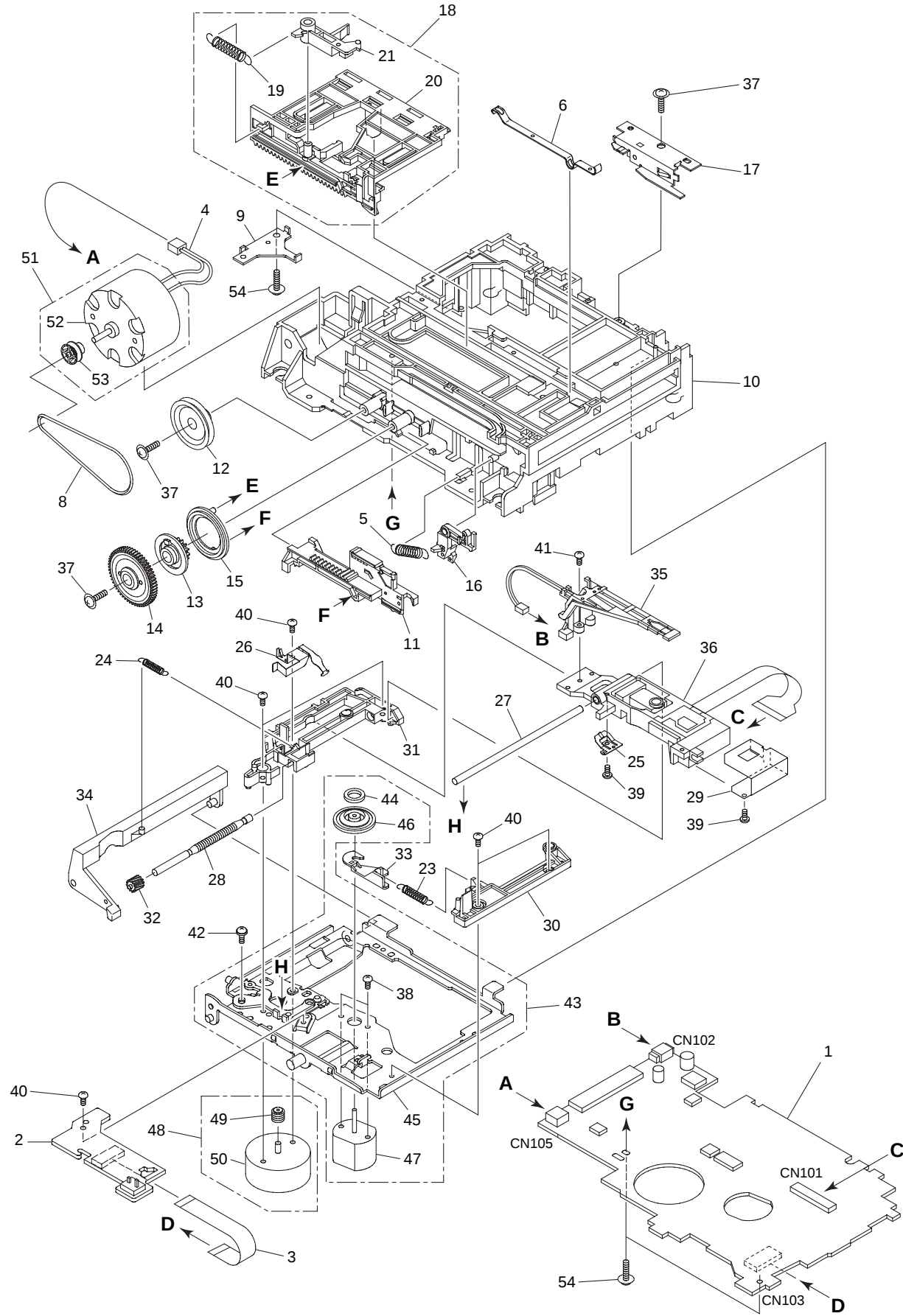
Mark	No.	Description	Part No.
	1	DISPLAY UNIT ASSY	See Contrast table (2)
NSP	2	VOLUME UNIT ASSY	See Contrast table (2)
NSP	3	HEADPHONE UNIT ASSY	See Contrast table (2)
	4	EDIT Button (EDIT/NO, NAME, ▲ EJECT, TIMER REC/OFF/PLAY)	PAC1927
	5	PLAY Button (REC/PLAY MODE, ►, II, ■)	PAC1929
	6	REC Button (◀◀, ▶▶, SYNCHRO REC, ●)	PAC1931
	7	A-B Button (DIGITAL NR, A-B, NAME CLIP, DISPLAY/CHARA)	PAC1933
	8	MODE Button (INPUT SELECTOR, DAC MODE)	PAC1935
	9	VOL Knob (ANALOG REC LEVEL)	PAC1938
	10	JOG Knob (DIGITAL REC LEVEL, I◀◀, ▶▶I, ENTER)	PAC1939
	11	Knob (LEVEL)	PAC1707
	12	Display Window	See Contrast table (2)
	13	Name Plate	PAM1776
	14	Front Panel	See Contrast table (2)
	15	Sub Panel	PNW2895
	16	Door D508	PNW2905
	17	Door Spring	PBH1231
	18	Edge Guard	PBK1151
	19	Door Cam	PNW2898
	20	Door Holder	PNW2899
	21	Screw	ABA7009
	22	Screw	PPZ30P100FMC
	23	Lead Card 30P	RDD1404
NSP	24	Acetate Cloth Tape	ZTA-570F-21BK

(2) CONTRAST TABLE

MJ-D508/KUXJ, MYXJ, MYXJGR/FR and NVXJ are constructed the same except for the following:

Mark	No.	Symbol and Description	Part No.				Remarks
			MJ-D508				
			KUXJ	MYXJ	MYXJGR/FR	NVXJ	
NSP NSP	1	DISPLAY UNIT ASSY	RWZ4355	RWZ4360	RWZ4360	RWZ4360	
	2	VOLUME UNIT ASSY	RWZ4356	RWZ4361	RWZ4361	RWZ4361	
	3	HEADPHONE UNIT ASSY	RWZ4357	RWZ4362	RWZ4362	RWZ4362	
	12	Display Window	PAM1788	PAM1787	PAM1787	PAM1787	
	14	Front Panel	PNW2892	PNW2904	PNW2904	PNW2904	

2.4 MD MECHANISM ASSY



■ MD MECHANISM ASSY PARTS LIST

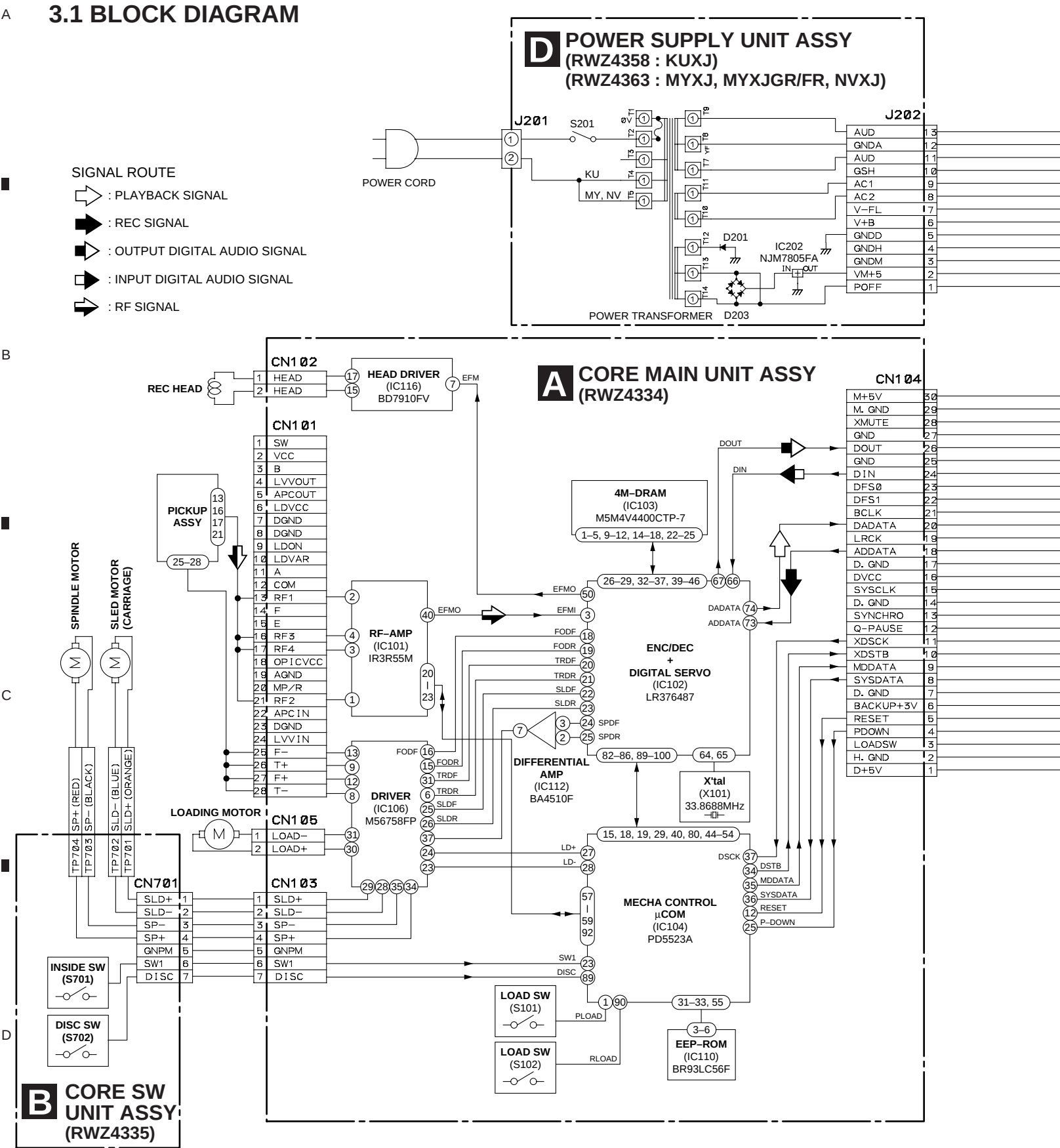
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	CORE MAIN UNIT ASSY	RWZ4334		41	Screw	JGZ17P040FMC
	2	CORE SW UNIT ASSY	RWZ4335		42	Screw	PMB20P040FMC
	3	Lead Card 7P	RDD1403		43	Servo Base Assy	REA1283
	4	Lead Wire	RKP1814	NSP	44	Clamp Magnet	RMF1002
	5	Lever Spring	RBH1463	NSP	45	Servo Base	RNE1946
	6	Clamp Spring 1	RBK1074	NSP	46	Disc Table	RNK2305
	7			NSP	47	Spindle Motor	RXM1091
	8	Loading Belt	REB1329		48	Carriage Motor Assy	REA1284
	9	Lock Plate	RNE1949		49	Worm	RNK2308
	10	Loading Base	RNK2323	NSP	50	Carriage Motor	RXM1090
	11	Under Slider	RNK2314		51	Loading Motor Assy	REA1290
	12	Gear Pulley	RNK2316		52	DC Motor /0.75W	PXM1010
	13	Drive Gear	RNK2317		53	CA Pulley	RNK2322
	14	Clutch Gear	RNK2318		54	Screw	BPZ20P080FMC
	15	Flip Disk	RNK2319				
NSP	16	SW Lever	RNK2320				
	17	Shutter Assy	RXA1774				
	18	Upper Slider Assy	RXA1782				
	19	Eject Spring	RBH1461				
	20	Upper Slider	RNK2324				
	21	Carrier	RNK2315				
	22						
	23	Spindle Spring	RBH1460				
	24	Lifter Spring	RBH1462				
	25	Screw Guide	RBK1072				
	26	S. H. Spring	RBK1073				
	27	Guide Shaft	RLA1312				
	28	Lead Screw	RLA1311				
	29	Shield Case	RNE1950				
	30	Reference Plate	RNK2306				
	31	S. Holder	RNK2307				
	32	Worm Wheel	RNK2309				
	33	Hook	RNK2310				
	34	Head Lifter	RNK2311				
	35	MD Head	RPB1063				
	36	MD Pick-up	RWY1019				
	37	Screw	Z39-019				
	38	Screw	JFZ17P020FZK				
	39	Screw	JGZ14P020FMC				
	40	Screw	JGZ17P028FMC				

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

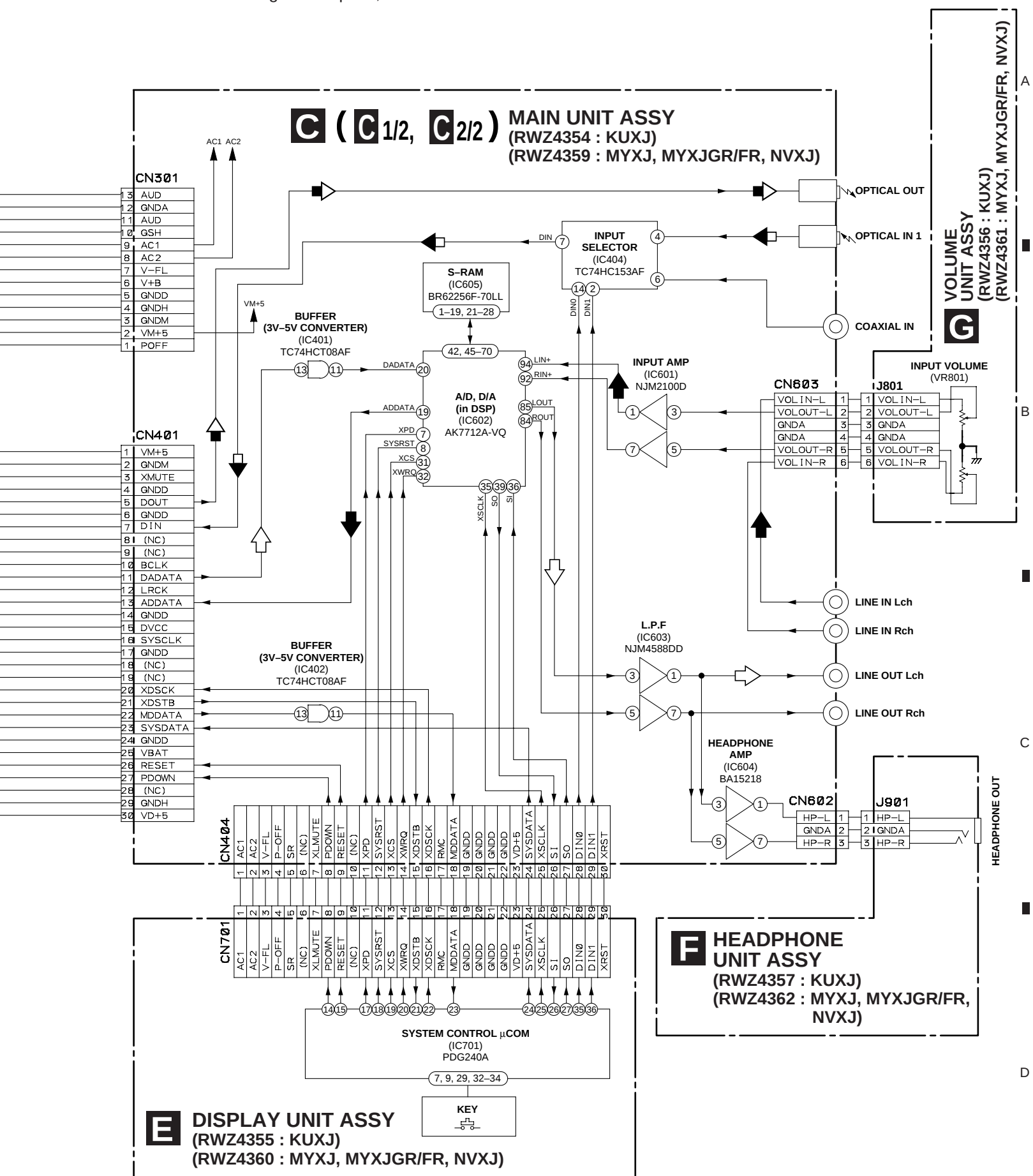
3.1 BLOCK DIAGRAM

SIGNAL ROUTE

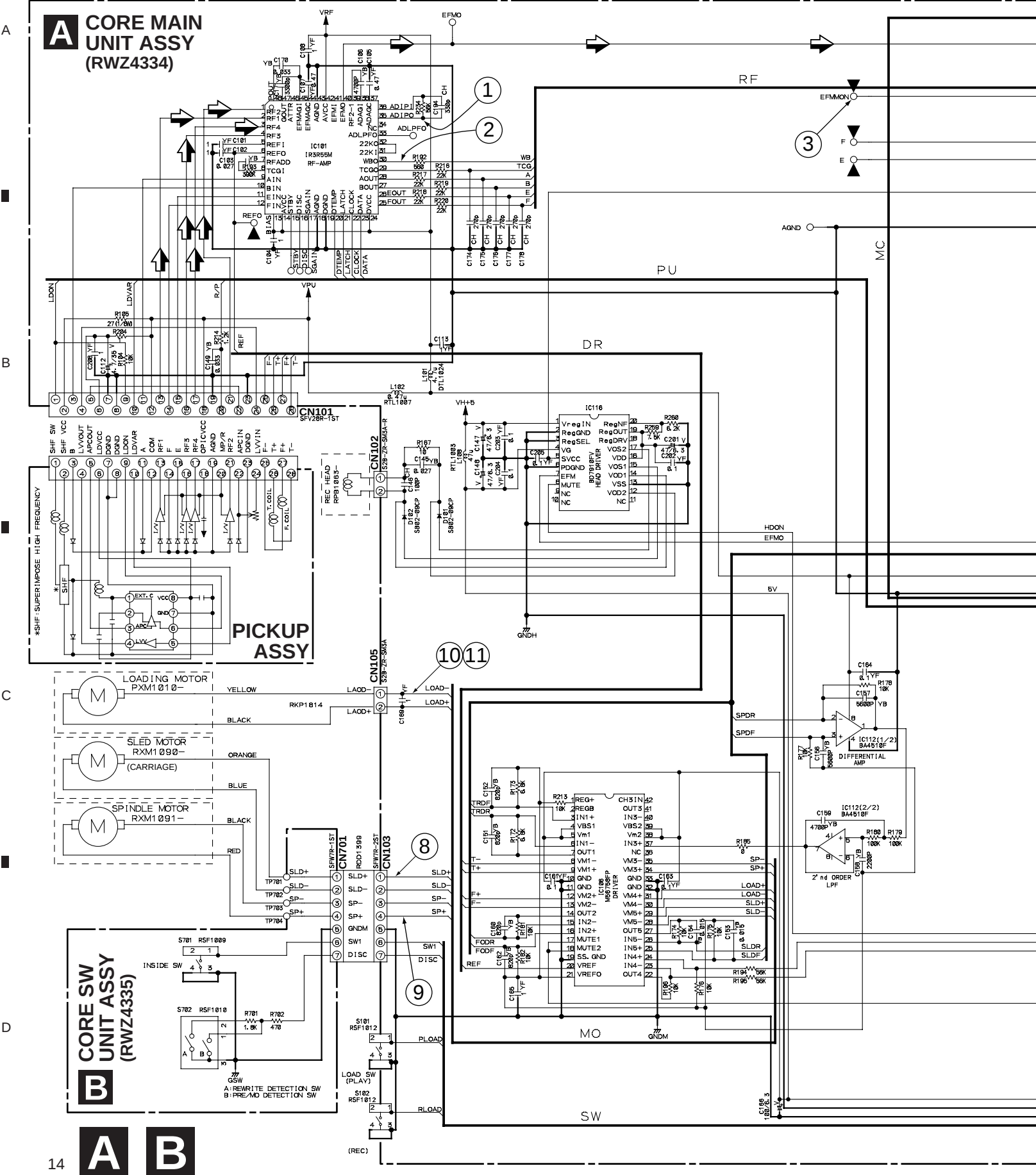
- ▶ : PLAYBACK SIGNAL
- ▶ : REC SIGNAL
- ▶ : OUTPUT DIGITAL AUDIO SIGNAL
- ◻▶ : INPUT DIGITAL AUDIO SIGNAL
- ▶ : RF SIGNAL



Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".



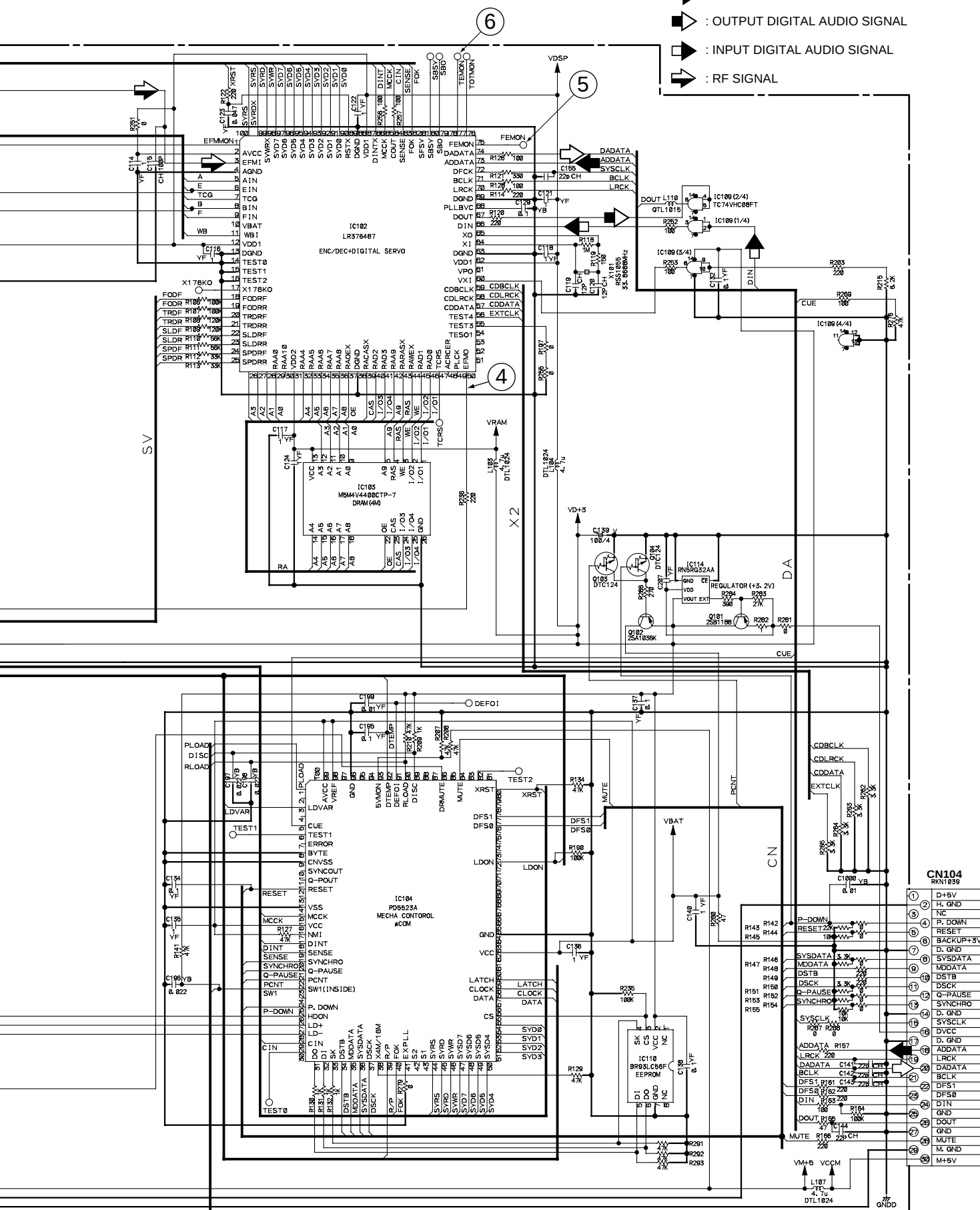
3.2 CORE MAIN UNIT and CORE SW UNIT ASSYS



SIGNAL ROUTE

- ➡ : PLAYBACK SIGNAL
- ➡ : REC SIGNAL
- ➡ : OUTPUT DIGITAL AUDIO SIGNAL
- ➡ : INPUT DIGITAL AUDIO SIGNAL
- ➡ : RF SIGNAL

● ① - ⑪ are waveform numbers on pages 26 and 27.



C 2/2
CN401

■ Voltages of CORE MAIN UNIT ASSY

IC101	
PIN NO.	VOLTAGE
1	0.78V
2	0.73V
3	0.77V
4	0.75V
5	1.61V
6	1.61V
7	0.75V
8	1.61V
9	1.61V
10	1.61V
11	1.61V
12	1.61V
13	3.19V
14	3.19V
15	0V
16	0V
17	3.19V
18	0V
19	0V
20	1.5V
21	3.2V
22	0V
23	0V
24	3.19V
25	2.0V
26	0V
27	1.40V
28	1.42V
29	1.40V
30	1.63V
31	1.61V
32	1.61V
33	0V
34	0V
35	0V
36	1.62V
37	0.59V
38	1.61V
39	1.61V
40	1.61V
41	1.61V
42	3.19V
43	0V
44	1.08V
45	1.61V
46	1.61V
47	0V
48	0.74V

IC102			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	1.53V	51	1.59V
2	3.18V	52	0V
3	1.65V	53	0V
4	0V	54	1.59V
5	1.42V	55	0V
6	0V	56	0V
7	1.59V	57	0V
8	1.41V	58	0V
9	1.97V	59	0V
10	1.39V	60	0V
11	1.64V	61	0.56V
12	3.18V	62	3.18V
13	0V	63	0V
14	0V	64	1.5V
15	0V	65	1.5V
16	0V	66	3.2V
17	1.69V	67	1.6V
18	1.52V	68	0V
19	1.70V	69	0V
20	1.47V	70	1.6V
21	1.47V	71	1.6V
22	1.65V	72	1.48V
23	1.54V	73	0V
24	1.69V	74	0V
25	1.51V	75	1.68V
26	0.82V	76	1.82V
27	2.0V	77	1.59V
28	2.0V	78	0.35V
29	1.81V	79	0.02V
30	1.4V	80	3.2V
31	0.82V	81	3.2V
32	1.67V	82	0.02V
33	1.67V	83	0.03V
34	1.67V	84	1.9V
35	2.86V	85	1.56V
36	1.32V	86	3.1V
37	2.23V	87	3.2V
38	0V	88	0V
39	2.4V	89	3.19V
40	1.2V	90	1.4V
41	1.5V	91	1.4V
42	0V	92	1.4V
43	2.0V	93	0.8V
44	3.0V	94	1.5V
45	1.2V	95	1.4V
46	1.2V	96	1.5V
47	0.02V	97	1.3V
48	3.04V	98	3.2V
49	1.57V	99	3.2V
50	0.05V	100	0V

IC103	
PIN NO.	VOLTAGE
1	1.2V
2	1.2V
3	3.0V
4	2.0V
5	0V
9	2.23V
10	1.32V
11	2.86V
12	1.67V
13	3.18V
14	1.67V
15	1.67V
16	1.67V
17	2.86V
18	1.32V
22	2.23V
23	2.4V
24	1.2V
25	1.5V
26	0V

IC104			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	3.2V	51	0.8V
2	0V	52	1.4V
3	0V	53	1.4V
4	0V	54	1.4V
5	0V	55	0V
6	0V	56	0V
7	0V	57	0V
8	0V	58	0V
9	0V	59	3.2V
10	0V	60	0V
11	0V	61	0V
12	3.1V	62	3.2V
13	1.5V	63	0V
14	0V	64	0V
15	1.5V	65	3.2V
16	3.2V	66	0V
17	3.2V	67	0V
18	3.1V	68	0V
19	0V	69	0V
20	0V	70	0V
21	0V	71	0V
22	3.2V	72	3.1V
23	3.2V	73	3.2V
24	0V	74	0V
25	3.2V	75	0V
26	3.2V	76	3.2V
27	0V	77	0V
28	0V	78	0V
29	2.4V	79	0V
30	0V	80	3.2V
31	0V	81	0V
32	0V	82	0V
33	0V	83	0V
34	1.6V	84	3.19V
35	1.0V	85	0V
36	0V	86	3.18V
37	2.8V	87	3.2V
38	0V	88	0V
39	0V	89	2.2V
40	0V	90	1.2V
41	3.19V	91	0.56V
42	3.2V	92	1.49V
43	0V	93	2.5V
44	0V	94	0.88V
45	3.2V	95	0.90V
46	3.2V	96	0V
47	1.3V	97	0.87V
48	1.5V	98	3.2V
49	1.4V	99	3.2V
50	1.5V	100	0V

IC106	
PIN NO.	VOLTAGE
1	1.6V
2	0.49V
3	1.61V
4	4.99V
5	4.99V
6	1.61V
7	1.62V
8	2.46V
9	2.51V
10	0V
11	0V
12	2.54V
13	2.45V
14	1.62V
15	1.62V
16	1.61V
17	3.17V
18	0V
19	1.61V
20	1.61V
21	1.61V
22	1.61V
23	1.36V
24	1.36V
25	1.61V
26	1.61V
27	1.63V
28	2.41V
29	2.55V
30	2.47V
31	2.48V
32	0V
33	0V
34	2.79V
35	2.18V
36	0V
37	1.69V
38	5.0V
39	4.99V
40	1.67V
41	1.69V
42	1.69V

IC109	
PIN NO.	VOLTAGE
1	2.77V
2	2.77V
3	3.2V
4	1.58V
5	1.58V
6	1.56V
7	0V
8	0V
9	0V
10	0V
11	0V
12	0V
13	0V
14	3.2V

IC114	
PIN NO.	VOLTAGE
1	0V
2	4.19V
3	3.21V
4	2.81V
5	0V

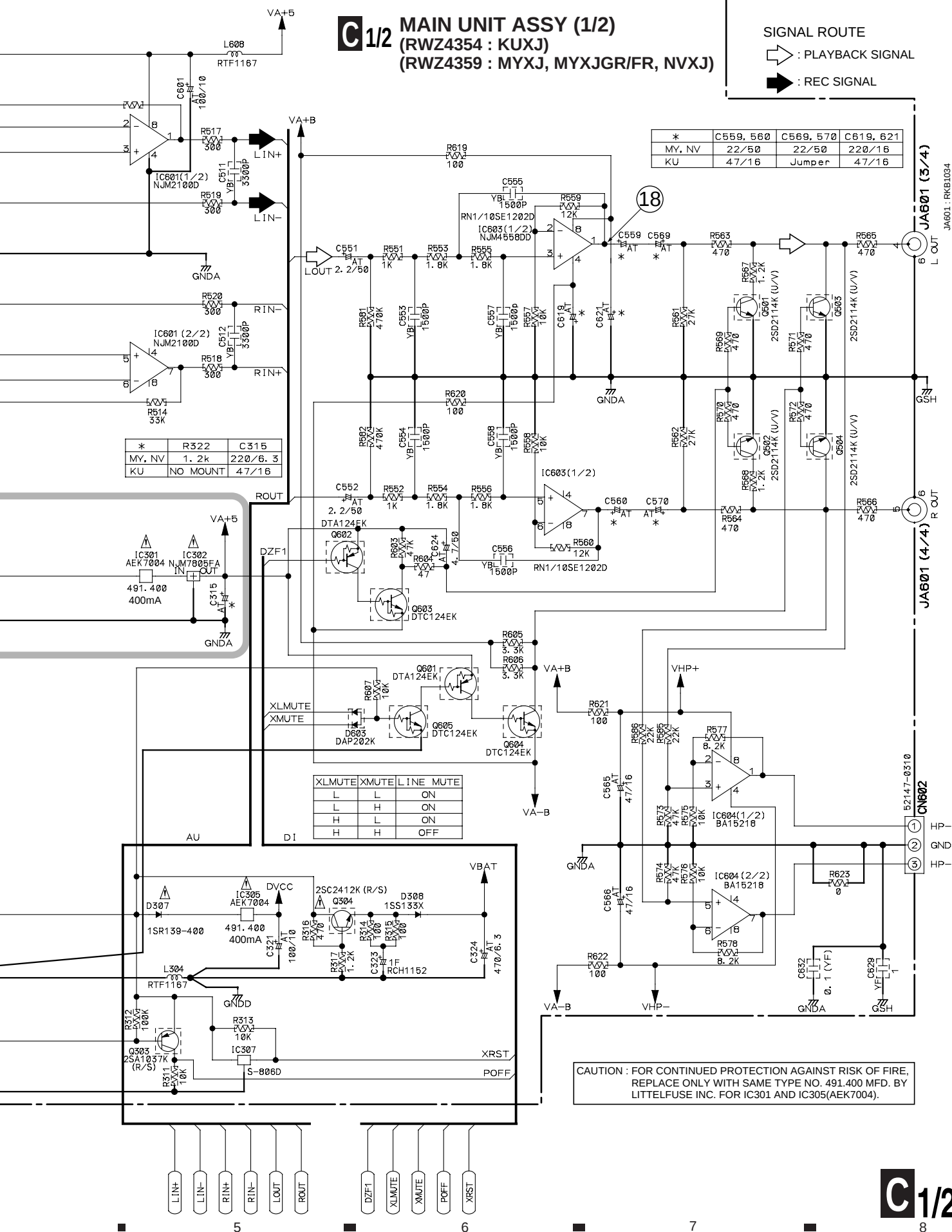
IC110	
PIN NO.	VOLTAGE
1	0V
2	3.2V
3	0V
4	3.2V
5	0V
6	0.11V
7	0V
8	0V

IC116	
PIN NO.	VOLTAGE
1	4.98V
2	0V
3	0V
4	4.99V
5	3.2V
6	0V
7	0.03V
8	3.18V
9	0V
10	0V
11	0V
12	0.22V
13	0V
14	0.25V
15	0.25V
16	2.82V
17	0.16V
18	4.94V
19	2.82V
20	1.33V

IC112	
PIN NO.	VOLTAGE
1	1.66V
2	1.62V
3	1.62V
4	0V
5	1.67V
6	1.67V
7	1.67V
8	3.19V

IC113	
PIN NO.	VOLTAGE
1	4.95V
2	3.96V
3	0V
4	0V
5	0V
6	0V
7	0V
8	0V
9	4.94V
10	4.12V
11	3.19V
12	0V
13	0V
14	4.94V

● 18 is waveform number on page 27.



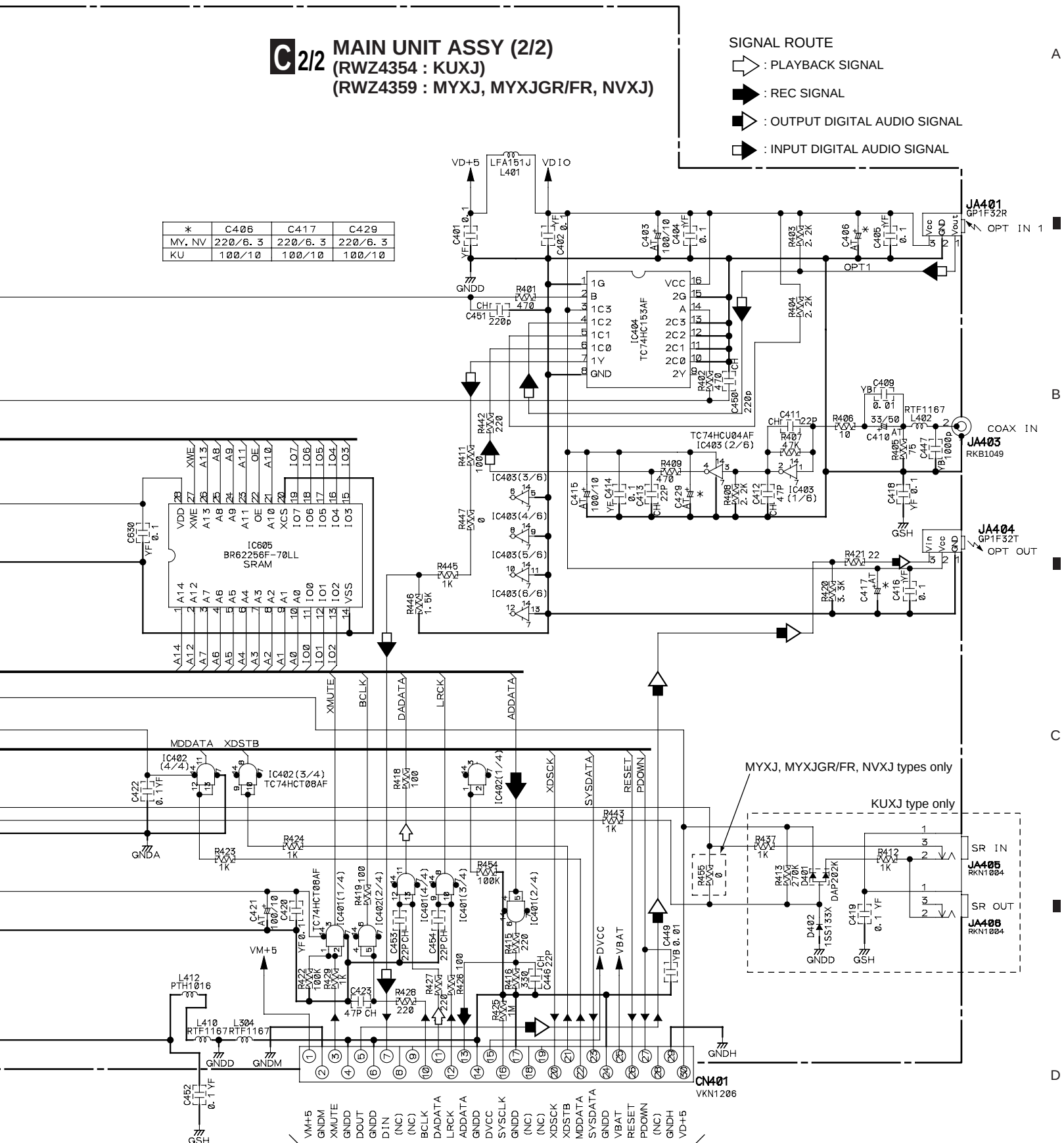
● ⑫ – ⑰ are waveform numbers on page 27.

C2/2 MAIN UNIT ASSY (2/2) **(RWZ4354 : KUXJ)** **(RWZ4359 : MYXJ, MYXJGR/FR, NVXJ)**

SIGNAL ROUTE

- ➡ : PLAYBACK SIGNAL
- ➡ : REC SIGNAL
- ➡ : OUTPUT DIGITAL AUDIO SIGNAL
- ➡ : INPUT DIGITAL AUDIO SIGNAL

*	C406	C417	C429
MY, NV	220/6.3	220/6.3	220/6.3
KU	100/10	100/10	100/10



A CN104

3.5 DISPLAY UNIT, HEADPHONE UNIT and VOLUME UNIT ASSYS

A

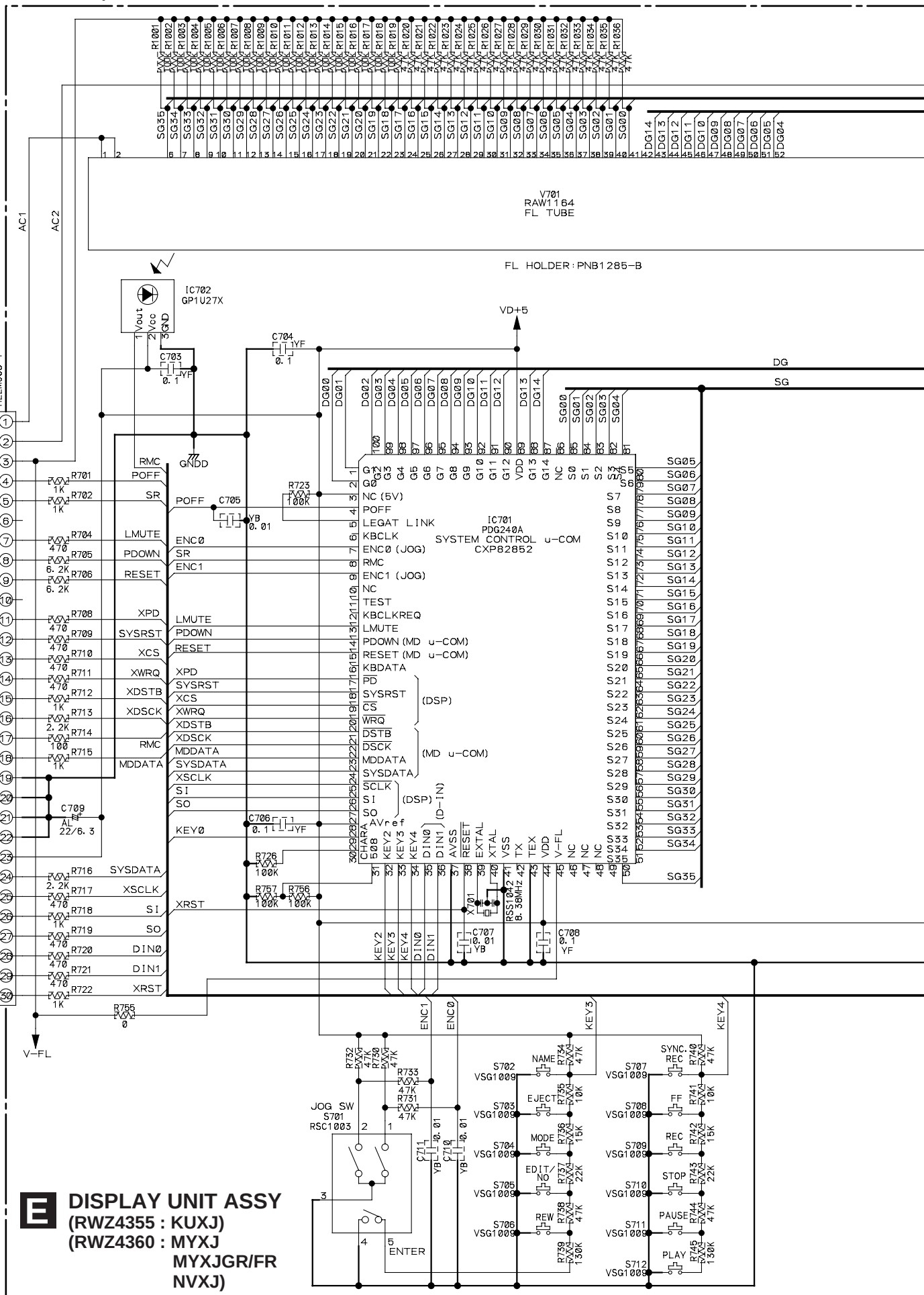
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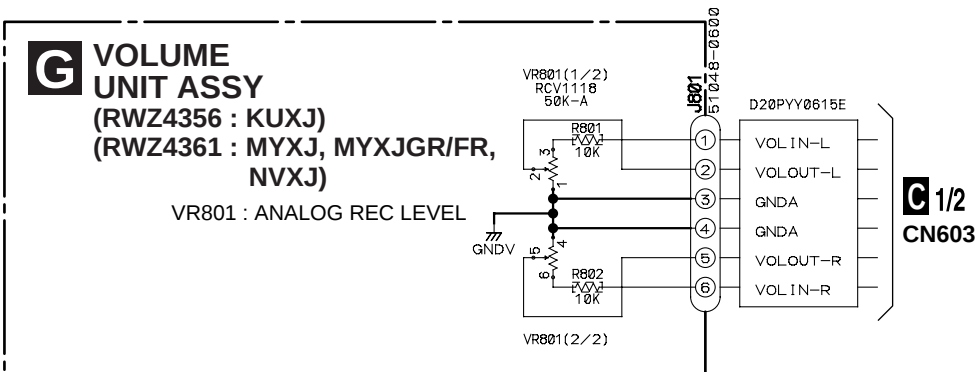
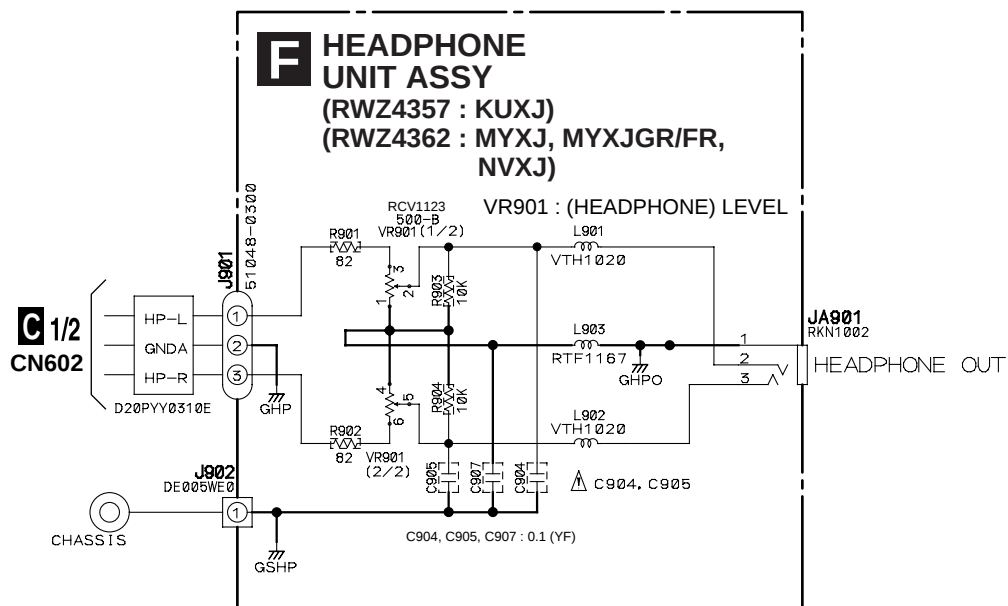
C

D

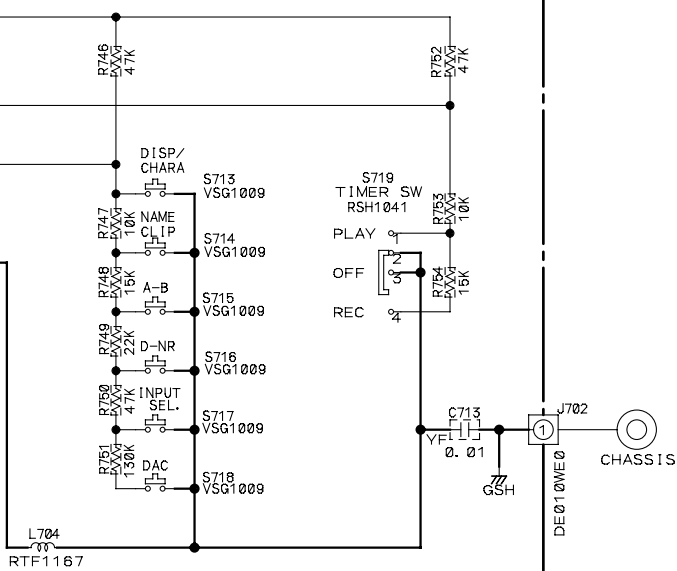
C 2/2
CN404

DISPLAY UNIT ASSY
(RWZ4355 : KUXJ)
(RWZ4360 : MYXJ
MYXJGR/FR
NVXJ)





- S701 : DIGITAL REC LEVEL (ENTER)
S702 : NAME
S703 : ▲ EJECT
S704 : REC/PLAY MODE
S705 : EDIT/NO
S706 : ◀◀
S707 : SYNCHRO REC
S708 : ▶▶
S709 : ●
S710 : ■
- S711 : ■
S712 : ▶
S713 : DISPLAY/CHARA
S714 : NAME CLIP
S715 : A-B
S716 : DIGITAL NR
S717 : INPUT SELECTOR
S718 : DAC MODE
S719 : TIMER (REC/OFF/PLAY)



■ Voltages of MAIN UNIT ASSY (1kHz, 0dB, PLAY)

IC401	
PIN NO.	VOLTAGE
1	3.1V
2	3.1V
3	5.0V
4	0.0V
	1.9V (REC)
5	0.0V
	1.9V (REC)
6	0.0V
	1.7V (REC)
7	0V
8	2.5V
9	1.6V
10	1.6V
11	1.6V
12	1.0V
13	1.0V
14	5.0V

IC402	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	1.5V
5	1.5V
6	2.5V
7	0V
8	2.5V
9	1.6V
10	1.6V
11	1.6V
12	1.0V
13	1.0V
14	5.0V

IC403	
PIN NO.	VOLTAGE
1	2.5V
2	2.5V
3	2.5V
4	3.5V
5	0V
6	5.0V
7	0V
8	5.0V
9	0.0V
10	5.0V
11	0V
12	5.0V
13	0.0V
14	5.0V

IC404	
PIN NO.	VOLTAGE
1	0V
2	5.0V
3	5.0V
4	5.0V
5	5.0V
6	3.5V
7	5.0V
8	0V
9	0V
10	0V
11	0V
12	0V
13	0V
14	5.0V
15	0V
16	5.0V

IC602			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0V	51	0V
2	0V	52	5.0V
3	0V	53	2.5V
4	0V	54	2.5V
5	0V	55	2.5V
6	0V	56	2.5V
7	5.0V	57	2.5V
8	5.0V	58	2.5V
9	0V	59	2.5V
10	0V	60	2.5V
11	0V	61	2.5V
12	5.0V	62	2.5V
13	0V	63	2.5V
14	0V	64	2.5V
15	0V	65	2.5V
16	0V	66	2.5V
17	0V	67	2.5V
18	0V	68	2.5V
19	0V	69	2.5V
	1.9V (REC)	70	2.5V
20	1.6V	71	0V
21	0V	72	5.0V
22	2.5V	73	5.0V
23	2.5V	74	0V
24	0V	75	5.0V
25	5.0V	76	0.0V
26	0V	77	5.0V
27	0V	78	5.0V
28	2.2V	79	5.0V
29	2.7V	80	0V
30	5.0V	81	5.0V
31	0.0V	82	2.5V
32	5.0V	83	2.5V
33	0V	84	2.5V
34	5.0V	85	2.5V
35	5.0V	86	0V
36	0.0V	87	0V
37	5.0V	88	5.02V
38	5.0V	89	5.02V
39	0.0V	90	5.02V
40	4.7V	91	2.5V
41	0.0V	92	2.5V
42	4.9V	93	2.5V
43	2.5V	94	2.5V
44	2.5V	95	2.5V
45	2.5V	96	0V
46	2.5V	97	0V
47	2.5V	98	5.0V
48	2.5V	99	5.0V
49	2.5V	100	5.0V
50	2.5V		

IC407	
PIN NO.	VOLTAGE
1	2.5V
2	2.7V
3	5.0V
4	2.7V
5	1.8V
6	0V
7	0V
8	5.0V
9	0V
10	2.2V
11	5.0V
12	5.0V
13	5.0V
14	5.0V
15	5.0V
16	5.0V

IC601	
PIN NO.	VOLTAGE
1	2.5V
2	2.5V
3	2.5V
4	0V
5	2.5V
6	2.5V
7	2.5V
8	5.0V

IC603	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	-10.5V
5	0V
6	0V
7	0V
8	9.4V

IC604	
PIN NO.	VOLTAGE
1	0V
2	0V
3	0V
4	-10.1V
5	0V
6	0V
7	0V
8	9.0V

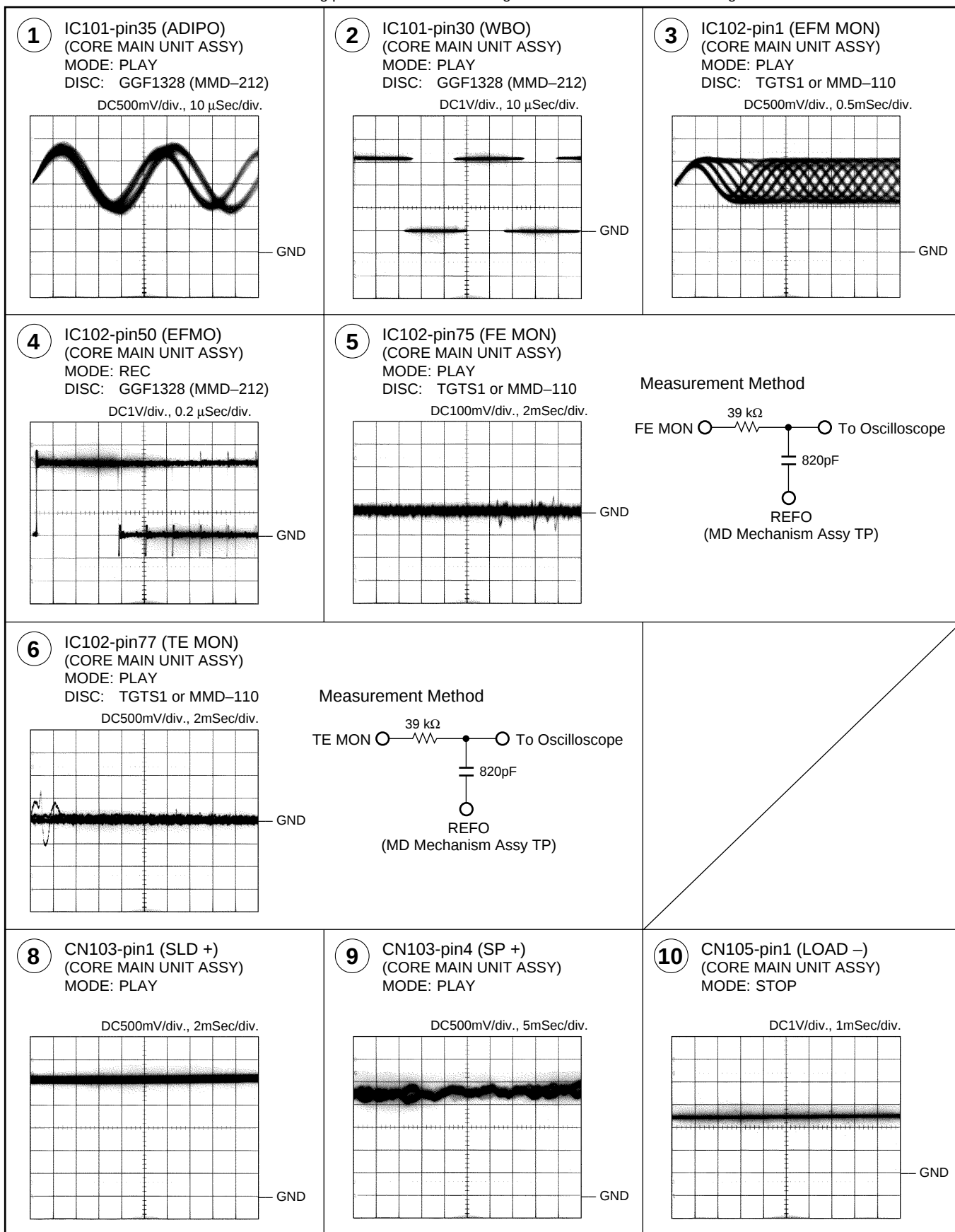
IC605	
PIN NO.	VOLTAGE
1	2.5V
2	2.5V
3	2.5V
4	2.5V
5	2.5V
6	2.5V
7	2.5V
8	2.5V
9	2.5V
10	4.8V
11	2.5V
12	2.5V
13	2.5V
14	0V
15	2.5V
16	2.5V
17	2.5V
18	2.5V
19	2.5V
20	0V
21	2.5V
22	0.5V
23	2.5V
24	2.5V
25	2.5V
26	2.5V
27	4.9V
28	5.0V

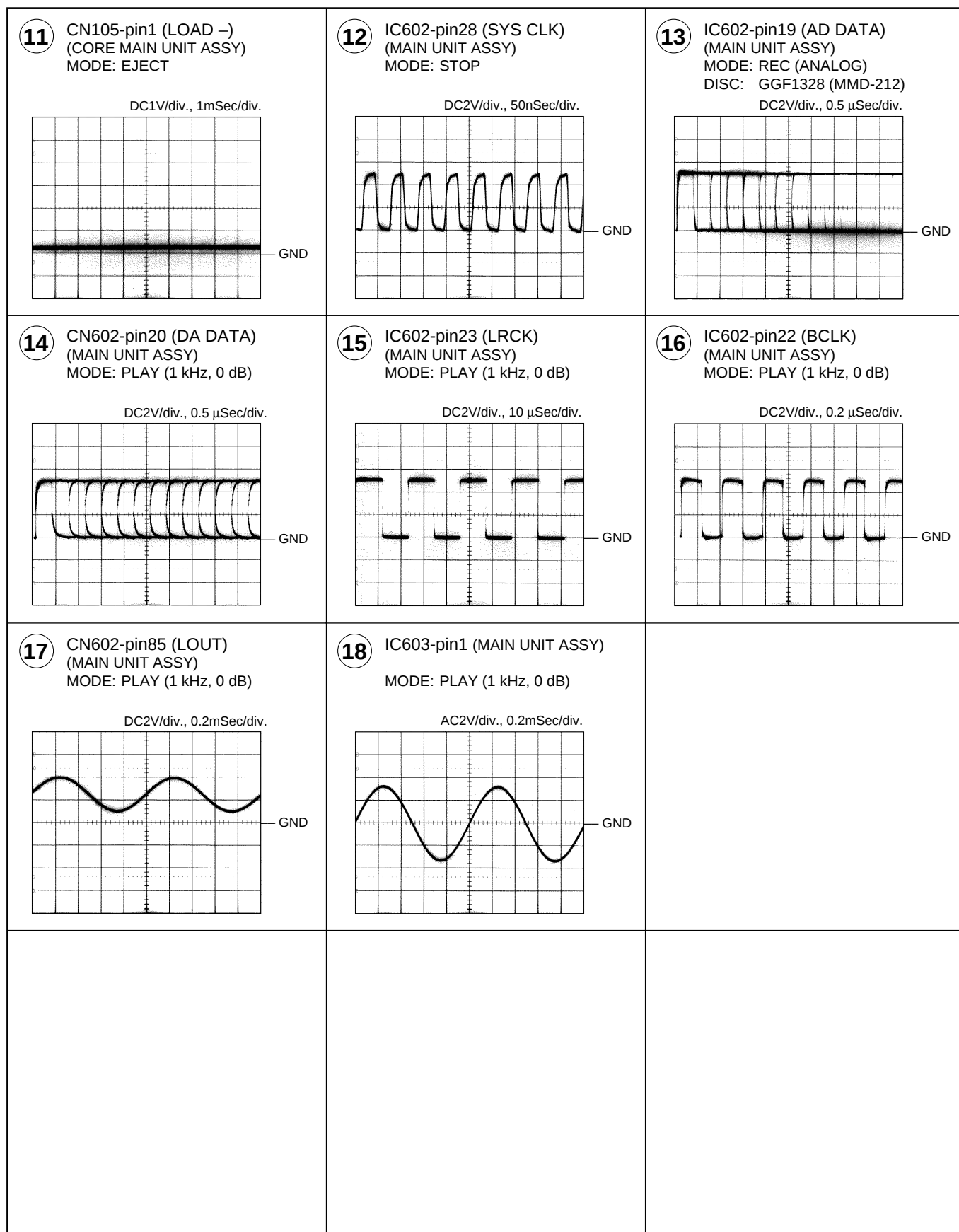
■ Voltages of DISPLAY UNIT ASSY

IC701			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	- 28.0V	51	Entire FL not lit - 30.7V Entire FL lit 5.0V
2	- 28.0V	52	
3	5.0V	53	
4	0V	54	
5	5.0V	55	
6	0.6V	56	
7	5.0V	57	
8	4.9V	58	
9	5.0V	59	
10	0V	60	
11	0.0V	61	
12	0.0V	62	
13	5.0V	63	
14	4.9V	64	
15	4.9V	65	
16	0.0V	66	
17	5.0V	67	
18	5.0V	68	
19	0.1V	69	
20	4.9V	70	
21	2.5V	71	
22	4.6V	72	
23	1.5V	73	
24	0V	74	
25	4.9V	75	
26	2.5V	76	
27	1.6V	77	
28	5.0V	78	
29	5.0V	79	
30	5.0V	80	
31	2.5V	81	
32	5.0V	82	
33	4.2V	83	
34	5.0V	84	
35	5.0V	85	
36	5.0V	86	- 30.4V
37	0V	87	Entire FL not lit - 28.9V
38	5.0V	88	Entire FL lit - 24.4V
39	2.3V	89	5.0V
40	2.6V	90	Entire FL not lit - 28.9V Entire FL lit - 24.4V
41	0V	91	
42	5.0V	92	
43	0V	93	
44	5.0V	94	
45	Entire FL not lit - 30.5V	95	
	Entire FL lit - 26.3V	96	
46	0V	97	
47	0V	98	
48	0V	99	
49	0V	100	
50	Entire FL not lit - 30.7V Entire FL lit 5.0V		

Waveforms

Note: The encircled numbers denote measuring point in the schematic diagram and the PCB connection diagram.





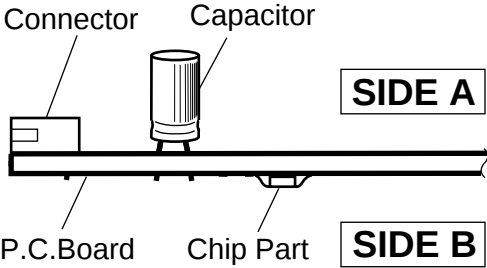
4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS :

- 1. Part numbers in PCB diagrams match those in the schematic diagrams.
- 2. A comparison between the main parts of PCB and schematic diagrams is shown below.

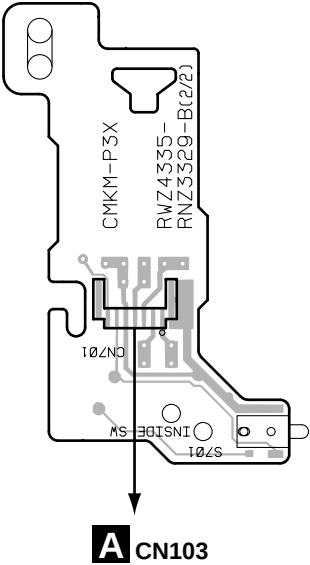
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

- 3. The parts mounted on this PCB include all necessary parts for several destinations.
- For further information for respective destinations, be sure to check with the schematic diagram.
- 4. View point of PCB diagrams.

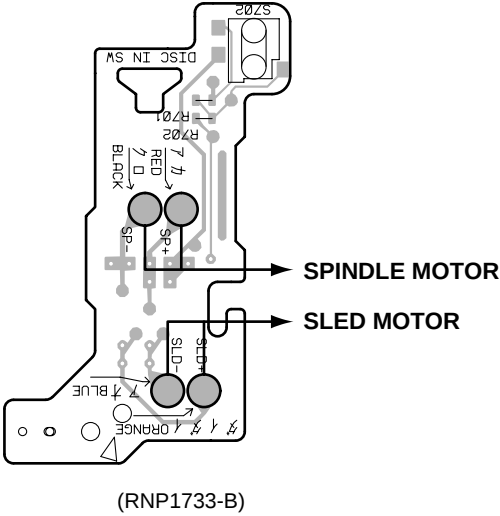


4.1 CORE SW UNIT ASSY

B CORE SW UNIT ASSY



SIDE A



SIDE B

IC601



WARNING
THIS PRODUCT CONTAINS LEAD IN SOLDER AND
CERTAIN ELECTRICAL PARTS CONTAIN CHEMICALS
WHICH ARE KNOWN TO THE STATE OF CALIFORNIA
TO CAUSE CANCER, BIRTH DEFECTS OR
OTHER REPRODUCTIVE HARM.
HEALTH & SAFETY CODE SECTION 25249.6
PROPOSITION 65

PRIMARY

6201

(RNP1732-C)

E CN701

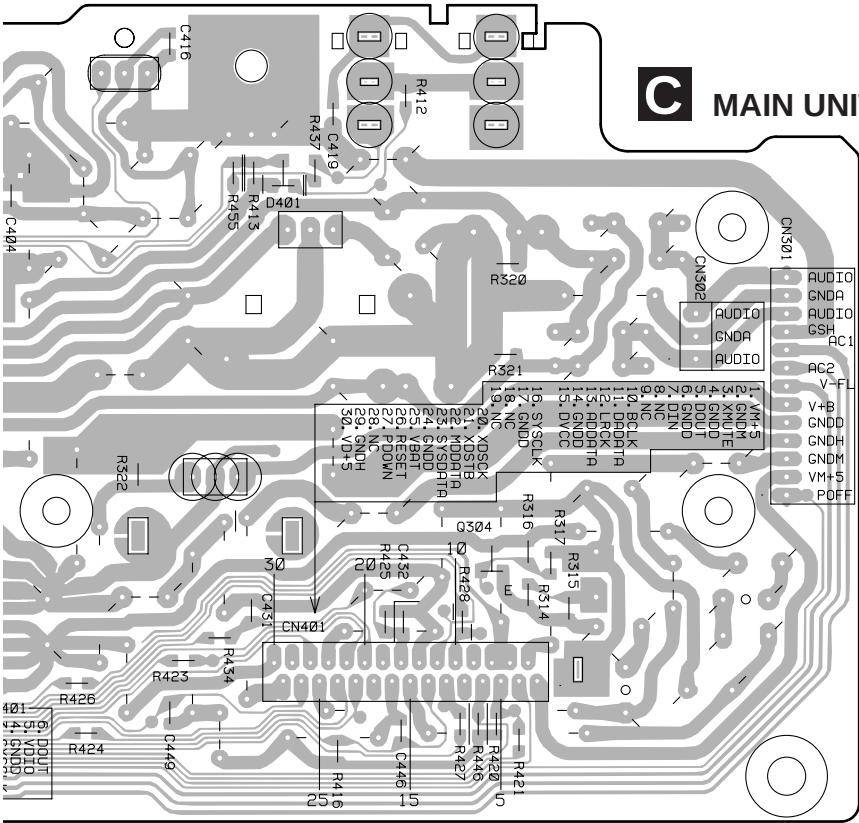
F J901

G J801

(RNP1732-C)

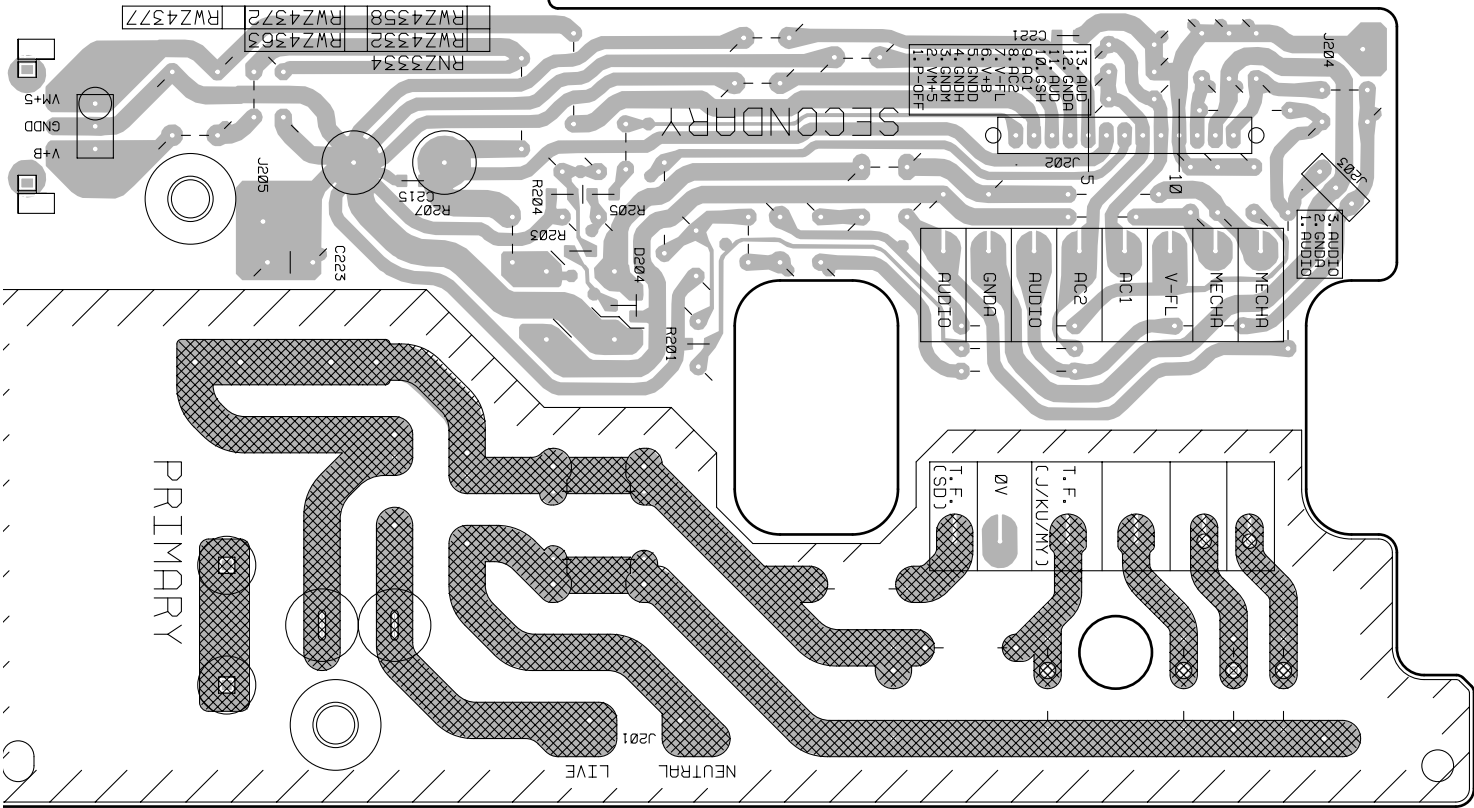
C D

Q304



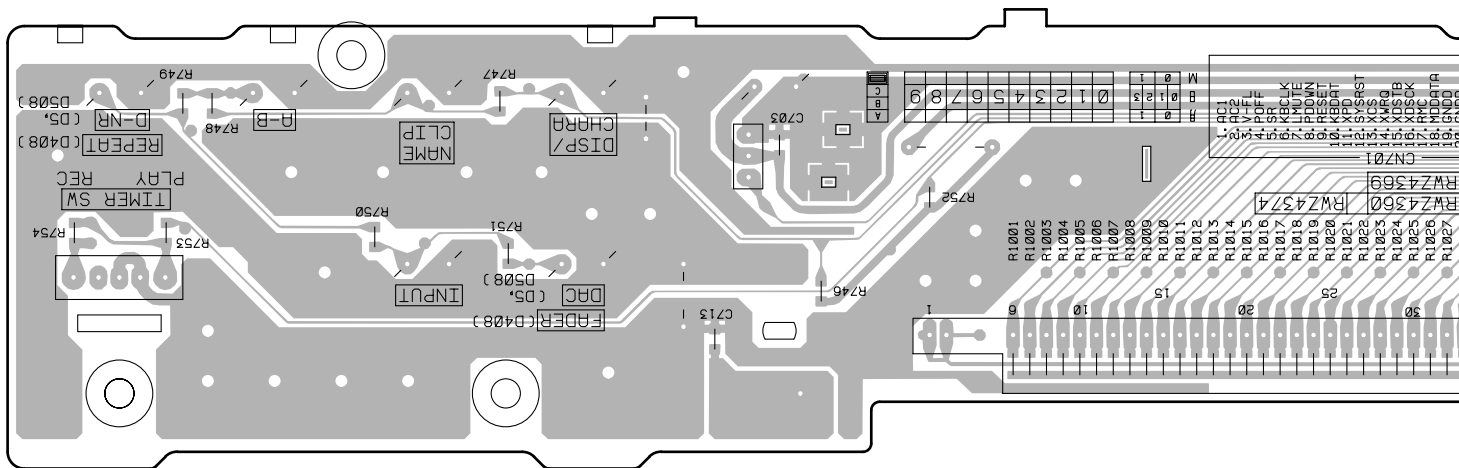
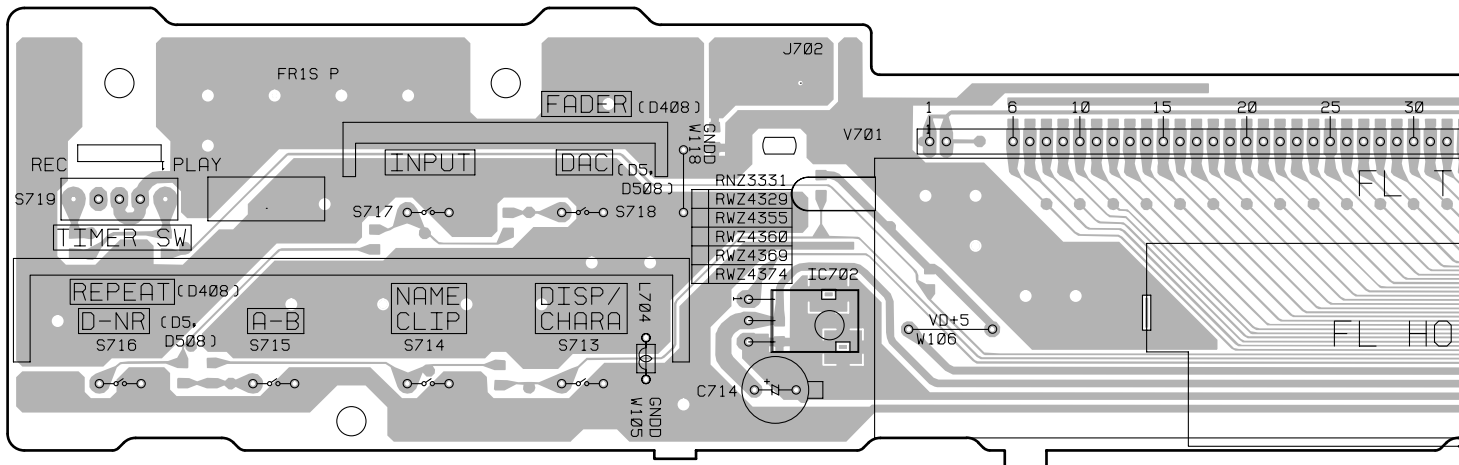
D POWER SUPPLY UNIT ASSY

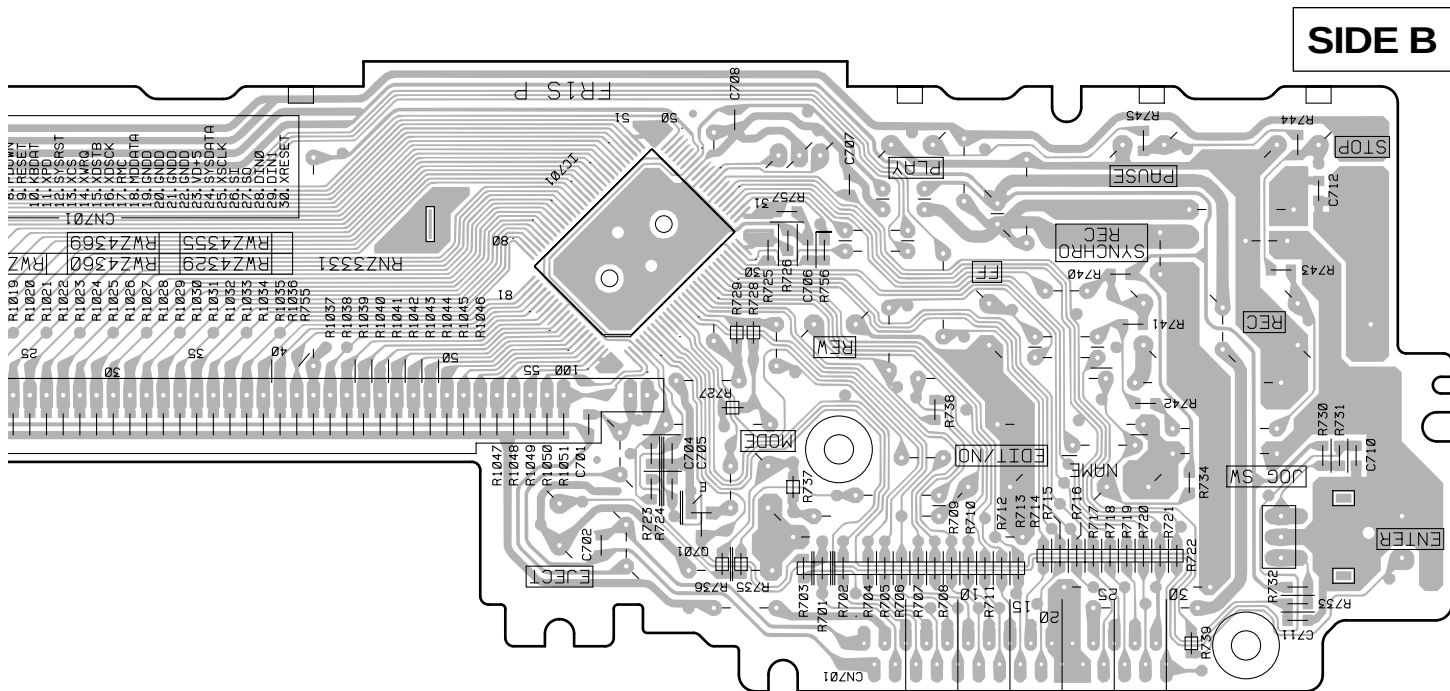
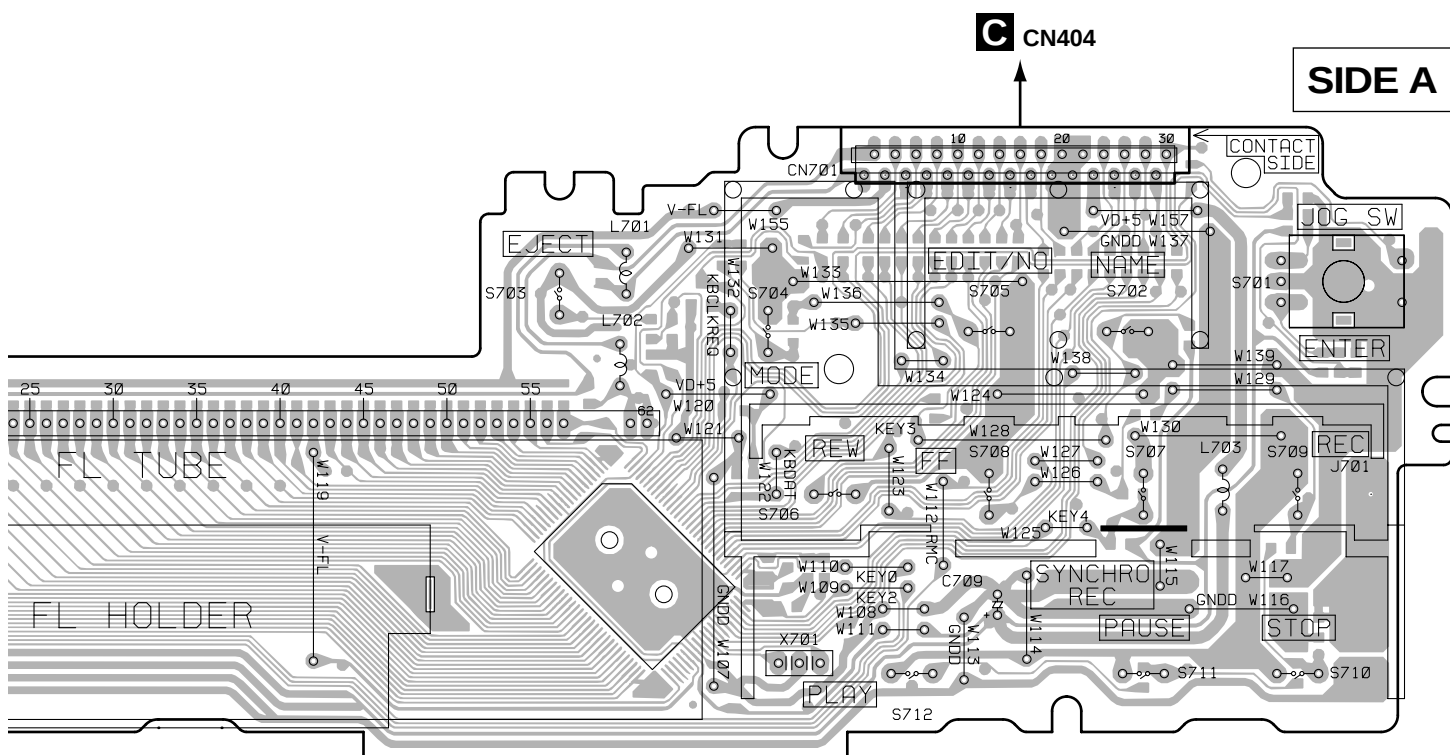
SIDE B



4.4 DISPLAY UNIT ASSY

E DISPLAY UNIT ASSY



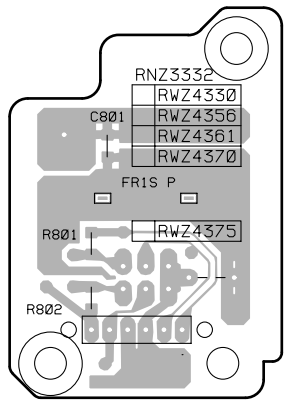
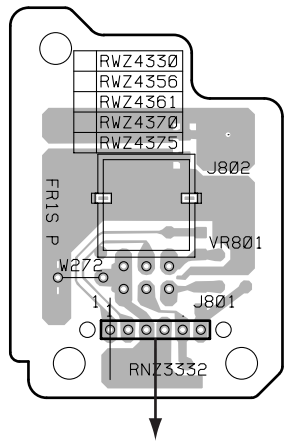


(RNP1732-C)

4.5 VOLUME UNIT and HEADPHONE UNIT ASSYS

A

G VOLUME UNIT ASSY



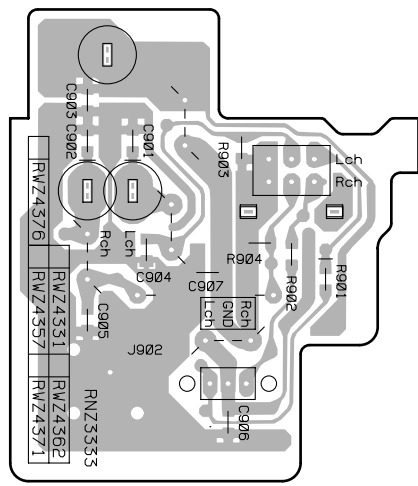
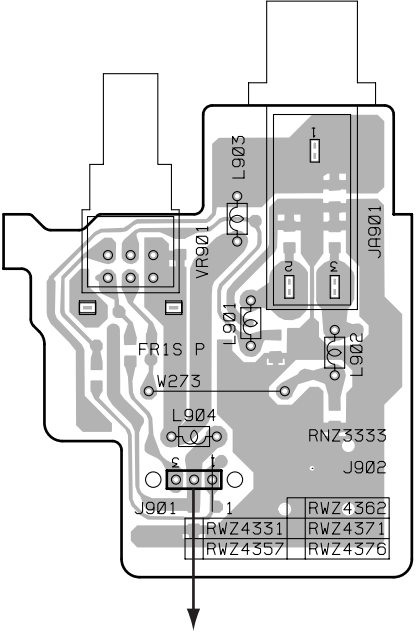
(RNP1732-C)

SIDE A

SIDE B

B

F HEADPHONE UNIT ASSY



(RNP1732-C)

C CN602

C

D

5. PCB PARTS LIST

NOTES : ● Parts marked by “ NSP ” are generally unavailable because they are not in our Master Spare Parts List.

- The Δ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by $J = 5\%$, and $K = 10\%$).

$560 \Omega \rightarrow 56 \times 10^1 \rightarrow 561 \dots\dots\dots RD1/4PU \begin{array}{|c|c|c|} \hline 5 & 6 & 1 \\ \hline \end{array} J$

$47k \Omega \rightarrow 47 \times 10^3 \rightarrow 473 \dots\dots\dots RD1/4PU \begin{array}{|c|c|c|} \hline 4 & 7 & 3 \\ \hline \end{array} J$

$0.5 \Omega \rightarrow R50 \dots\dots\dots RN2H \begin{array}{|c|c|c|} \hline R & 5 & 0 \\ \hline \end{array} K$

$1 \Omega \rightarrow 1R0 \dots\dots\dots RS1P \begin{array}{|c|c|c|} \hline 1 & R & 0 \\ \hline \end{array} K$

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

$5.62k \Omega \rightarrow 562 \times 10^1 \rightarrow 5621 \dots\dots\dots RN1/4PC \begin{array}{|c|c|c|c|} \hline 5 & 6 & 2 & 1 \\ \hline \end{array} F$

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	Symbol and Description	Part No.				Remarks
		MJ-D508				
		KUXJ	MYXJ	MYXJGR/FR	NVXJ	
NSP	MD MECHANISM ASSY	RXA1777	RXA1777	RXA1777	RXA1777	
	└ CORE UNIT ASSY	RWM2058	RWM2058	RWM2058	RWM2058	
	└┐ CORE MAIN UNIT ASSY	RWZ4334	RWZ4334	RWZ4334	RWZ4334	
	└ CORE SW UNIT ASSY	RWZ4335	RWZ4335	RWZ4335	RWZ4335	
NSP						
NSP	MOTHER UNIT ASSY	RWM2057	RWM2062	RWM2062	RWM2062	
	└ MAIN UNIT ASSY	RWZ4354	RWZ4359	RWZ4359	RWZ4359	
	└ POWER SUPPLY UNIT ASSY	RWZ4358	RWZ4363	RWZ4363	RWZ4363	
	└ DISPLAY UNIT ASSY	RWZ4355	RWZ4360	RWZ4360	RWZ4360	
NSP	└ HEADPHONE UNIT ASSY	RWZ4357	RWZ4362	RWZ4362	RWZ4362	
NSP	└ VOLUME UNIT ASSY	RWZ4356	RWZ4361	RWZ4361	RWZ4361	*2

*1 Although RWZ4357 and RWZ4362 are different in part number, they have the same service parts.

*2 Although RWZ4356 and RWZ4361 are different in part number, they have the same service parts.

■ CONTRAST OF PCB ASSEMBLIES



MAIN UNIT ASSY

RWZ4354 and RWZ4359 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		RWZ4354	RWZ4359	
	C315	CEAT470M16	CEAT221M6R3	
	C319	CEAT101M10	CEAT471M6R3	
	C406, C417, C429, C443, C604, C619	CEAT101M10	CEAT221M6R3	
	C419	CKSQYF104Z25	not used	
	C559, C560	CEAT470M16	CEAT220M50	
	C569, C570	not used	CEAT220M50	
	C619, C621	CEAT470M16	CEAT221M16	
	D401	DA202K-TLB	not used	
	D402	1SS133-T	not used	
	R322	not used	RS1/10S122J	
	R412, R437	RS1/10S102J	not used	
	R413	RS1/10S274J	not used	
	R455	not used	RS1/10S0R0J	
	JA405, JA406	RKN1004	not used	

D POWER SUPPLY UNIT ASSY

RWZ4358 and RWZ4363 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		RWZ4358	RWZ4363	
	C217	CEAT101M10	CEAT471M6R3	

E DISPLAY UNIT ASSY

RWZ4355 and RWZ4360 are constructed the same except for the following:

Mark	Symbol and Description	Part No.		Remarks
		RWZ4355	RWZ4360	
	R723 R724	not used RS1/10S104J	RS1/10S104J not used	

■ PARTS LIST FOR MJ-D508/KUXJ

Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
A CORE MAIN UNIT ASSY SEMICONDUCTORS IC112 BA4510F IC116 BD7910FV IC110 BR93LC56F IC101 IR3R55M IC102 LR376487 IC106 M56758FP IC103 M5M4V4400CTP-7 IC104 PD5523A ⚠ IC114 RN5RG32AA IC109 TC74VHC08FT Q102 2SA1036K Q101 2SB1188 Q103, Q104 DTC124EU D101, D102 SB02-09CP				C139 CEV101M4 C166 CEV101M6R3 C147, C148, C201 CEV470M6R3 C112 CEV4R7M35 C1000, C199 CKSQYB103K50 C129 CKSQYB122K50 C153, C154 CKSQYB153K50 C158 CKSQYB222K50 C196–C198 CKSQYB223K50 C103, C145 CKSQYB273K50 C171 CKSQYB332K50 C149, C170 CKSQYB333K50 C106, C159 CKSQYB472K50 C156, C157 CKSQYB562K50 C151, C152, C160, C162 CKSQYB821K50 C132, C134, C137, C138, C161 CKSQYF104Z25 C163, C164, C195, C202–C205 CKSQYF104Z25 C101, C102, C104, C108 CKSQYF105Z16 C113, C114, C116–C118 CKSQYF105Z16 C121, C122, C124, C135, C136 CKSQYF105Z16 C140, C165, C169, C207, C208 CKSQYF105Z16 C123 CKSQYF473Z25 C105, C107 CKSQYF474Z16			
COILS AND FILTERS L101, L103, L104, L107 (4.7μH) DTL1024 L110 CHIP SOLID INDUCTOR QTL1015 L108 (47μH) RTL1003 L102 (0.47μH) RTL1007				RESISTORS R105 RS1/8S270J Other Resistors RS1/10S□□□J			
SWITCHES AND RELAYS S101, S102 RSF1012				OTHERS CN104 30P CONNECTOR RKN1039 X101 (33.8688MHz) RSS1055 CN105 CONNECTOR S2B-ZR-SM3A CN102 CONNECTOR S2B-ZR-SM3A-R CN101 CONNECTOR SFV28R-1ST CN103 CONNECTOR SFW7R-2ST			
CAPACITORS C115, C146 CCSQCH101J50 C119, C120 CCSQCH120J50 C141–C144, C155 CCSQCH220J50 C174–C178 CCSQCH271J50 C194 CCSQCH331J50							

Mark	No.	Description	Part No.
B CORE SW UNIT ASSY			
SWITCHES AND RELAYS			
	S701		RSF1009
	S702		RSF1010
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	CN701 CONNECTOR		SFW7R-1ST

C MAIN UNIT ASSY

SEMICONDUCTORS

⚠	IC301, IC305 (400mA)	AEK7004
	IC602	AK7712A-VQ
⚠	IC306	BA05T
	IC604	BA15218
	IC605	BR62256F-70LL
	IC601	NJM2100D
	IC603	NJM4558D-D
⚠	IC302	NJM7805FA
	IC307	S-806D
	IC404	TC74HC153AF
	IC401, IC402	TC74HCT08AF
	IC403	TC74HCU04AF
	IC407	TC9246F
⚠	Q303	2SA1037K
	Q304	2SC2412K
	Q501-Q504	2SD2114K
	Q601, Q602	DTA124EK
	Q603-Q605	DTC124EK
⚠	D307	1SR139-400-TA
	D308, D402	1SS133X
	D401, D603	DAP202K
⚠	D303-D306	S5566G(TPB2)

COILS AND FILTERS

L308	LAU1R0J
L403, L603, L611	LFA100J
L401	LFA151J
L412, L602, L610	PTH1016
L413	PTH1017

L404	EMI FILTER 101
L304, L402, L410, L608	COIL

CAPACITORS

C448	CCSQCH100D50
C445	CCSQCH101J50
C440	CCSQCH150J50
C411, C413, C446, C453, C454	CCSQCH220J50
C450, C451, C549, C550	CCSQCH221J50
C627, C628, C633, C634	CCSQCH221J50
C412, C423, C617	CCSQCH470J50
C319, C321, C403, C406, C415	CEAT101M10
C417, C421, C429, C443, C601	CEAT101M10
C604, C612, C616	CEAT101M10

Mark	No.	Description	Part No.
	C507, C508		CEAT220M50
	C614		CEAT221M6R3
	C314		CEAT222M16
	C551, C552		CEAT2R2M50
	C410		CEAT330M50
	C313		CEAT332M16
	C315, C444, C505, C506		CEAT470M16
	C559, C560, C565, C566, C619		CEAT470M16
	C621		CEAT470M16
	C324		CEAT471M6R3
	C503, C504, C624		CEAT4R7M50
	C442		CFTLA474J50
	C447, C625, C626		CKSQYB102K50
	C409, C441, C449		CKSQYB103K50
	C553-C558		CKSQYB152K50
	C511, C512		CKSQYB332K50
	C401, C402, C404, C405, C414		CKSQYF104Z25
	C416, C418-C420, C422, C438		CKSQYF104Z25
	C452, C603, C605-C611, C613		CKSQYF104Z25
	C615, C630, C632		CKSQYF104Z25
	C629		CKSQYF105Z16
	C439		CKSQYF473Z25
	C323 (1.00F)		RCH1152

RESISTORS

R441	RD1/4VM120J
R559, R560	RN1/10SE1202D
Other Resistors	RS1/10S□□□J

OTHERS

CN602	3P JUMPER CONNECTOR	52147-0310
CN603	6P JUMPER CONNECTOR	52147-0610
CN301	13PJUMPER CONNECTOR	52147-1310
JA401	OPTICAL RECEIV MOD.	GP1F32R
JA404	OPTICAL LINK OUT	GP1F32T
CN404	CONNECTOR	HLEM30S-1
JA403	JACK	RKB1021
JA601	JACK	RKB1032
JA405, JA406	JACK	RKN1004
	PCB BINDER	VEF1040

CN401	30P CONNECTOR	VKN1206
KN301	EARTH METAL FITTING	VNF1084

D POWER SUPPLY UNIT ASSY

SEMICONDUCTORS

⚠	IC201 (2.5A)	AEK7014
⚠	IC202	NJM7805FA
	D205	1SS133X
	D204	DAN202K
⚠	D202	MTZJ11B
	D203	S2VB20
⚠	D201	S5566G(TPB2)

SWITCHES AND RELAYS

⚠	S201	RSA1001
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MJ-D508

Mark	No.	Description	Part No.
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COILS AND FILTERS

L206	LAU1R0J
L204, L205	COIL RTF1167

CAPACITORS

⚠ C206 (10000pF/AC250V)	ACG7020
C217	CEAT101M10
C219	CEAT101M50
C218	CEAT4R7M50
C210	CFTLA104J50
C203–C205, C207–C209	CKCYF103Z50
C211–C214	CKCYF103Z50
C215	CKSQYF104Z25
C216 (15000μF/16V)	RCH1124

RESISTORS

All Resistors	RS1/10S□□□J
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OTHERS

	13P CABLE HOLDER	51048-1300
	HEAT SINK	ANH-575
J202	JUMPER WIRE 13P	D20PYY1315E
J204	CORD WITH PLUG	DE005WE0
⚠	TERMINAL	RKC-061

E DISPLAY UNIT ASSY

SEMICONDUCTORS

IC701	PDG240A
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COILS AND FILTERS

L704	COIL RTF1167
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SWITCHES AND RELAYS

S701	RSC1003
S719	RSH1041
S702–S718	VSG1009

CAPACITORS

C709	CEAL220M6R3
C705, C707, C710, C711	CKSQYB103K50
C713	CKSQYF103Z50
C703, C704, C706, C708	CKSQYF104Z25

RESISTORS

All Resistors	RS1/10S□□□J
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OTHERS

	REMOTE RECEIVER UNIT	GP1U27X
CN701	CONNECTOR	HLEM30S-1
V701	FL	RAW1164
X701	(8.388MHz)	RSS1042

Mark	No.	Description	Part No.
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F HEADPHONE UNIT ASSY

COILS AND FILTERS

L903	COIL	RTF1167
L901, L902	FERRITE BEADS	VTH1020

CAPACITORS

C904, C905, C907	CKSQYF104Z25
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RESISTORS

VR901 (500Ω-B)	RCV1123
Other Resistors	RS1/10S□□□J

OTHERS

	3P CABLE HOLDER	51048-0300
J901	JUMPER WIRE	D20PYY0310E
J902	CORD WITH PLUG	DE005WE0
JA901	JACK	RKN1002

G VOLUME UNIT ASSY

RESISTORS

VR801 (50kΩ-A)	RCV1118
Other Resistors	RS1/10S□□□J

OTHERS

J801	6P CABLE HOLDER	51048-0600
	PARALLEL WIRE	D20PYY0615E

6. ADJUSTMENT

■ JIGS AND MEASURING INSTRUMENTS

- Thermometer

- Oscilloscope

- Optical Power Meter

- Jitter Meter

- Test Disc

For servo system adjustment GGF1328 (MMD-212)

For recording/playback inspection GGF1328 (MMD-212), GGF1277,
TGYS1 (or MMD-110), Commercial discs

6.1 NECESSARY ADJUSTMENT POINTS

When		Adjustment points
Exchange PICKUP	➡	②-⑧ → Page 43-48
Exchange Servo Base Assy (SPINDLE MOTOR)	➡	②-⑧ → Page 43-48
Exchange CORE MAIN UNIT ASSY	➡	①,④-⑧ → Page 43-48
Exchange MD HEAD	➡	⑧ → Page 48
Exchange Loading Mechanism Assy	➡	_____
Exchange Servo Mechanism Assy	➡	③-⑧ → Page 44-48
Exchange MD Mechanism Assy (Loading Mechanism Assy + Servo Mechanism Assy)	➡	③-⑧ → Page 44-48

6.2 TEST MODE

There are two test modes: test mode 1 for main unit operation check and test mode 2 for MD mechanism assy adjustment and check.

6.2.1 Test Mode 1 (main unit operation check)

■ How to enter into test mode 1

- 1) Hold the “ENTER” key and the “STOP” key depressed and press the POWER switch.
- 2) SYSTEM TEST will be displayed on the FL display.

- Operation check for the operation keys

Operation Keys	FL Display	Contents
REC (●)		Same operation as in normal mode
PLAY (▶)		
STOP (■)		
JOG (◀◀, ▶▶)		
CUE (▶▶)		
REV (◀◀)		
INPUT SELECTOR		
EJECT (▲)		Disc ejection (no TOC writing)
DIGITAL-NR	D S P O K ! !	Normal DSP IC operation
	D S P E R R O R 1	Communication between the DSP IC and the system controller is not possible.
	D S P E R R O R 2	Calculation in the DSP IC not correct

- Operation check for other keys

When each key is pressed, display according to the following table shall be made on the FL display.

Operation Keys		FL Display
TIMER SW	OFF	S Y S T E M T E S T
	REC	Entire FL lit
	PLAY	Entire FL not lit
DAC MODE		D A C
NAME CLIP		N A M E C L I P
DISPLAY/CHARA		D I S P
A-B		**** **** **** **** **** **** ****

Operation Keys	FL Display
JOG (Push)	E N T E R
EDIT/NO	E D I T / N O
NAME	N A M E
SYNCHRO REC	S Y N C H R O R E C

■ Cancellation of Test Mode 1

Press the POWER switch.

6.2.2 Test Mode 2 (MD Mechanism Assy Adjustment, Check)

① Temperature Check (Please perform this check soon after the power has been switched on.)

Note: When IC101 (RF-AMP), IC104 (mechanical controller) or IC110 (EEPROM) has been exchanged or when a correction changing VD+3 has been made, be sure to correctly perform all steps up to step 6.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks												
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode													
2	Press the NAME CLIP key.	TEMP ○○□□	The microcomputer starts measuring.	○○: Measuring value												
3	When □□ is 80 or more at this time, the adjustment is OK (step 4 and following can be omitted).		End	□□: Set value												
When □□ is 80 (not passed)		TEMP ○○ 8 0	80 is the default value (unadjusted).													
4	Measure the ambient temperature T (°C) and check that the measuring value (○○) is within the standard in regard to the microcomputer set value (□□). Note: When the indication of the measuring value (○○) is not stable, and the ambient temperature T (°C) is 25 °C or less, set to the lower value. When the ambient temperature is over 25 °C, set to the higher value.	TEMP ○○□□ μ-com Measuring value ↑ ↑ μ-com Set value <table><tr><th>Room Temperature [T (°C)]</th><th>hex= (○○-□□)</th></tr><tr><td>11.6 to 16.9</td><td>+1 to +3</td></tr><tr><td>17.0 to 22.3</td><td>0 to +2</td></tr><tr><td>22.4 to 27.6</td><td>-1 to +1</td></tr><tr><td>27.7 to 33.0</td><td>0 to -2</td></tr><tr><td>33.1 to 38.4</td><td>-1 to -3</td></tr></table> When the microcomputer value is 7B 79 ↑ - 7A 7B 7C ↓ + 7D			Room Temperature [T (°C)]	hex= (○○-□□)	11.6 to 16.9	+1 to +3	17.0 to 22.3	0 to +2	22.4 to 27.6	-1 to +1	27.7 to 33.0	0 to -2	33.1 to 38.4	-1 to -3
Room Temperature [T (°C)]	hex= (○○-□□)															
11.6 to 16.9	+1 to +3															
17.0 to 22.3	0 to +2															
22.4 to 27.6	-1 to +1															
27.7 to 33.0	0 to -2															
33.1 to 38.4	-1 to -3															
5	Change □□ with the DAC MODE key (UP) and the INPUT SELECTOR key (DOWN).	TEMP 7B 7B														
6	Press the EDIT/NO key.	No Disc	Writing to EEPROM is made and return is made automatically from test mode to normal mode.													

② Laser Power Check

CAUTION

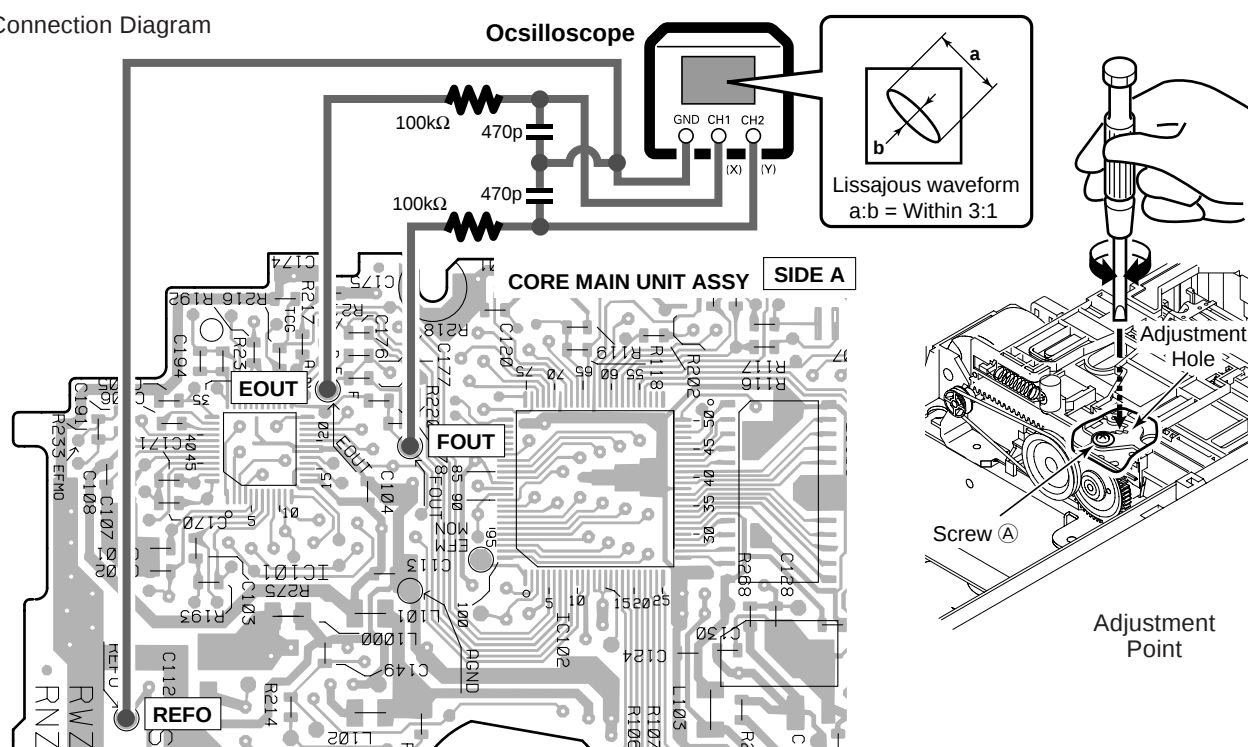
- Never look directly at the objective lens. Rec power (rpw) is than ten times greater than Playback power (ppw) is released.
- Never turn the pickup volume and be careful of touch it. Laser power of pickup has been adjusted in the factory shipping.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks												
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode	Laser Wavelength: 780 nm												
2	Press the NAME key.	ppw	PLAY power output status													
3	Measure the laser power with an optical power meter.	ppw														
4	At this time, check that the measuring value (PLAY power) meets the standard value of the table on the right. Note: When the standard value on the right is applied, the numerical value immediately after entry into test mode 2 shall be taken as the standard.	ppw	TEMP <table><tr><td>○</td><td>○</td><td>□</td><td>□</td></tr></table> μ-com Measuring value μ-com Set value <table><tr><td>hex = (○○ – □□)</td><td>Standard Value (mW)</td></tr><tr><td>+02 to +04</td><td>0.69±0.12</td></tr><tr><td>–01 to +01</td><td>0.67±0.1</td></tr><tr><td>–02 to –04</td><td>0.63±0.1</td></tr></table>	○	○	□	□	hex = (○○ – □□)	Standard Value (mW)	+02 to +04	0.69±0.12	–01 to +01	0.67±0.1	–02 to –04	0.63±0.1	May be omitted.
○	○	□	□													
hex = (○○ – □□)	Standard Value (mW)															
+02 to +04	0.69±0.12															
–01 to +01	0.67±0.1															
–02 to –04	0.63±0.1															
5	Press the NAME key.	rpw	REC power output status													
6	At this time, check that the measuring value (REC power) meets the standard value of the table on the right.	rpw	<table><tr><td>hex = (○○ – □□)</td><td>Standard Value (mW)</td></tr><tr><td>+02 to +04</td><td>6.18±0.93</td></tr><tr><td>–01 to +01</td><td>5.79±0.87</td></tr><tr><td>–02 to –04</td><td>5.47±0.82</td></tr></table>	hex = (○○ – □□)	Standard Value (mW)	+02 to +04	6.18±0.93	–01 to +01	5.79±0.87	–02 to –04	5.47±0.82					
hex = (○○ – □□)	Standard Value (mW)															
+02 to +04	6.18±0.93															
–01 to +01	5.79±0.87															
–02 to –04	5.47±0.82															
7	Press the STOP key.		The LD goes out.													

③ Grating Adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST	Grating adjustment status	
3	Press the PLAY key.	LON : LAG : GEG :	Playback is started in tracking open status. (The servo is closed only for focus and spindle.)	
4	Connect an oscilloscope according to the following connection diagram and loosen the screw (A) at the side of the adjustment hole. Turn the hole with a screwdriver until the Lissajous waveform becomes as shown in the figure, and then tighten the screw (A).	GRT AJST	Lissajous waveform a:b = Within 3:1	
5	Press the STOP key.		Adjustment end	

Connection Diagram



④ Preliminary Adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the A-B key (until AUT YOBI is displayed).	AUT YOBI	Preliminary adjustment mode	
4	Preliminary adjustment starts when the PLAY key is pressed.	HAo : RFg : PTG : Can't ADJ. COMPLETE	Defective adjustment (problem with the servo system) Adjustment end	

④ Preliminary Adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
5	Press the STOP key.	AUT YOBI	Return to menu display	
6	Press the EDIT/NO key.	EEPROM W Toc Reading GGF1328 (MMD-212)	Writing to the EEPROM	

Note: When this adjustment is performed after defocus adjustment has been performed, defocus is returned to the initial status, and defocus adjustment must be performed.

⑤ Normal adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the A-B key (until AUTO AJST is displayed).	AUTO AJST	Normal adjustment mode	
4	Normal adjustment starts when the PLAY key is pressed.	PEG : HAG: Can't ADJ. COMPLETE	Defective adjustment (problem with the servo system) Adjustment end	
5	Press the STOP key.	AUTO AJST	Return to menu display	

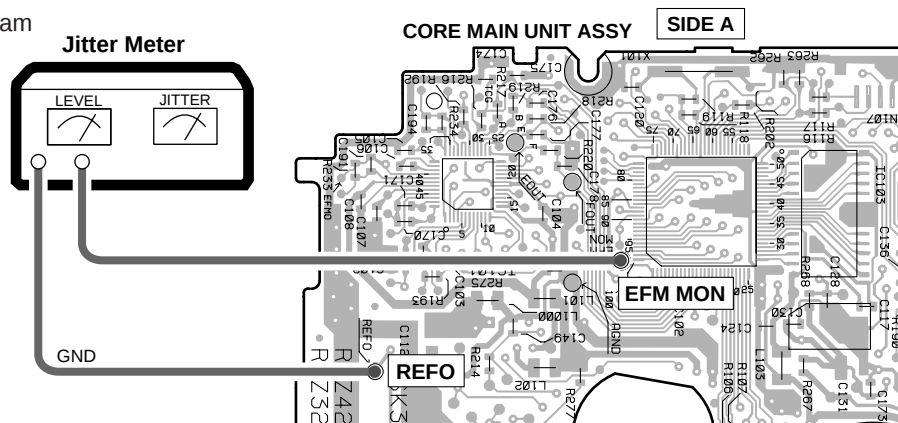
⑥ Defocus adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the A-B key (until deFO AJST is displayed).	deFO AJST		
4	Press the PLAY key. of 0000 c 0000 Defocus Value $\uparrow$ $\uparrow$ C1 Error Value	PEG : FESpp : of000c0015	Defocus mode is entered, and after automatic execution of normal adjustment, the C1 error at the time of focus offset 0 is displayed.	
5	Check the jitter value and end the adjustment when the intermediate jitter value is 29 nsec or less.			
6	Press the NAME CLIP key.	of+04 c0032	The C1 error with application of a focus offset of about 0.4 μ m on the + side is displayed. The jitter value (J+) at this time is recorded.	

⑥ Defocus adjustment

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
7	Press the NAME CLIP key.	of-04 c0020	The C1 error with application of a focus offset of about 0.4 μm on the – side is displayed. The jitter value (J–) at this time is recorded.	
8	When J+ is larger than J–, press the A-B key and display the C1 error when the focus offset is applied up to +0.4 μm . (Do nothing when J– is larger than J+.)	of+04 c0032		
9	Change the value with CUE (◀◀)/REV (◀◀) until the value becomes the same.	of+04 c0032 of+03 c0025 of+02 c0020	When the smaller offset of the jitter value has been corrected mistakenly, press the NAME key and return to step 4.	
10	Press the PLAY key.	COMPLETE	The mean value of the changed set value and the offset of the other setting limit is written into the EEPROM as the compensation offset.	
11	Power OFF		Test mode is ended.	

Connection diagram

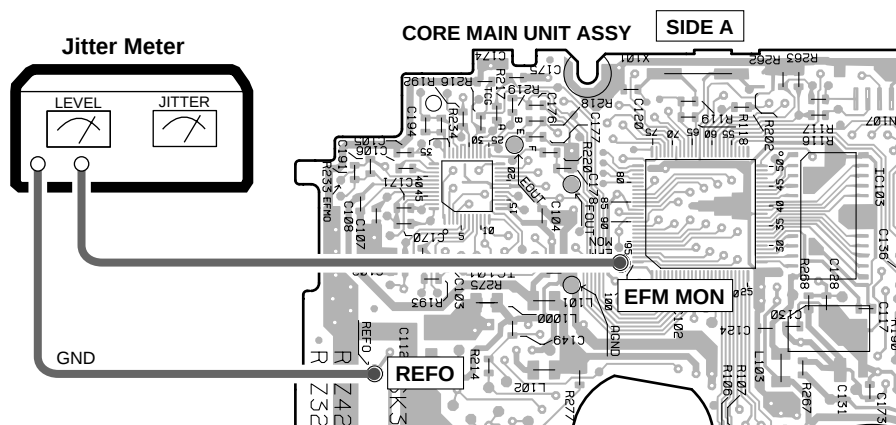


⑦ Jitter/C1 Error Check at the time of Playback

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks						
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode							
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST								
3	Perform “ ⑤ Normal Adjustment ” (step 3, step 4).	AUTO AJST								
4	Press the NAME CLIP key.	TEST PLAY	TEST PLAY mode							
5	Press the NAME key and display the inner circumference address.	ADRES 0050								
6	Press the PLAY key and display the C1 error for the inner circumference.	a0050 c0015	Check that the jitter value meets the standard value of the following table. GGF1328 (MMD-212) jitter value <table><tr><td>Inner circumference</td><td>31 nsec or less</td></tr><tr><td>Intermediate circumference</td><td>29 nsec or less</td></tr><tr><td>Outer circumference</td><td>29 nsec or less</td></tr></table>	Inner circumference	31 nsec or less	Intermediate circumference	29 nsec or less	Outer circumference	29 nsec or less	
Inner circumference	31 nsec or less									
Intermediate circumference	29 nsec or less									
Outer circumference	29 nsec or less									
7	Press the REC key.	A0062 c0013 AVE. c0012	Seven data are acquired, the largest and the smallest value are discarded, and fixed display is made for the mean value of the remaining five data. Check that this value is 200 or less.							

⑦ Jitter/C1 Error Check at the time of Playback

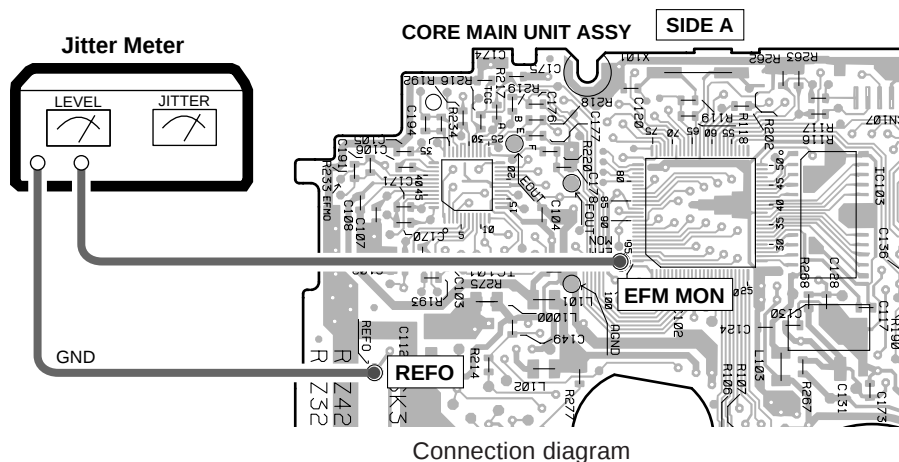
Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks						
8	Press the REC key.	a006F c0017	The fixed display of the C1 error is ended.							
9	Press the STOP key.	TEST PLAY								
10	Press the NAME key and display the inner circumference address.	ADRES 0050		Intermediate and outer circumference may be omitted.						
11	Press the NAME CLIP key and display the intermediate circumference address. Perform steps 6 to 9 in this condition.	ADRES 03C0 a03C0 c0009 TEST PLAY								
12	Press the NAME key and display the inner circumference address.	ADRES 0050								
13	Press the NAME CLIP key twice to display the outer circumference address. Perform steps 6 to 9 in this condition.	ADRES 0700 a0700 c0008 TEST PLAY								
14	Press the EJECT key, eject the test disc GGF1328 (MMD-212), and insert TGYS1 (or MMD-110.)	EJECT LOADING GRT AJST								
15	Perform steps 3 to 13 and check the jitter/C1 error with the test disc TGYS1 (or MMD-110).	a0062 c0009 a03d2 c0007 a0712 c0006	Check that the jitter value meets the standard value of the following table. TGYS1 (or MMD-110) jitter value <table><tr><td>Inner circumference</td><td>29 nsec or less</td></tr><tr><td>Intermediate circumference</td><td>27 nsec or less</td></tr><tr><td>Outer circumference</td><td>27 nsec or less</td></tr></table>	Inner circumference	29 nsec or less	Intermediate circumference	27 nsec or less	Outer circumference	27 nsec or less	
Inner circumference	29 nsec or less									
Intermediate circumference	27 nsec or less									
Outer circumference	27 nsec or less									
16	Press the EJECT key.	EJECT	The test disc TGYS1 (or MMD-110) is ejected.							
17	Power OFF		Test mode is ended.							



Connection diagram

⑧ Jitter/C1 Error Check at the time of Recording/Playback

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks						
1	Power ON while holding the ENTER key and the PLAY key depressed.	EJECT	Test mode							
2	Insert the test disc (GGF1277).	LOADING GRT AJST								
3	Perform “ ⑤ Normal Adjustment ” (step 3, step 4).	AUTO AJST								
4	Press the NAME CLIP key twice.	TEST REC	TEST REC mode							
5	Press the NAME key and display the inner circumference address.	a0050 pw0D								
6	When the PLAY key is pressed, TEST REC starts, and when 25 addresses or more have been sent, stop by pressing the STOP key.	a0069 pw0D TEST REC	Note: When the initial address (0050) part of the inner circumference (or intermediate/ outer circumference) has been used 1000 times or more, press the CUE key and shift the address by 10hex. (The address is shifted (up to 10 times) according to the use frequency of the disc.)	Intermediate and outer circumference may be omitted.						
7	Press the NAME key and display the inner circumference address.	a0050 pw0D								
8	Press the NAME CLIP key and display the intermediate circumference.	a03C0 pw0D								
9	Perform step 6.	a03D9 pw0D TEST REC								
10	Press the NAME key and display the inner circumference address.	a0050 pw0D								
11	Press the NAME CLIP key twice and display the outer circumference address.	a0700 pw0D								
12	Perform step 6.	a0719 pw0D TEST REC								
13	Press the NAME CLIP key.	TEST PLAY	TEST PLAY mode							
14	Perform steps 5 to 13 of “ ⑦ Jitter/C1 Error Check at the time of Playback ”. At the time of self-recording, wait for seven addresses after TEST PLAY start, and then press the REC key and enter into mean value mode. (Good recording may not be possible for several addresses at the beginning.)	a0069 c0009 a03D9 c0007 a0719 c0006	Check the jitter/C2 error at the inner/ intermediate/outer circumference of GGF1277, and check that the jitter value satisfies the standard value of the following table. GGF1277 jitter value <table><tr><td>Inner circumference</td><td>33 nsec or less</td></tr><tr><td>Intermediate circumference</td><td>31 nsec or less</td></tr><tr><td>Outer circumference</td><td>31 nsec or less</td></tr></table>	Inner circumference	33 nsec or less	Intermediate circumference	31 nsec or less	Outer circumference	31 nsec or less	
Inner circumference	33 nsec or less									
Intermediate circumference	31 nsec or less									
Outer circumference	31 nsec or less									
15	Press the EJECT key.	EJECT	The test disc (GGF1277) is ejected.							
16	Power OFF		Test mode is ended.							

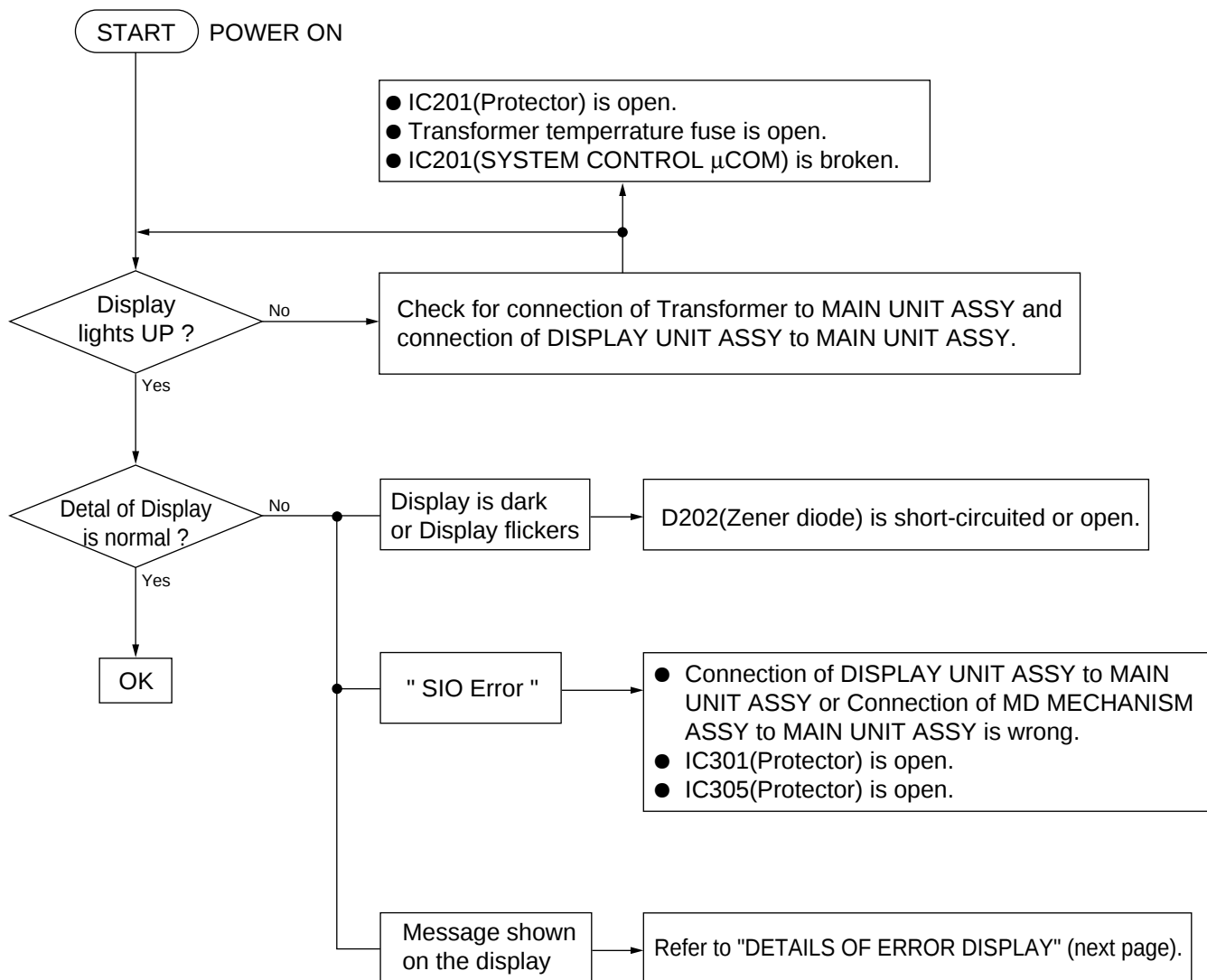


7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 TROUBLESHOOTING

■ The power of the system does not turn to ON. Display does not light up.



■ DETAILS OF ERROR DISPLAY

Error Display	Details of Error	Measure
Can't REC	● DEFECT occurred 10 times continuously during REC-PLAY. ● Recordable cluster became 0 since DEFECT occurred during REC-PLAY. ● Address is unreadable. REC state can not be set for 20 seconds even after try again.	● Check if there are scratches, dusts, fingerprints, or black spots on disc. Check if disc fluctuates eccentrically or moves up and down largely.
Can't COPY	● Determined as follows according to the channel status of the signals input from D-IN during REC-PAUSE or REC-PLAY. 1. Other than audio 2. Other than consumer use 3. Copy NG due to inversion of COPY bit of CD	● Check if CD is copy-proof. (Example: CD-R, etc.)
Din Unlock	● The following occurred for digital signal input from D-IN during REC-PAUSE, REC-PLAY 1. Digital IN PLL unlocked. 2. Locked at other than FS = 32, 44.1 and 48 kHz.	● Check if D-IN signal line is normal. ● Check if D-IN signal is FS = 32, 44.1 and 48 kHz.
DAC Unlock	● The following occurred for digital signal input from D-IN during DAC mode 1. Digital IN PLL unlocked. 2. Locked at other than FS = 32, 44.1 and 48 kHz.	● Check if D-IN signal line is normal. ● Check if D-IN signal is FS = 32, 44.1 and 48 kHz.
TOC Full	● No area for registering music number and character information during REC-PLAY (music name, disc number, etc.)	● Replace with recording/playback disc with space for registering UTOC.
UTOC R ERR	● FTNO > LTNO. ● FTNO ≠ 0 or 1. ● UTOC recorded on DISC could not be read.	● Replace with other discs to check if UTOC data is normal.
UTOC ERR A	● Start address > End address.	● Replace with other discs to check if UTOC data is normal.
UTOC ERR L	● Any one data of UTOC 0 to 4 has looped.	● Replace with other discs to check if UTOC data is normal.
Not Audio	● Data not for audio is recorded for TNO track mode currently selected.	● Select other TNO or replace with other discs.
Unkown Disc	● Data called MINI of system ID written in ASCII codes in TOC is incorrect. ● Disc type written in TOC is not pre-mastered MD, recording MD, or hybrid MD.	● Disc is outside specifications. Replace with different disc and check.
	● TOC read was incorrect or could not be read properly.	● The TOC data recorded on the disc do not comply with MD Standards, so try using another disc. ● The disc may be scratched or damaged, so try using another disc.
	● Inserted a disc but could not bring in FOCUS.	● Check if there are scratches, dusts, fingerprints, or black spots on disc. Check if disc fluctuates eccentrically or moves up and down largely.
Disc Full	● No recordable space when attempted to set REC-PAUSE.	● Replace with different disc with recording space.
Premastered	● Disc only for playback was loaded when attempted to set REC-PAUSE or edit.	● Disc is for playback only. Replace with disc for recording.
Protected	● Attempted to record or edit even through REC-proof knob of disc for recording was in the REC-proof state. ● Attempted to edit track with write-protect according to information on UTOC.	● Track attempted to be edited is write-protected. Try again with different track. ● Restore the REC-proof knob and try again.

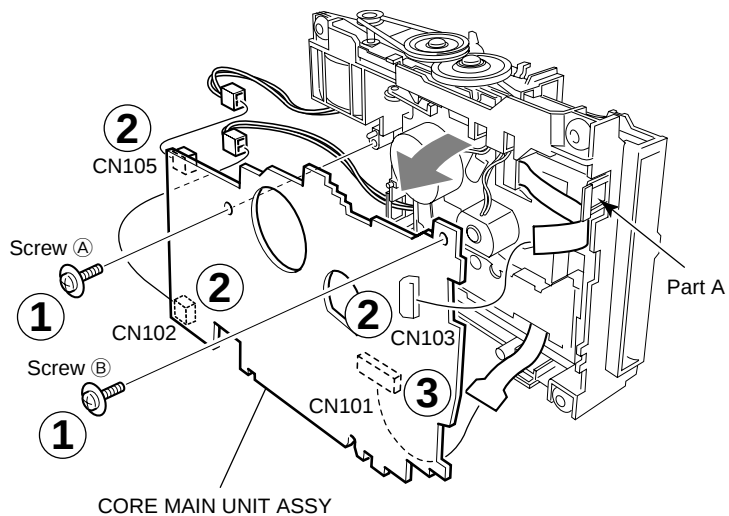
Details of Error Display

Error Display	Details of Error	Measure
Can' t Edit	Editing conditions were not satisfied for each editing function.	Operating method is wrong. Try again using correct method.
Temp Over	Temperature inside unit (MD unit) was too high due to fault.	Check according to TROUBLESHOOTING.
Disc ERR [Disc ERR R Disc ERR S Disc ERR W]	- Data read was incorrect or could not be read properly. - Error occurred during music data recording and recording could not be performed correctly. - Music data READ search time exceeded - REC PAUSE shift abnormality (search time exceeded) - SD WRITE (search time exceeded)	Faulty TOC or UTOC data or scratch on disc. Replaced with other discs.
UTOC W ERR	Fault occurred during rewriting of UTOC rewriting, and rewriting could not be performed correctly.	Scratch on disc. Replaced with other discs.
Memory Full	The DRAM has become filled with music data, but they can not be written (to the disc).	Check if there are scratches, dusts, fingerprints, or black spots on disc. Check if disc fluctuates eccentrically or moves up and down largely.
BlankDisc	After reading UTOC, total number of TNO and NAME characters was 0.	Record and check if disc is recordable.
Defect	Focus execution error, etc. occurred due to shock during REPLAY.	Check if there are scratches, dusts, fingerprints, or black spots on disc. Check if disc fluctuates eccentrically or moves up and down largely.
UTOC W ERR	UTOC read was correct but could not be rewrite it.	Check to see if the recording head contact is correct or if there are any disconnections between the board and the recording head.
EEPROM ERR	The EEPROM data are incorrect.	Try doing a RESET operation again. If the problem still persists, replace the EEPROM.
MECHA ERR	- Never completes EJECT. - Never moves HEAD UP. - Never moves HEAD DOWN. - The set microcomputer and MD mechanism microcomputer are not communicating properly.	

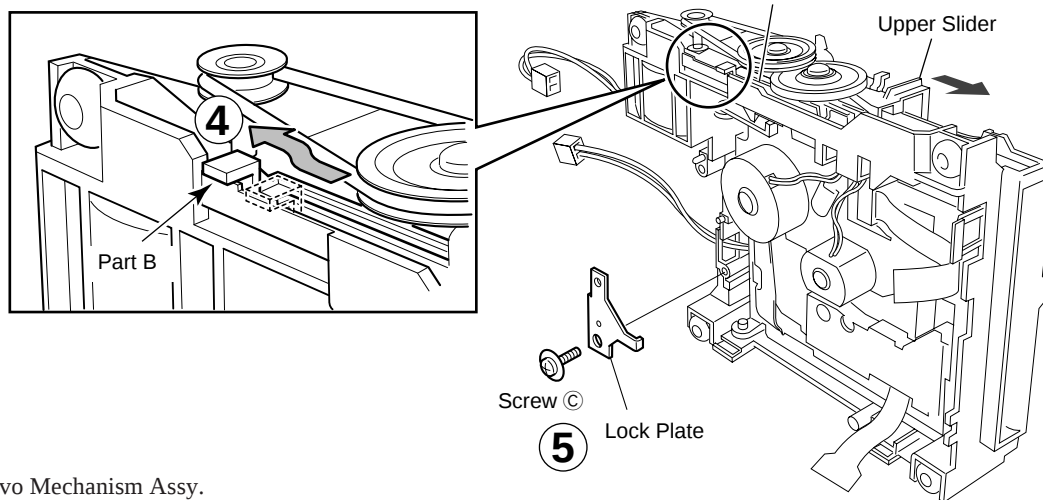
7.1.2 DISASSEMBLY

■ Removal of the Servo Mechanism Assy

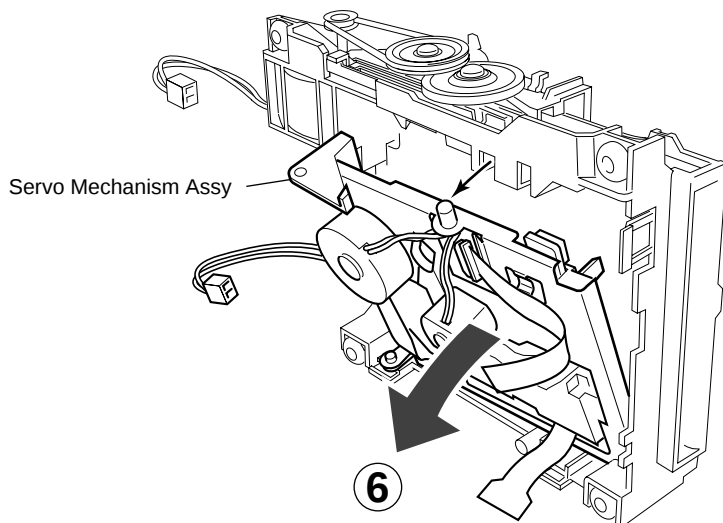
- ① Remove the screw (A) and screw (B).
- ② Disconnect the connectors (CN102, CN103, CN105), open the hook of part A, and tilt the upper side of the CORE MAIN UNIT ASSY to the front.
- ③ Disconnect the connector (CN101) at the rear of the CORE MAIN UNIT ASSY and remove the CORE MAIN UNIT ASSY.
- ④ After the Carrier has been pushed in, move the Upper Slider to the rear and stop it at the position where the Under Slider starts to move.



- ⑤ Shift part B to the position shown in the figure while raising the Under Slider. (At the same time, the Upper Slider moves to the front.)
- ⑥ Remove the Lock Plate. (One screw (C))



- ⑦ Remove the Servo Mechanism Assy.

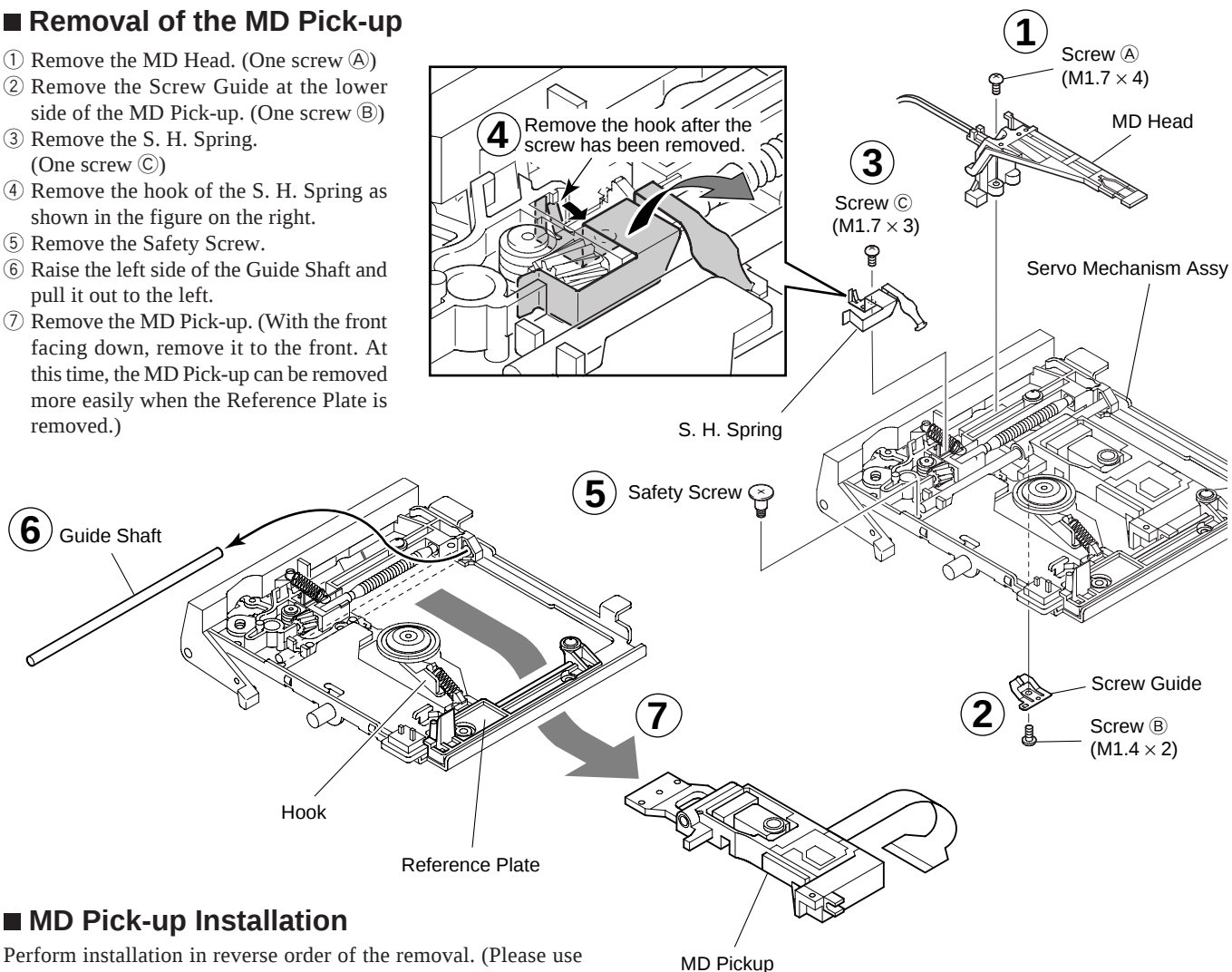


■ Caution for the time of installation of the servo mechanism assy

Move the MD Pick-up to the innermost circumference.
The servo mechanism assembly is not installed other than the innermost circumference.

■ Removal of the MD Pick-up

- ① Remove the MD Head. (One screw (A))
- ② Remove the Screw Guide at the lower side of the MD Pick-up. (One screw (B))
- ③ Remove the S. H. Spring. (One screw (C))
- ④ Remove the hook of the S. H. Spring as shown in the figure on the right.
- ⑤ Remove the Safety Screw.
- ⑥ Raise the left side of the Guide Shaft and pull it out to the left.
- ⑦ Remove the MD Pick-up. (With the front facing down, remove it to the front. At this time, the MD Pick-up can be removed more easily when the Reference Plate is removed.)



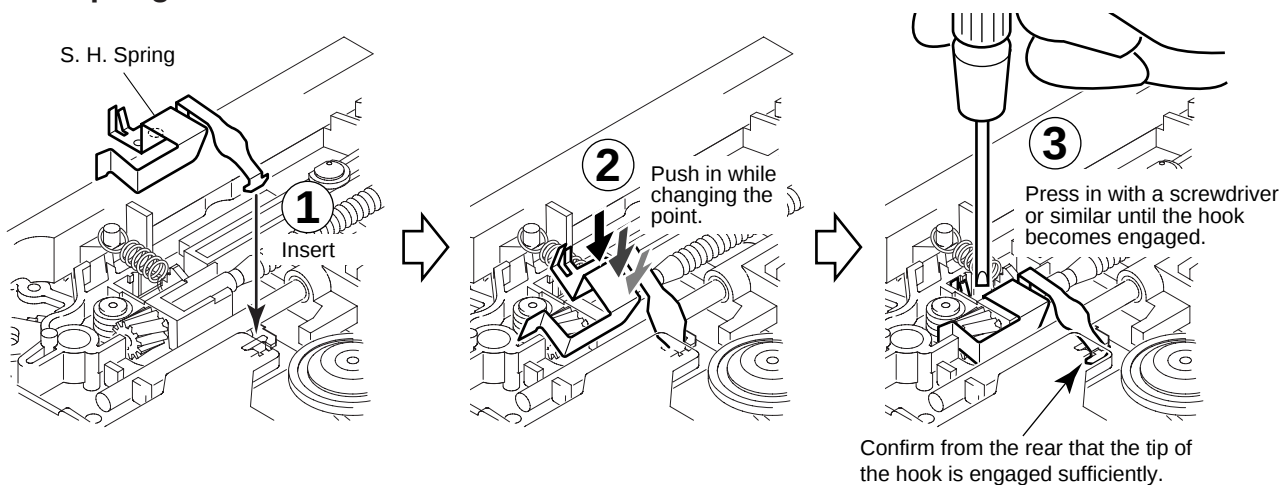
■ MD Pick-up Installation

Perform installation in reverse order of the removal. (Please use care as the MD Head mounting screw can be crushed easily.

MD Head mounting screw tightening torque: 1.1 kg • cm

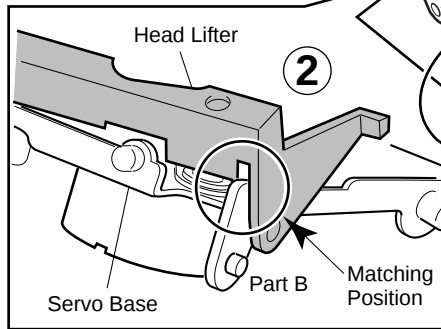
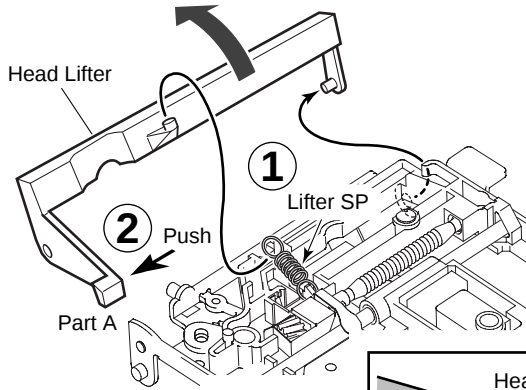
When the Reference Plate has been removed, confirm that the hook is engaged with the shaft of the spindle motor. (Take care that the mounting reference boss does not ride up.)

■ S. H. Spring Installation



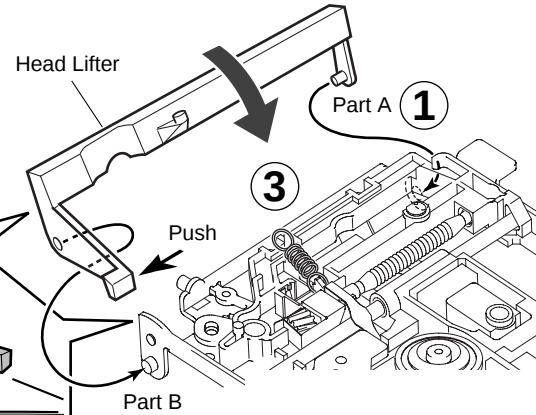
■ Removal of the Head Lifter

- ① Remove the Lifter SP.
- ② Tilt the Head Lifter to the rear and push part A to disengage it.



■ Head Lifter Installation

- ① Install part A in the Servo Base with the Head Lifter tilted to the back.
- ② Match the Head Lifter and the Servo Base as shown in the figure, and then engage part B.
- ③ While holding part B with your hand, tilt the Head Lifter to the front and install the Lifter SP.



7.2 PARTS

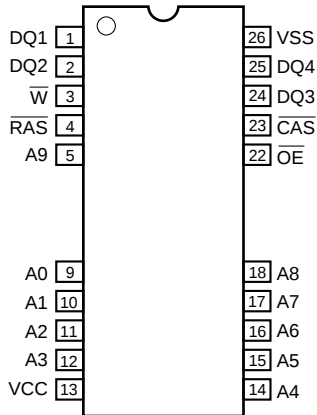
7.2.1 IC

● The information shown in the list is basic information and may not correspond exactly to that shown in the schematic diagrams.

■ M5M4V4400CTP-7 (IC103: CORE MAIN UNIT ASSY)

● DRAM

● Pin Assignment (Top view)

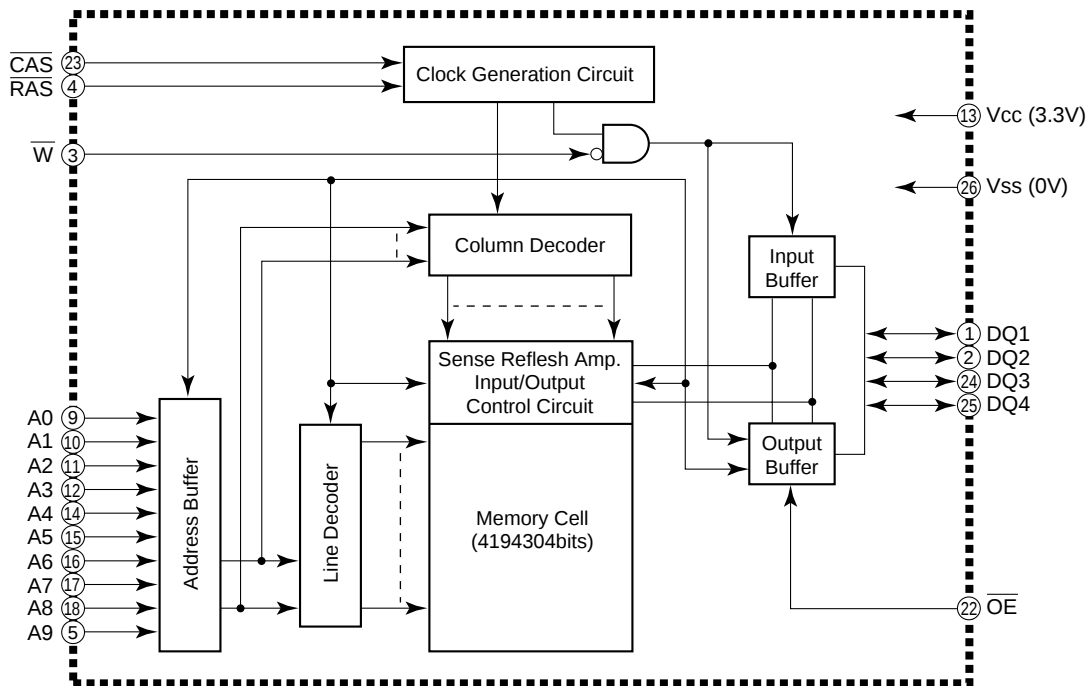


● Pin Function

No.	Name	Description
1	DQ1	Data Input/Output
2	DQ2	
3	$\overline{W}$	Write control input
4	$\overline{RAS}$	Line address strobe input
5	A9	Address input
6		
7		
8		
9	A0	Address input
10	A1	
11	A2	
12	A3	
13	Vcc	Power supply voltage (+3.3 V)

No.	Name	Description
14	A4	Address input
15	A5	
16	A6	
17	A7	
18	A8	
19		
20		
21		
22	$\overline{OE}$	Output-enable input
23	$\overline{CAS}$	Column address strobe input
24	DQ3	Data Input/Output
25	DQ4	
26	Vss	Ground (0 V)

● Block Diagram

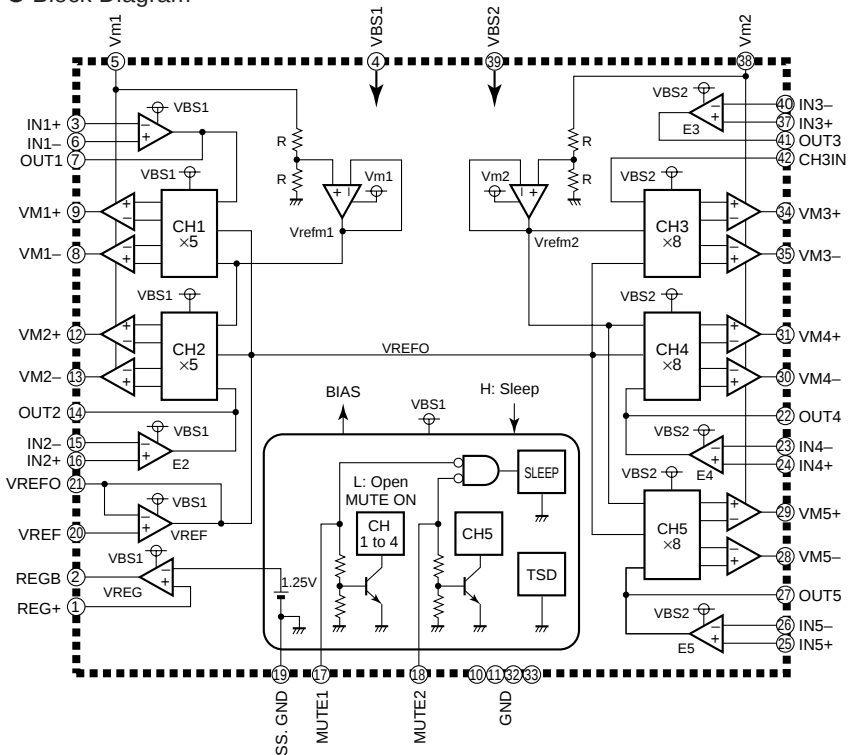
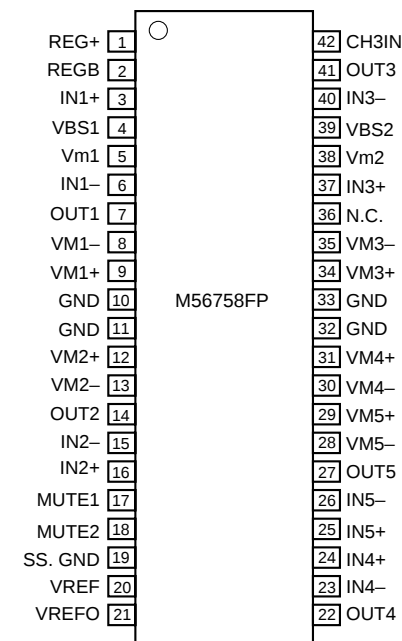


■ M56758FP (IC106: CORE MAIN UNIT ASSY)

● 5-channel Actuator Driver

● Pin Assignment (Top view)

● Block Diagram



● Pin Function

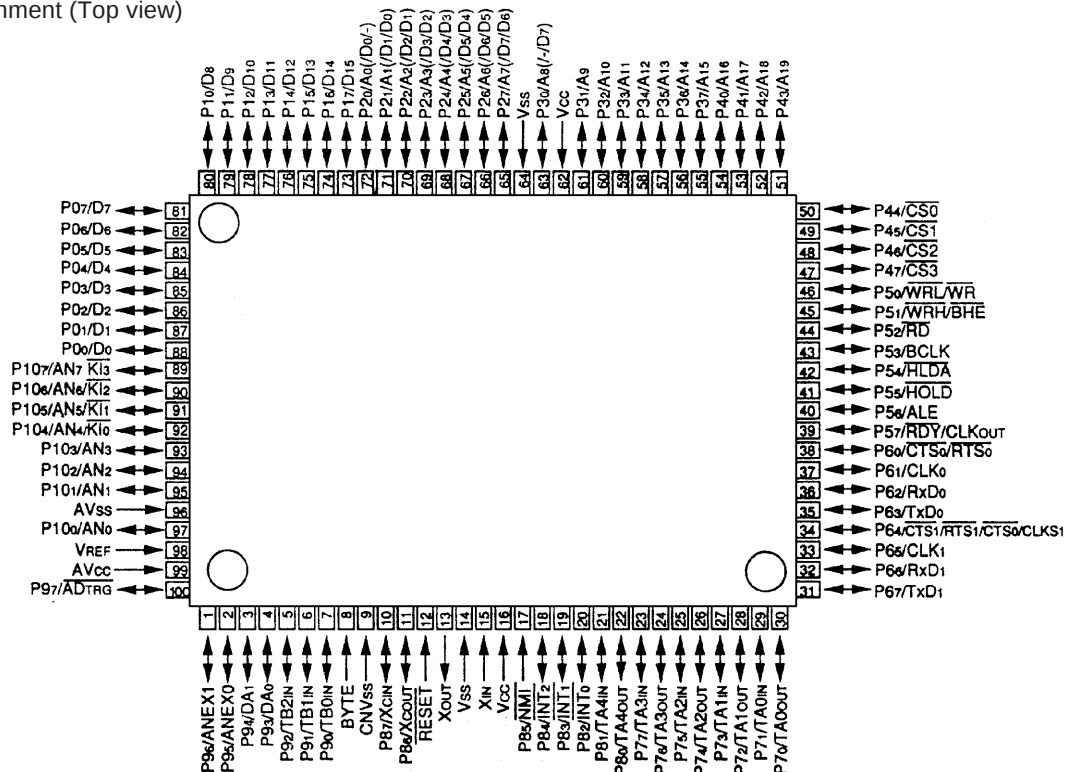
No.	Name	Description
1	REG+	Regulator voltage setting resistor connection terminal
2	REGB	Regulator PNP base connection terminal
3	IN1+	E1 amplifier nonreversed input terminal
4	VBS1	Bootstrap power supply terminal
5	Vm1	Motor power supply terminal
6	IN1-	E1 amplifier reversed input terminal
7	OUT1	E1 amplifier output terminal
8	VM1 (-)	CH1 reversed output terminal
9	VM1 (+)	CH1 nonreversed output terminal
10	GND	Motor GND
11		
12	VM2 (+)	CH2 nonreversed output terminal
13	VM2 (-)	CH2 reversed output terminal
14	OUT2	E2 amplifier output terminal
15	IN2-	E2 amplifier reversed input terminal
16	IN2+	E2 amplifier nonreversed input terminal
17	MUTE1	Mute terminal (CH1 to CH4)
18	MUTE2	Mute terminal (CH5)
19	SS. GND	Small-signal ground
20	VREF	Reference voltage input terminal
21	VREFO	Reference voltage output terminal

No.	Name	Description
22	OUT4	E4 amplifier output terminal
23	IN4-	E4 amplifier reversed input terminal
24	IN4+	E4 amplifier nonreversed input terminal
25	IN5+	E5 amplifier nonreversed input terminal
26	IN5-	E5 amplifier reversed input terminal
27	OUT5	E5 amplifier output terminal
28	VM5 (-)	CH5 reversed output terminal
29	VM5 (+)	CH5 nonreversed output terminal
30	VM4 (-)	CH4 reversed output terminal
31	VM4 (+)	CH4 nonreversed output terminal
32	GND	Motor GND
33		
34	VM3 (+)	CH3 nonreversed output terminal
35	VM3 (-)	CH3 reversed output terminal
36	N.C.	Not connected
37	IN3+	E3 amplifier nonreversed input terminal
38	Vm2	Motor power supply terminal
39	VBS2	Bootstrap power supply terminal
40	IN3-	E3 amplifier reversed input terminal
41	OUT3	E3 amplifier output terminal
42	CH3IN	E3 amplifier nonreversed input terminal

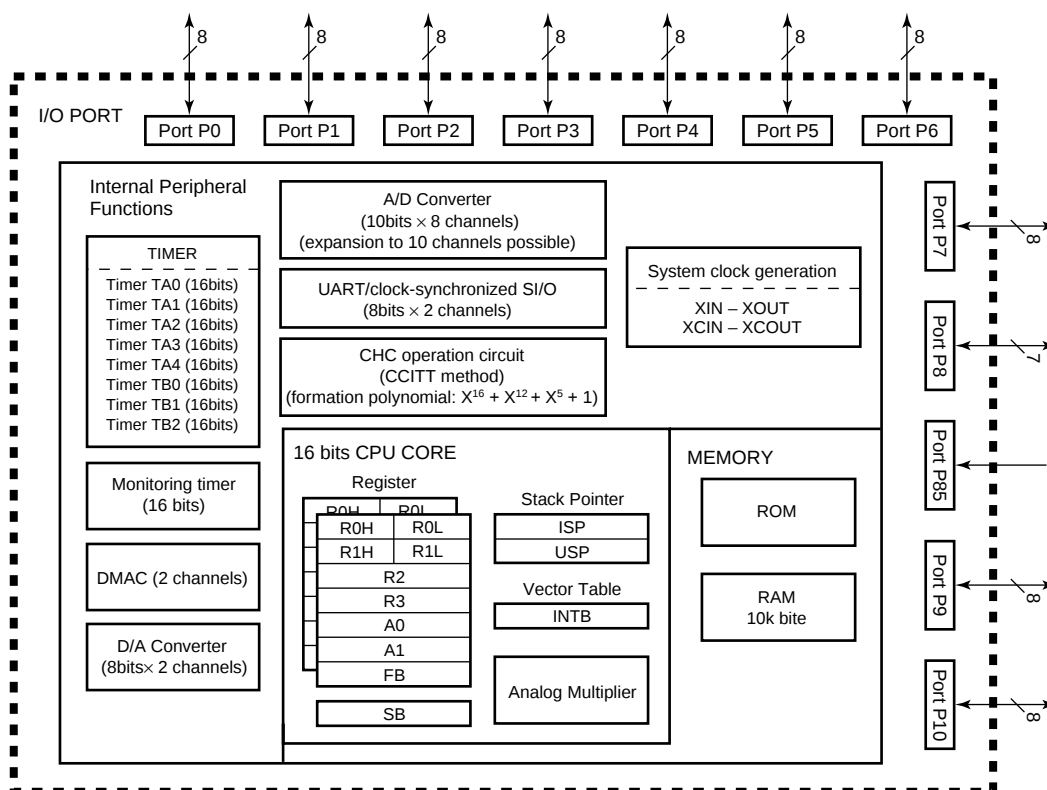
■ PD5523A (IC104: CORE MAIN UNIT ASSY)

● Mechanism Control m-com.

● Pin Assignment (Top view)



● Block Diagram



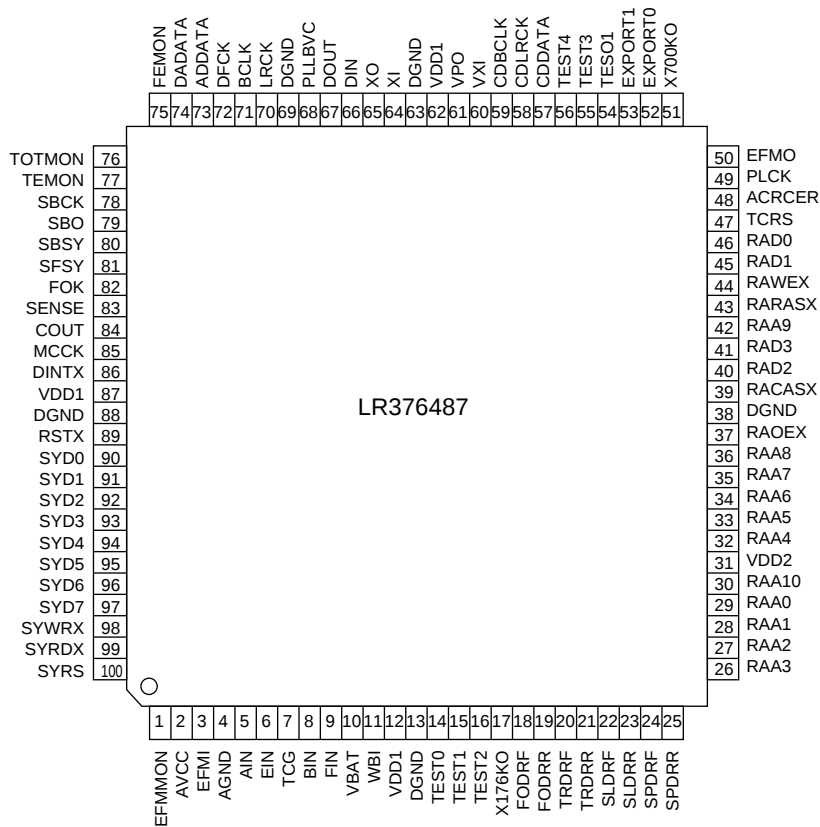
● Pin Function

No.	Name	I/O	Description
1 to 7, 100	P96 to P90, P97	I/O	These are 8 bit I/O ports with the same functions as P0. By software selection, it functions as the input terminals for the timers B0 to B2, the output terminals for the D/A converter, the expansion input terminals of the A/D converter, or the A/D trigger input terminals.
8	BYTE	I	This is the terminal for switching the external data bus width. When the level of this terminal is "L", the width is 16 bits, and when it is "H", the width is 8 bits. Please fix it to one of these levels. At the time of single-chip mode, connect it to the Vss terminal.
9	CNVss	I	This is the terminal for processor mode switching. At the time of single-chip mode or at the time of memory expansion mode, connect it to the Vss terminal. At the time of microprocessor mode, connect it to the Vcc terminal.
10 11 17 18 to 22	P87 P86 P85 P84 to P80	I/O I/O I I/O	P80 to P84, P86, and P87 are I/O ports with the same functions as P0. By software selection, they function as the I/O terminals for the timer A4 or the input terminals for external interrupt. P86 and P87 function by software selection as the I/O terminals for the subclock oscillation circuit. In this case, connect a crystal oscillator between P86 (XCOUT terminal) and P87 (XCIN terminal). P85 is an input-only port serving also as $\overline{\text{NMI}}$. When the input of this terminal changes from "H" to "L", and $\overline{\text{NMI}}$ interrupt is generated. The $\overline{\text{NMI}}$ function can not be cancelled by software. A pullup resistance can not be set for this terminal.
12	$\overline{\text{RESET}}$	I	When the input to this terminal is "L", the microcomputer is reset.
13	XOUT	I	These are the I/O terminals of the main clock oscillation circuit. Connect a ceramic oscillator or a crystal oscillator between the terminals XIN and XOUT. In case of an externally generated clock, enter the clock from the XIN terminal and leave the XOUT terminal open.
15	XIN	O	
14	Vss	—	Impress 0 V.
16	Vcc	—	Impress 2.7 V to 5.5 V.
23 to 30	P77 to P70	I/O	These are 8 bit I/O ports with the same functions as P0. By software selection, they function as the I/O terminals for the timers A0 to A3.
31 to 38	P67 to P60	I/O	These are 8 bit I/O ports with the same functions as P0. By software selection, they function as the I/O terminals for the UART0 and UART1.
39 to 46	P57 to P50	I/O	These are 8 bit I/O ports with the same functions as P0. By software selection, they put out a clock with 1/8 or 1/32 of XIN or with the same cycle as XCIN from P57.
	WRL/WR, WRH/BHE, RD, BCLK, HLDA, HOLD, ALE, RDY	O O O O O I O I	WRL, WRH, (WR, BHE), RD, BCLK, HLDA, and ALE signals are put out. Switching between $\overline{\text{WRL}}$ and $\overline{\text{WRH}}$ and between BHE and WR is possible by software. ■ At the time of WRL, WRH, RD selection When the external data bus width is 16 bits and the $\overline{\text{WRL}}$ signal is at "L" level, writing is done to an even address, and the $\overline{\text{WRH}}$ signal is at "L" level, writing is done to an odd address. Reading is performed when the $\overline{\text{RD}}$ signal is at "L" level. ■ At the time of WR, BHE, RD selection Writing is done when the WR signal is at "L" level. Reading is done when the $\overline{\text{RD}}$ signal is at "L" level. An odd address is accessed when the BHE signal is at "L" level. Please use this mode when the external data bus width is 8 bits. The microcomputer is in hold status while the input level to the HOLD terminal is "L". During hold status, the output from HLDA is at "L" level. ALE is the signal for address latching. The microcomputer is in ready status while the input to RDY is at "L" level. A clock with the same frequency as the internal clock ϕ is put out from the BCLK terminal.
47 to 54	P47 to P40	I/O	These are 8 bit I/O ports with the same functions as P0.
	$\overline{\text{CS3}}$ to $\overline{\text{CS0}}$, A19 to A16	O O	The A16 to A19 and $\overline{\text{CS0}}$ to $\overline{\text{CS3}}$ signals are put out. A16 to A19 are the upper 4 bits of the address. $\overline{\text{CS0}}$ to $\overline{\text{CS3}}$ are the chip select signals, and they are used for specification of the access space.

No.	Name	I/O	Description
55 to 61, 63	P37 to P31, P30	I/O	These are 8 bit I/O ports with the same functions as P0.
	A15 to A9, A8	O	The middle 8 bits (A8 to A15) of the address are put out.
	A15 to A9 A8/D7	I/O O	With an external data bus width of 16 bits and multiplex bus setting, time sharing is performed for data (D7) I/O and address (A8) output. Address (A9 to A15) output also is performed.
62	Vcc	—	Impress 2.7 V to 5.5 V.
64	Vss	—	Impress 0 V.
65 to 72	P27 to P20	I/O	These are 8 bit I/O ports with the same functions as P0.
	A7 to A0	O	Output of the lower 8 bits (A0 to A7) of the address is performed.
	A7/D7 to A0/D0	I/O	With an external data bus width of 16 bits and multiplex bus setting, time sharing is performed for data (D0 to D7) I/O and address lower 8 bits (A0 to A7) output.
	A0 A7/D6 to A1/D0	O I/O	With an external data bus width of 16 bits and multiplex bus setting, time sharing is performed for data (D0 to D6) I/O and address (A1 to A7) output. Address (A0) output also is performed.
73 to 80	P17 to P10	I/O	These are 8 bit I/O ports with the same functions as P0.
	D15 to D8	I/O	Data (D8 to D15) I/O is performed at the time of separate bus setting.
81 to 88	P07 to P00	I/O	These are CMOS 8 bit I/O ports. They have direction registers for I/O selection, and input or output port setting is possible individually for each terminal. For an input port, the existence or absence of a pull-up resistance can be set by software in 4 bit units.
	D7 to D0	I/O	Data (D0 to D7) I/O is performed at the time of separate bus setting.
89 to 95, 97	P107 to P101, P100	I/O	This are 8 bit I/O ports with the same functions as P0. By software selection, they function as input terminals of the A/D converter. P104 to P107 also function as input terminals for the key input interrupt function.
96	AVss	—	This is the A/D converter power supply input terminal. Please connect it to the Vss terminal.
98	VREF	I	This is the A/D converter reference voltage input terminal.
99	AVcc	—	This is the A/D converter power supply input terminal. Please connect it to the Vcc terminal.

■ LR376487 (IC102: CORE MAIN UNIT ASSY)

- Encode/Decode/ATRAC
- Pin Assignment (Top view)



● Pin Function

No.	Name	I/O	Description
1*	EFMMON	O	EFM monitor output
2	AVCC	–	Analog power supply
3	EFMI	I	EFM signal input from RF amp
4	AGND	–	Analog GND
5	AIN	I	Focus error signal A
6	EIN	I	Tracking error signal E
7	TCG	I	Track cross signal
8	BIN	I	Focus error signal B
9	FIN	I	Tracking error signal F
10*	VBAT	I	Power-supply voltage detection signal for constant-voltage servo
11	WBI	I	ADIP wobble signal
12	VDD1	–	Digital power supply
13	DGND	–	Digital GND
14	TEST0	I	Test-use input; normally connected to GND when used.
15	TEST1	I	
16	TEST2	I	Test-use input; Encoder/Servo Mode and ATRAC Mode changeover

No.	Name	I/O	Description
17	X176KO	O	Clock output; f = 176.4kHz (4fs)
18	FODRF	O	Focus servo forward output; PWM
19	FODRR	O	Focus servo reverse output; PWM
20	TRDRF	O	Tracking servo forward output; PWM
21	TRDRR	O	Tracking servo reverse output; PWM
22	SLDRF	O	Slide servo forward output; PWM
23	SLDRR	O	Slide servo reverse output; PWM
24	SPDRF	O	Spindle servo forward output or spindle servo output; PWM
25	SPDRR	O	Spindle servo reverse output or spindle rotation forward/reverse changeover
26	RAA3	O	Address output to external D-RAM; ADR3
27	RAA2	O	Address output to external D-RAM; ADR2
28	RAA1	O	Address output to external D-RAM; ADR1
29	RAA0	O	Address output to external D-RAM; ADR0 (LSB)
30*	RAA10	O	Address output to external D-RAM; ADR10 (MSB)
31	VDD2	–	Power supply for DRAM interface

No.	Name	I/O	Description
32 36	RAA4 RAA8	O	Address output to external D-RAM; ADR4 Address output to external D-RAM; ADR8
37	RAOEX	O	Data output enable signal output to external D-RAM
38	DGND	–	Digital GND
39	RACASX	O	Column address strobe signal output to external D-RAM
40	RAD2	I/O	External D-RAM and data input/output; D2
41	RAD3	I/O	External D-RAM and data input/output; D3 (MSB)
42	RAA9	O	Address output to external D-RAM; ADR9
43	RARASX	O	Low address strobe signal output to external D-RAM
44	RAWEX	O	Data write enable signal output to external D-RAM
45	RAD1	I/O	External D-RAM and data input/output; D1
46	RAD0	I/O	External D-RAM and data input/output; D0 (LSB)
47*	TCRS	O	Track cross signal
48*	ACRCER	O	ADIP CRC error flag monitor output
49*	PLCK	O	EFM PLL clock output during Play
50	EFM0	O	EFM signal output during Record; C1F (C1 error flag) monitor output during Play.
51*	X700KO	O	Clock output; $f = 705.6\text{kHz}$; clock is not output when RSTX = 0.
52*	EXPORT0	O	Microcomputer extension output port 0
53*	EXPORT1	O	Microcomputer extension output port 1
54	TESO1	O	Microcomputer extension output port 2 during PLLLR changeover
55	TEST3	I/O	Microcomputer extension output port 3 during PLLOSC changeover
56	TEST4	I/O	Microcomputer extension output port 4 during EXTCLK changeover
57	CDDATA	I/O	CD data input for high-speed dubbing; microcomputer extension port 5 during changeover
58	CDLRCK	I/O	CD LR clock input for high-speed dubbing; microcomputer extension port 6 during changeover
59	CDBCLK	I/O	CD bit clock input for high-speed dubbing; microcomputer extension port 7 during changeover
60	VXI	I	PLL clock input for varying pitch
61*	VPO	O	PLL phase error input for varying pitch
62	VDD1	–	Digital power supply
63	DGND	–	Digital GND
64	XI	I	Oscillation circuit input; 33.8688MHz
65	XO	O	

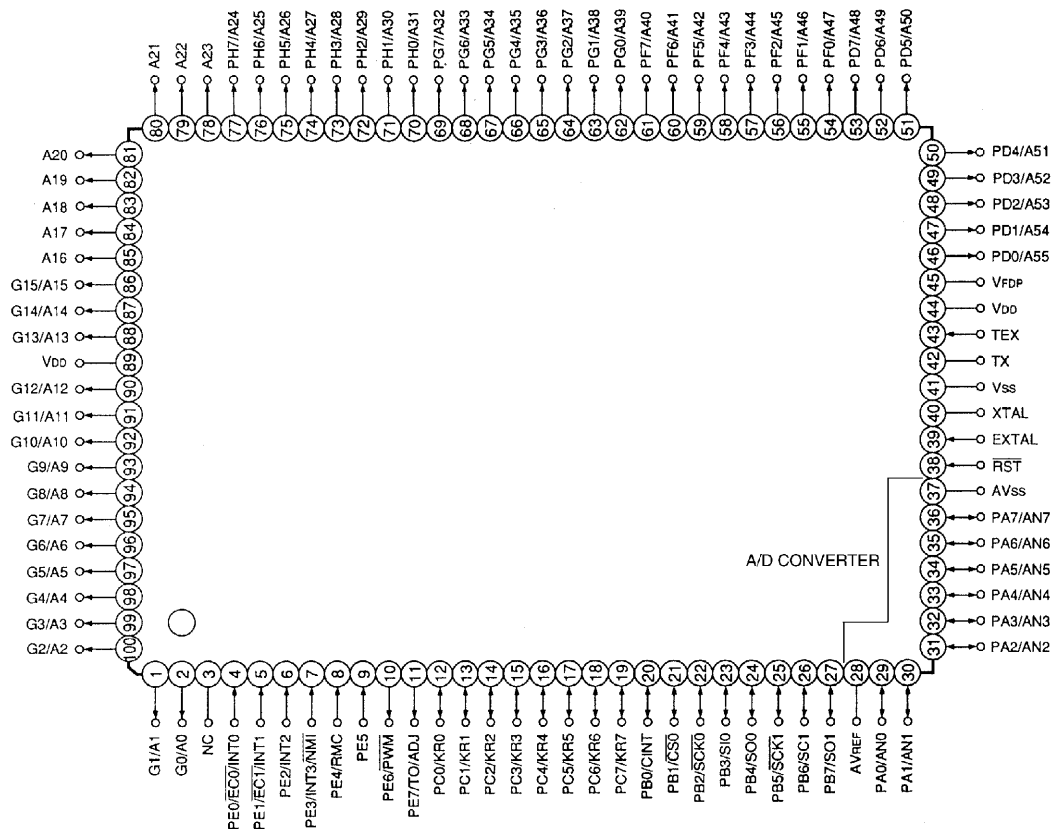
No.	Name	I/O	Description
66	DIN	I	Digital input signal
67	DOUT	O	Digital output signal
68	PLLBVC	–	Capacitor connection terminal for PLLB signal
69	DGND	–	Digital GND
70	LRCK	O	Music data Lch/Rch changeover output
71	BCLK	O	Music data shift lock
72	DFCK	O	Clock for AD/DA converter digital filter; 256fs
73	ADDATA	I	Audio data input
74	DADATA	O	Audio data output
75*	FEMON	O	Focus error signal monitor output
76*	TOTMON	O	Total signal monitor output
77*	TEMON	O	Tracking error signal monitor output
78*	SBCK	I	DIN sub code readout clock; EIAJ CP-309 format
79*	SBO	O	DIN sub code serial data; EIAJ CP-309 format
80*	SBSY	O	DIN sub code block synchronization signal; EIAJ CP-309 format
81*	SFSY	O	DIN sub code frame synchronization signal; EIAJ CP-309 format
82	FOK	O	Focus OK detection signal; "0": Focus OK
83	SENSE	O	Servo status detection signal; "1": Auto Move/ Auto Jump/Auto Focus lead-in in progress
84	COUT	O	Track cross signal output
85	MCCK	O	Clock output for microcomputer; clock is output even when RSTX = 0.
86	DINTX	O	Interrupt Request output signal for system computer interface
87	VDD1	–	Digital power supply
88	DGND	–	Digital GND
89	RSTX	I	Tip reset input; reset with L (NOTE)
90	SYD0	I/O	System computer interface data bus terminal; (LSB)
91 96	SYD1 SYD6	I/O	System computer interface data bus terminal
97	SYD7	I/O	System computer interface data bus terminal; (MSB)
98	SYWRX	I	System computer interface register write pulse input
99	SYRDX	I	System computer interface register read pulse input
100	SYRS	I	System computer interface register select input

Terminals denoted with an asterisk (*) are (Open) terminals that are not externally connected.

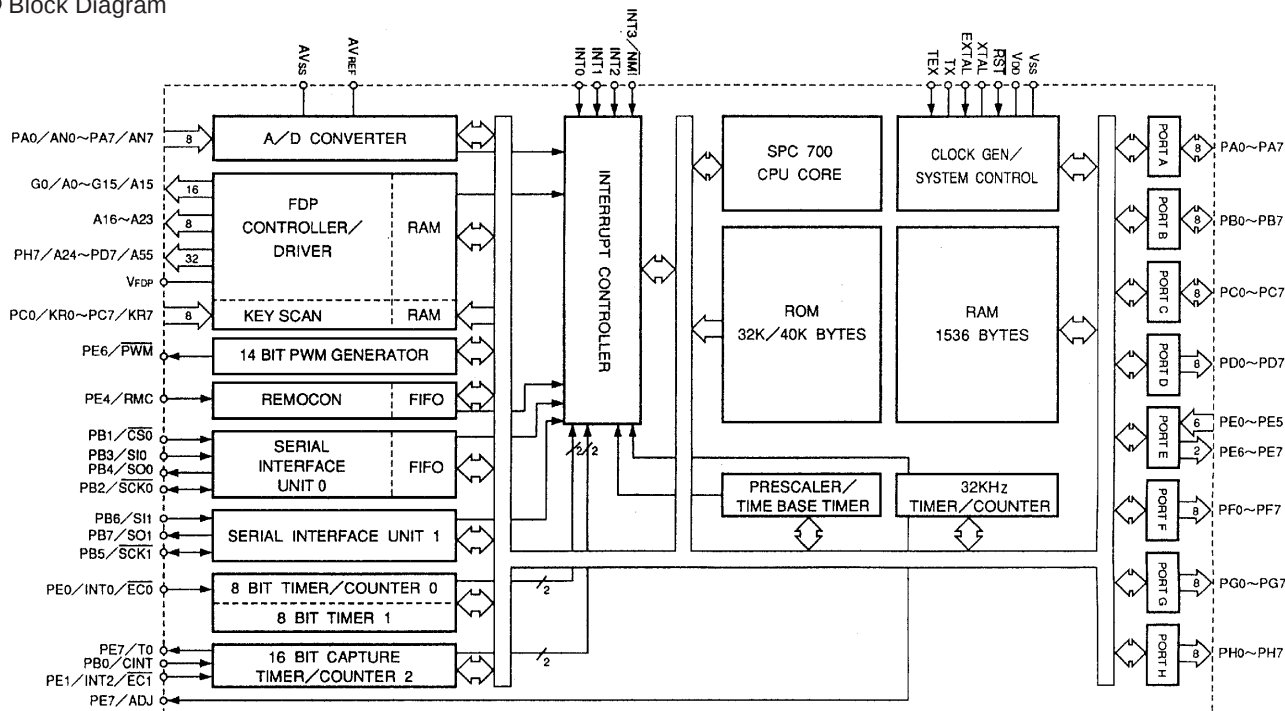
NOTE) Set RSTX to "L" when the power is being turned ON or after it has been turned ON.

■ PDG240A (IC701: DISPLAY UNIT ASSY)

- System Control μ -com
- Pin Assignment (Top view)



● Block Diagram



● Pin Function

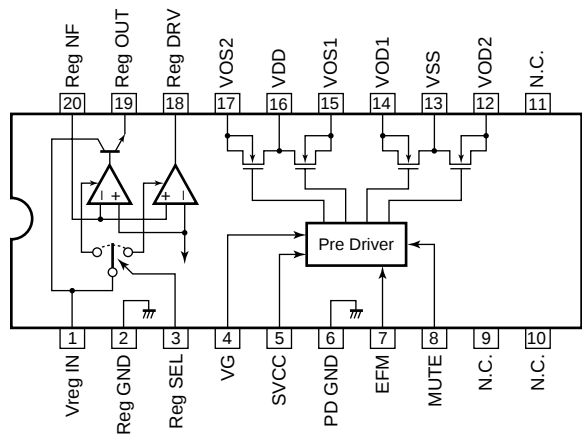
No.	Name	I/O	Description
1	G1/A1	O/O	Output terminals used jointly for the FDP timing signal (grid connection) and the segment signal (anode connection).
2	G0/A0		
3	NC	—	NC (connected to VDD)
4	PE0/INT0/EC0	I/I/I	Timer/counter external event input terminal
5	PE1/INT1/EC1		
6	PE2/INT2	I/I	External interrupt request input terminal
7	PE3/INT3/NMI	I/I/I	Nonmaskable interrupt request input terminal
8	PE4/RMC	I/I	Remote control reception circuit input terminal
9	PE5		
10	PE6/PWM	O/O	14 bit PWM output terminal
11	PE7/TO/ADJ	O/O/O	16 bit timer/counter rectangular waveform output, 32 kHz oscillation division output terminal
12 19	PC0/KR0 PC7/KR7	IO/I	Key return input terminal for performing of key scanning with the FDP segment signal
20	PB0/CINT	IO/I	External capture input terminal to the 16 bit timer/counter
21	PB1/CS0	I	Serial interface (CH0) chip select input terminal
22	PB2/SCK0	IO/IO	Serial clock (CH0) Input/Output terminal
23	PB3/SIO	IO/I	Serial data (CH0) input terminal
24	PB4/SO0	IO/O	Serial data (CH0) output terminal
25	PB5/SCK1	IO/IO	Serial clock (CH1) Input/Output terminal
26	PB6/SC1	IO/I	Serial data (CH1) input terminal
27	PB7/SO1	IO/O	Serial data (CH1) output terminal
28	AVREF	—	A/D converter reference voltage input terminal
29 36	PA0/AN0 PA7/AN7	I/O	A/D converter analog input terminal
37	AVss	—	A/D converter GND terminal
38	RST		System reset terminal, L: Active
39	EXTAL	I	System clock oscillation crystal connection terminal
40	XTAL	O	
41	Vss	—	GND terminal
42	TX	O	Crystal connection terminal for 32 kHz timer counter clock oscillation
43	TEX	I	
44	VDD	—	Positive power supply terminal
45	VFDP	—	FDP voltage supply terminal when the internal resistor is specified by the mask option.

No.	Name	I/O	Description
46 53	PD0/A55 PD7/A48	O/O	FDP segment signal (anode connection) output terminal
54 61	PF0/A47 PF7/A40		
62 69	PG0/A39 PG7/A32		
70 77	PH0/A31 PH7/A24		
78 85	A23 A16	O	
86 88	G15/A15 G13/A13	O/O	Output terminals for FDP timing signal (grid connection) and segment signal (anode connection)
89	VDD	—	Positive power supply terminal
90 100	G12/A12 G2/A2	O/O	Output terminals for FDP timing signal (grid connection) and segment signal (anode connection)

Note: The NC terminal of pin 3 must be connected to VDD. Connect the VDD terminals of pin 44 and pin 89 both to VDD.

■ BD7910FV (IC116: CORE MAIN UNIT ASSY)

- Head Driver
- Block Diagram



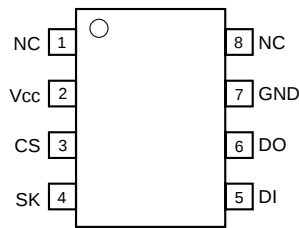
● Pin Function

No.	Name	Description
1	VregIN	Regulator input and regulator power supply
2	RegGND	Regulator GND
3	RegSEL	Regulator selection terminal
4	VG	Power MOS drive voltage input
5	SVCC	EFM high-level output voltage

No.	Name	Description
6	PDGND	Predrive GND
7	EFM	EFM signal input
8	MUTE	Mute control
9	N.C.	Not used
10	N.C.	
11	N.C.	
12	VOD2	Sink output (lower side power MOS drain)
13	VSS	H-bridge GND (lower side power MOS source)
14	VOD1	Sink output (lower side power MOS drain)
15	VOS1	Source output (upper side power MOS source)
16	VDD	H-bridge power supply (upper side power MOS drain)
17	VOS2	Source output (upper side power MOS source)
18	RegDRV	External PNP drive output for the regulator
19	RegOUT	Regulator output (emitter follower output)
20	RegNF	Regulator feedback terminal

■ BR93LC56F (IC110: CORE MAIN UNIT ASSY)

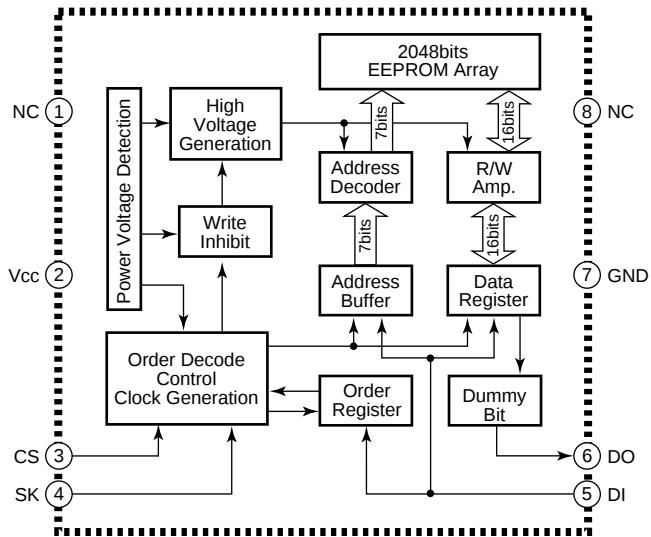
- EEPROM
- Pin Assignment (Top view)



● Pin Function

No.	Name	Description
1	NC	Not connected
2	Vcc	Power supply
3	CS	Chip selection input
4	SK	Serial clock input
5	DI	Start bit, operation code, address, and serial data input
6	DO	Serial data output, READY/BUSY internal status indication output
7	GND	Ground
8	NC	Not connected

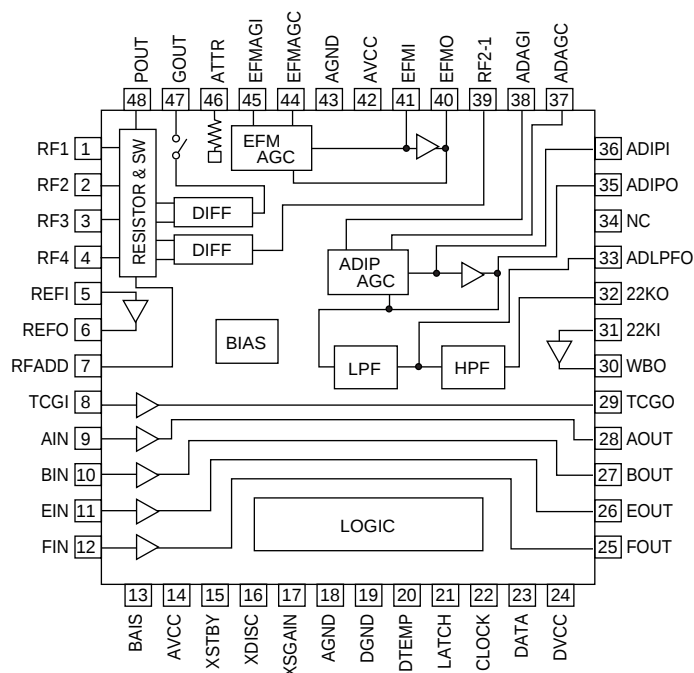
● Block Diagram



■ IR3R55M (IC101: CORE MAIN UNIT ASSY)

● RF Signal Processor

● Block Diagram



● Pin Function

No.	Name	Description
1	RF1	Inputs RF signal input terminal 1 pickup RF signal output.
2	RF2	Inputs RF signal input terminal 2 pickup RF signal output.
3	RF3	Inputs RF signal input terminal 3 pickup RF signal output.
4	RF4	Inputs RF signal input terminal 4 pickup RF signal output.
5	REFI	Standard voltage amp input terminal
6	REFO	Standard voltage amp output terminal
7	RFADD	RF1 – 4 resistance addition output terminal
8	TCGI	Track cross detection signal amp input terminal during groove input
9	AIN	Servo-use signal amp (Focus servo system) inversion input terminal
10	BIN	Servo-use signal amp (Focus servo system) inversion input terminal
11	EIN	Servo-use signal amp (Tracking servo system) inversion input terminal
12	FIN	Servo-use signal amp (Tracking servo system) inversion input terminal
13	BIAS	Bias input terminal
14	AVCC	Analog power terminal
15*	VSTBY	Logic signal output terminal (outputs STBY signal inversion signal)

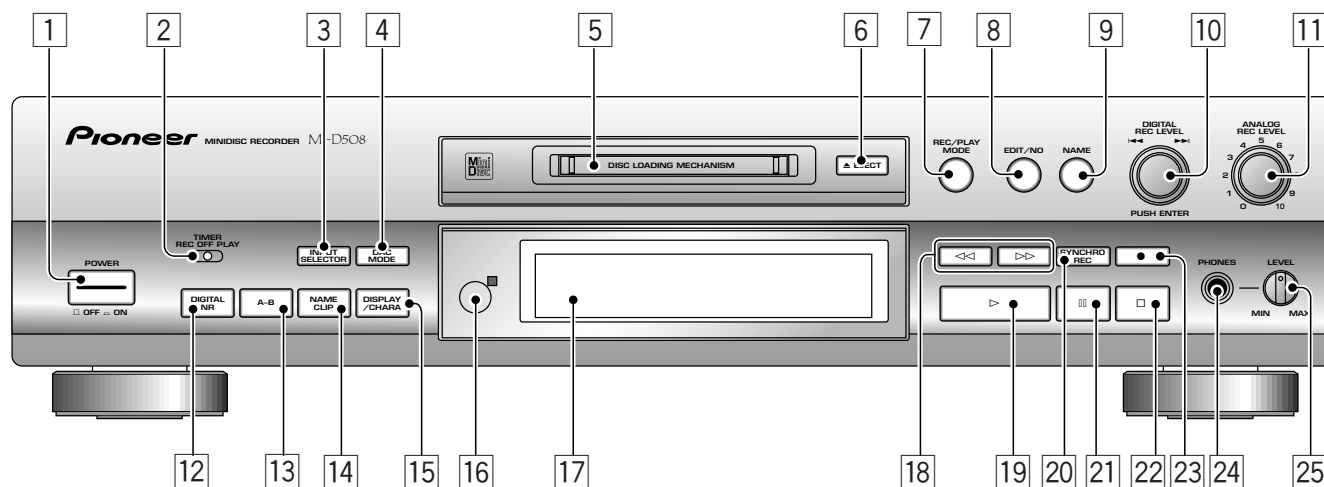
No.	Name	Description
16*	XDISC	Logic signal output terminal (outputs DISC signal inversion signal)
17*	XSGAIN	Logic signal output terminal (outputs SGAIN signal inversion signal)
18	AGND	Analog part GND terminal
19	DGND	Digital part GND terminal
20	DTEMP	Tip temperature detection terminal
21	LATCH	Latch signal input terminal
22	CLOCK	Clock signal input terminal
23	DATA	Serial data input terminal
24	DVCC	Digital part power terminal
25	FOUT	Servo-use signal amp (Tracking servo system) output terminal
26	EOUT	Servo-use signal amp (Tracking servo system) output terminal
27	BOUT	Servo-use signal amp (Focus servo system) output terminal
28	AOUT	Servo-use signal amp (Focus servo system) output terminal
29	TCGO	Track cross detection signal amp output terminal during groove output
30	WBO	Comparator output terminal for ADIP signal 2-value conversion
31	22KI	Comparator input terminal for ADIP signal 2-value conversion
32	22KO	ADIP signal HPF amp output terminal
33	ADLPFO	ADIP signal LPF amp output terminal
34*	NC	NC
35	ADIPO	ADIP signal preamp output terminal
36	ADIPI	ADIP signal AGC amp output terminal
37	ADAGC	Smoothing capacitor connection terminal for ADIP signal AGC
38	ADAGI	ADIP signal AGC amp input terminal
39	RF2-1	RF1, RF2 differential signal
40	EFMO	RF signal preamp output terminal
41*	EFMI	RF signal AGC amp output terminal
42	AVCC	Analog part power terminal
43	AGND	Analog part GND terminal
44	EFMAGC	Smoothing capacitor connection terminal for EFM signal AGC
45	EFMAGI	EFM signal AGC amp input terminal
46*	ATTR	Terminal for attenuating 47, 48 pin output signal
47	GOUT	Outputs RF1 + RF2 + RF3 – RF3 – RF4 signal during groove output
48	POUT	RF1 – 4 resistance addition output during pit output

Terminals denoted with an asterisk (*) are (Open) terminals that are not externally connected.

8. PANEL FACILITIES AND SPECIFICATIONS

■ PANEL FACILITIES

Front Panel



1 POWER ON/OFF

Switches power to the unit on and off.

2 TIMER (REC/OFF/PLAY)

Switches the timer mode between timer-controlled recording, timer-controlled playback, and timer off.

3 INPUT SELECTOR

Switches between the analog, optical digital and coaxial digital inputs.

4 DAC MODE

Press to switch on/off the DAC function.

5 MD loading slot

6 EJECT ▲

Press to eject a disc from the recorder.

7 REC/PLAY MODE

Press to access various record and playback options.

8 EDIT/NO.

Press to access various editing features.

9 NAME

Press to enter and exit the disc/track naming process.

10 DIGITAL REC LEVEL / ◀◀ ▶▶

Multifunction control used to set the digital recording level, skip time/tracks, choose between different menu options, and select characters in disc/track naming mode. Push to confirm selections.

11 ANALOG REC LEVEL

Use to set the recording level when the analog inputs are used.

12 DIGITAL NR

Press to switch digital noise reduction on/off during playback or recording.

13 A-B

Use to set a start point and an end point to mark a section of the disc for editing or repeat play.

14 NAME CLIP

Press to copy the current disc or track name to the recorder's memory.

15 DISPLAY/CHARA

Press to switch between display modes (elapsed time, time remaining, etc.), and between upper and lower-case characters in disc/track naming mode.

16 Remote control sensor

Picks up the infrared signals from the remote control unit.

17 Display

18 ◀◀ and ▶▶

Press and hold for fast-reverse and fast-forward playback.

19 ▶

Press to start playback. (or recording)

20 SYNCHRO REC

Press to enter synchronous recording mode: recording starts when the recorder senses an input signal.

21 ||

Press to pause playback or recording.

22 ■

Press to stop playback or recording.

23 ●

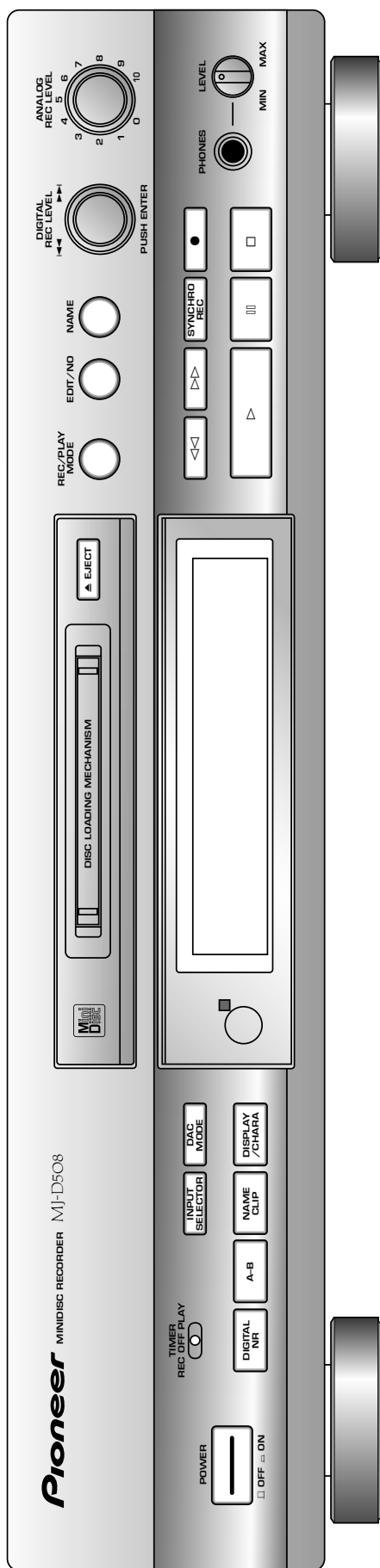
Press to put the recorder into record-pause mode.

24 PHONES jack

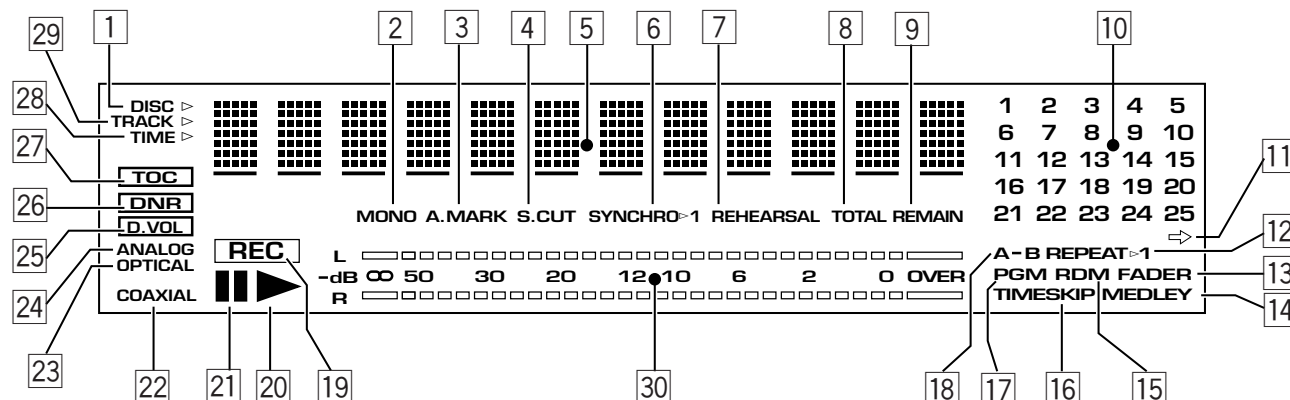
25 Phones LEVEL

Use to raise or lower the headphone volume level.

■ Front View

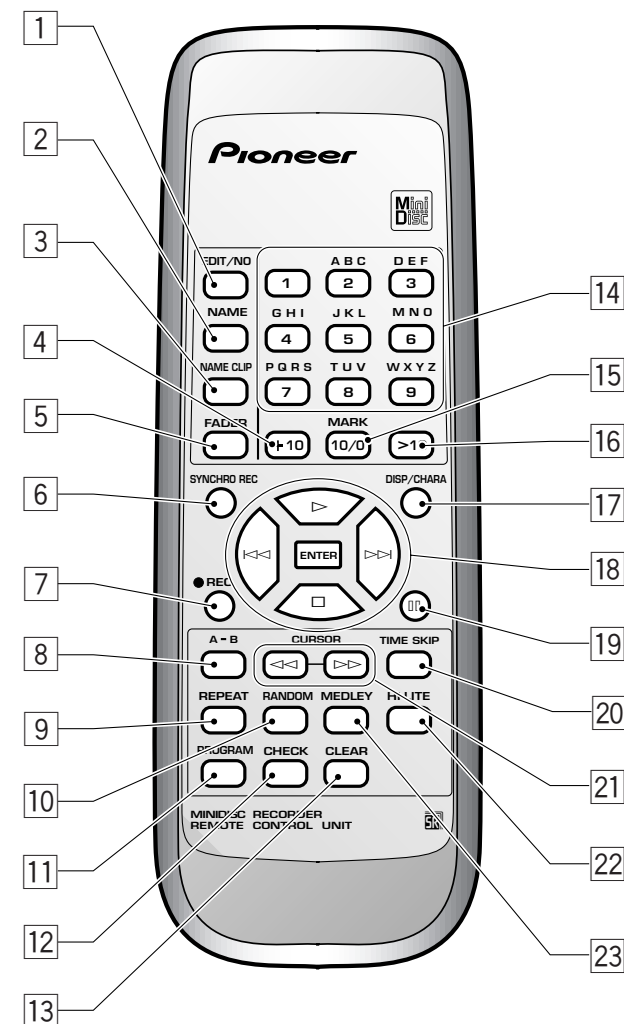


Display



- 1 **DISC** ▷ Indicates that the character display (5) is showing disc information (e.g. disc name).
- 2 **MONO** Lights in long-play recording/playback mode.
- 3 **A.MARK** Lights when automatic track numbering is on.
- 4 **S.CUT** Indicates that the space cut function is active.
- 5 **Character display** Displays recorder functions, disc/track names or disc times, depending on the mode of the recorder.
- 6 **SYNCHRO** Lights when sync recording mode is on.
- 7 **REHEARSAL** Lights when auditioning the effects of an edit.
- 8 **TOTAL** Lights to show that the current time displayed is how far the recorder is into the disc.
- 9 **REMAIN** Lights to show that the current time displayed is how much time is left on the disc.
- 10 **Track number display** Track numbers light to show how many tracks are on the disc.
- 11 ⇨ Indicates that the disc has more than 25 tracks.
- 12 **REPEAT** ▷ 1 Lights when the recorder is in repeat play mode.
- 13 **FADER** Lights when the recorder is in fade play mode.
- 14 **MEDLEY** Lights when the recorder is in medley play mode.
- 15 **RDM** Lights when the recorder is in random play mode.
- 16 **TIMESKIP** Lights when the recorder is in time-skip mode.
- 17 **PGM** Lights when the recorder is in program play mode.
- 18 **A-B** Indicates that a section of disc has been marked.
- 19 **REC** Lights during record mode.
- 20 ▶ Lights during playback.
- 21 || Lights when playback/recording is paused.
- 22 **COAXIAL** Lights when recording from the coaxial digital input.
- 23 **OPTICAL** Lights when recording from the optical digital input.
- 24 **ANALOG** Lights when recording from the analog inputs.
- 25 **D.VOL** Lights when the digital volume control is active.
- 26 **DNR** Indicates that Digital Noise Reduction is on.
- 27 **TOC** Indicates that there is TOC information in the recorder's memory that hasn't been written to the disc yet. When this display is lit don't turn the power of the unit off or this information will be lost.
- 28 **TIME** ▷ Indicates that the character display (5) is showing time information (e.g. elapsed time of track).
- 29 **TRACK** ▷ Indicates that the character display (5) is showing track information (e.g. track name).
- 30 **RECORDING LEVEL** Shows the recording level of a disc.

Remote Control



- 1 **EDIT/NO**
Press to access various editing features.
- 2 **NAME**
Press to enter and exit the disc/track naming process.
- 3 **NAME CLIP**
Press to copy the current disc or track name to the recorder's memory.
- 4 **+10**
Use to select track numbers greater than 10.
- 5 **FADER**
Press to fade in or out during playback, or to record a fade in or out during recording.
- 6 **SYNCHRO REC**
Press to enter synchronous recording mode: recording starts when the recorder senses an input signal.
- 7 **● REC**
Press to put the recorder into record-pause mode.

- 8 **A-B**
Use to set a start point and an end point to mark a section of the disc for editing or repeat play.
- 9 **REPEAT**
Press to set the repeat mode (repeat disc, track, or segment).
- 10 **RANDOM**
Press to play tracks in a random order.
- 11 **PROGRAM**
Press to start programming the track playback order.
- 12 **CHECK**
Press to check the programmed track order.
- 13 **CLEAR**
Press to clear the last programmed track number.
- 14 **Number / letter buttons**
Use to jump directly to track numbers in playback mode, select track numbers in edit mode, and select letters in disc/track naming mode.
- 15 **MARK, 10/0**
Use for 0 or 10 when selecting track numbers.
- 16 **>10**
Press to select track numbers over 10.
- 17 **DISP/CHARA**
Press to switch between display modes (elapsed time, time remaining, etc.), and between upper and lower-case characters in disc/track naming mode.
- 18 **Playback control / ENTER**
 - ▶ Play
 - Stop
 - ◀◀ Skip back to last track
 - ▶▶ Skip forward to next track
 - ENTER Confirm playback, recording and editing options.
- 19 **II**
Press to pause playback or recording.
- 20 **TIME SKIP**
Press to change the skip track buttons to skip time.
- 21 **CURSOR, ◀◀ / ▶▶**
Press to move cursor in disc or track naming mode, or fast forward/reverse through a disc in playback mode.
- 22 **HI-LITE**
Press to search for a track based on a short sample of each track.
- 23 **MEDLEY**
Press to switch medley mode on/off. Tracks play end-to-end with each track fading out before the next one starts.

■ SPECIFICATIONS

Specifications

Type Minidisc digital audio system
 Recording system Field modulation overwrite system
 Reproduction system Non-contact optical readout
 Sampling frequency 44.1 kHz
 Frequency response 8 Hz to 20 kHz
 S/N ratio 100 dB
 Wow & flutter Below measurable limit

Power requirements
 U.S. model AC 120V, 60 Hz
 U.K. model AC230V, 50/60Hz
 European model (except U.K.) AC 220~230V, 50/60Hz

Power consumption
 U.S. model 15W
 European model 15W

Dimensions 420(W) x 105(H) x 294(D) mm
 (19-9/16 x 4-1/8 x 11-9/16 in.)
 Main unit weight 3.5 kg (7 lb 12oz.)

Audio input :

Line input jacks RCA PIN x2 ; reference input level 500mV
 (input impedance 50 kΩ)

Audio output :

Line output jacks RCA PIN x2 ; reference output level 500mV
 (output impedance 1 kΩ)
 Headphone output jack 1.0mW
 (volume max. , load impedance 32 Ω)

Other jacks :

Coaxial digital input jack RCA PIN ; 0.5 Vp-p
 (output impedance 75 Ω)
 Optical digital input jack x1
 Optical digital output jack x1
 Control IN jack (Except European model) x1
 Control OUT jack (Except European model) x1

Accessories

Warranty card x 1
 Operating Instructions x 1
 Audio cord x 2
 Optical cord (Except U.S. model) x 1
 Remote control unit x 1
 batteries (AA/R6P) x 2

NOTE:

Specifications and design subject to possible modification without notice, due to improvements.

**U.S. and foreign patents licenced from Dolby Laboratories
 Licencing Corporation.**

Pioneer

Service Manual

ORDER NO.
RRV2172

MINIDISC RECORDER

MJ-D508

THIS MANUAL IS APPLICABLE TO THE FOLLOWING MODEL(S) AND TYPE(S).

Type	Model	Power Requirement	The voltage can be converted by the following method.
	MJ-D508		
SDXJ	○	AC110V/120 – 127V/220 – 230V/240V	With the voltage selector

● **This service manual should be used together with the following manual(s):**

Model	Order No.	Remarks
MJ-D508/KUXJ	RRV2144	

CONTENTS

- 1. CONTRAST OF MISCELLANEOUS PARTS 2
- 2. SCHEMATIC DIAGRAM 5

1. CONTRAST OF MISCELLANEOUS PARTS

NOTES : ● Parts marked by “ NSP ” are generally unavailable because they are not in our Master Spare Parts List.

- The $\triangle$ mark found on some component parts indicates the importance of the safety factor of the part. Therefore, when replacing, be sure to use parts of identical designation.

- Reference Nos. indicate the pages and Nos. in the service manual for the base model.

- When ordering resistors, first convert resistance values into code form as shown in the following examples.

Ex. 1 When there are 2 effective digits (any digit apart from 0), such as 560 ohm and 47k ohm (tolerance is shown by $J = 5\%$, and $K = 10\%$).

560 $\Omega \rightarrow 56 \times 10^1 \rightarrow 561$ RD1/4PU $\boxed{5} \boxed{6} \boxed{1} J$

47k $\Omega \rightarrow 47 \times 10^3 \rightarrow 473$ RD1/4PU $\boxed{4} \boxed{7} \boxed{3} J$

0.5 $\Omega \rightarrow R50$ RN2H $\boxed{R} \boxed{5} \boxed{0} K$

1 $\Omega \rightarrow 1R0$ RS1P $\boxed{1} \boxed{R} \boxed{0} K$

Ex. 2 When there are 3 effective digits (such as in high precision metal film resistors).

5.62k $\Omega \rightarrow 562 \times 10^1 \rightarrow 5621$ RN1/4PC $\boxed{5} \boxed{6} \boxed{2} \boxed{1} F$

■ CONTRAST TABLE

MJ-D508/SDXJ and KUXJ are constructed the same except for the following:

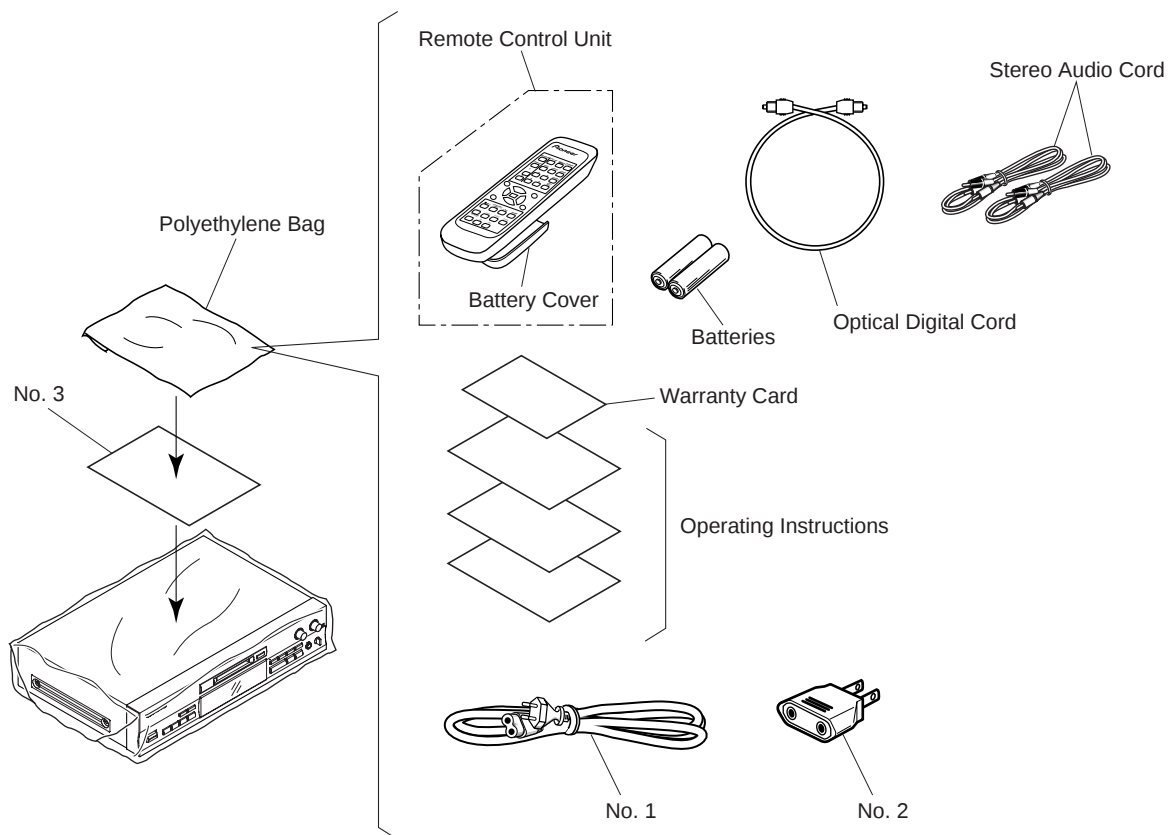
Ref. No.	Mark	Symbol and Description	Part No.		Remarks
			KUXJ type	SDXJ type	
		ASSEMBLIES			
P7- 1	NSP	MOTHER UNIT ASSY	RWM2057	RWM2065	
P7- 2		└ MAIN UNIT ASSY	RWZ4354	RWZ4368	
P9- 1		└ POWER SUPPLY UNIT ASSY	RWZ4358	RWZ4372	
P9- 3	NSP	└ DISPLAY UNIT ASSY	RWZ4355	RWZ4369	
P9- 2	NSP	└ HEADPHONE UNIT ASSY	RWZ4357	RWZ4371	
		└ VOLUME UNIT ASSY	RWZ4356	RWZ4370	
		PACKING			
P5- 3		Packing Case	PHG2386	PHG2361	
P5-10	NSP	Warranty Card	ARY7023	ARY7025	
P5-14		Operating Instructions (Spanish)	Not used	PRD1046	
		Operating Instructions (Trad-Chinese)	Not used	PRD1047	
P5-16		Optical Digital Cord (L=0.8m)	Not used	ADE7021	
	⚠	AC Power Cord	Not used	ADG1154	No.1
	⚠	Plug Adaptor	Not used	VKX1007	No.2
		Caution 220V Label	Not used	ARR1003	No.3
		EXTERIOR			
P7- 3	⚠	AC Power Cord	PDG1064	Not used	
P7- 4	⚠	Cord Stopper	CM-22C	Not used	
P7- 7	⚠	Power Transformer (AC120V)	RTT1346	Not used	
P7- 7	⚠	Power Transformer (AC110V/120-127V/220-230V/240V)	Not used	RTT1348	
P7-11		Rear Panel	PNA2478	PNA2481	
P7-14		Shield Case	PNB1606	Not used	
		Case Spacer	REB1330	Not used	
	⚠	Inlet	Not used	AKP1021	No.4
	⚠	Voltage Selector	Not used	RSB1028	No.5
	NSP	Wire Tie Holder	Not used	PNW2946	No.6
		FRONT PANEL SECTION			
P9-14		Front Panel	PNW2892	PNW2904	

● The numbers in the remarks column correspond to the numbers on the “ EXPLODED VIEWS ”.

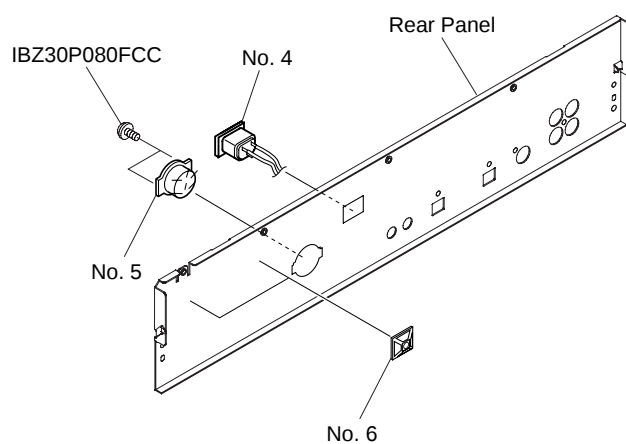
● For PCB ASSEMBLIES, Refer to “ CONTRAST OF PCB ASSEMBLIES ” and “ 2. SCHEMATIC DIAGRAM ”.

■ EXPLODED VIEWS

● PACKING



● EXTERIOR



■ CONTRAST OF PCB ASSEMBLIES

C MAIN UNIT ASSY

Although RWZ4368 and RWZ4354 are different in part number, they consist of the same components.

D POWER SUPPLY UNIT ASSY

RWZ4372 and RWZ4358 are constructed the same except for the following:

Mark	Symbol and Description		Part No.		Remarks
			RWZ4358	RWZ4372	
NSP	J206	Board in Assy (Purple)	Not used	RDF1162	
NSP	J207	Board in Assy (Yellow)	Not used	RDF1158	
NSP	J208	Board in Assy (Orange)	Not used	RDF1159	
NSP	J209	Board in Assy (Red)	Not used	RDF1160	
NSP	J210	Board in Assy (Gray)	Not used	RDF1161	

E DISPLAY UNIT ASSY

RWZ4369 and RWZ4355 are constructed the same except for the following:

Mark	Symbol and Description		Part No.		Remarks
			RWZ4355	RWZ4369	
	R723		Not used	RS1/10S104J	
	R724		RS1/10S104J	Not used	

F HEADPHONE UNIT ASSY

Although RWZ4371 and RWZ4357 are different in part number, they consist of the same components.

G VOLUME UNIT ASSY

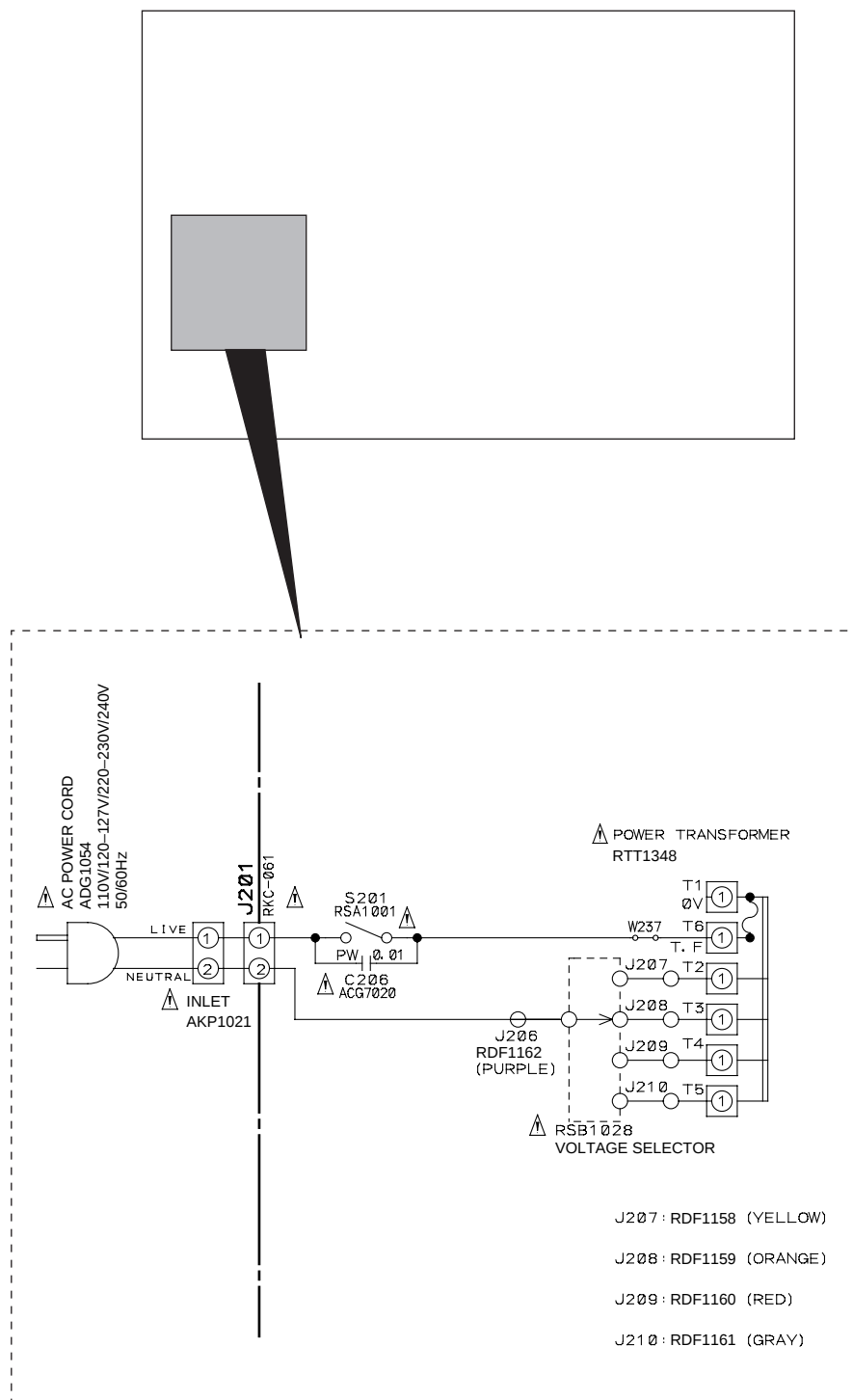
Although RWZ4370 and RWZ4356 are different in part number, they consist of the same components.

2. SCHEMATIC DIAGRAM

Note : When ordering service parts, be sure to refer to "EXPLODED VIEWS and PARTS LIST" or "PCB PARTS LIST".

2.1 POWER SUPPLY UNIT ASSY

DF POWER SUPPLY UNIT ASSY (RWZ4372)



2.2 DISPLAY UNIT ASSY

EF DISPLAY UNIT ASSY (RWZ4369)

