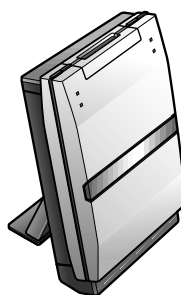


Service Manual

Pioneer



ORDER NO.
RRV2363

MINIDISC RECORDER

MJ-NS1

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

Type	Model	Power Requirement	Remarks
	MJ-NS1		
ZPWXJ	○	DC power supplied from other system component	

- This product is a system(s) component.
This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.
- Please connect it to the STEREO CD TUNER XC-NS1 and STEREO POWER AMPLIFIER M-NS1 for adjustment and operation inspection.

Component	Model	Service manual	Remarks
STEREO CD TUNER	XC-NS1	RRV2348 (RRV2341)	
STEREO POWER AMPLIFIER	M-NS1	RRV2349 (RRV2321)	
SPEAKER SYSTEM	S-NS1-LRW	RRV2371	Except YPWXJ type
MINIDISC RECORDER	MJ-NS1	RRV2363	This manual.

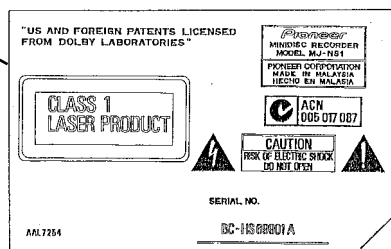
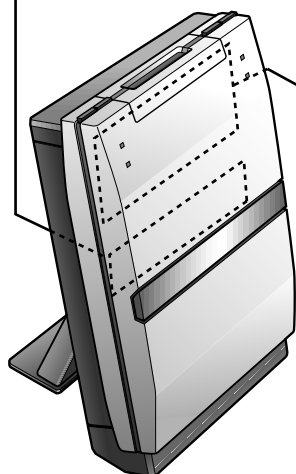
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1. SAFETY INFORMATION

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.

LABEL CHECK



Additional Laser Caution

Control method of the current through a laser diode.

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

Control method of the laser output power

The laser pickup assy 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 pickup assy 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 pickup assy.

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

* Refer to page 30.

IMPORTANT

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

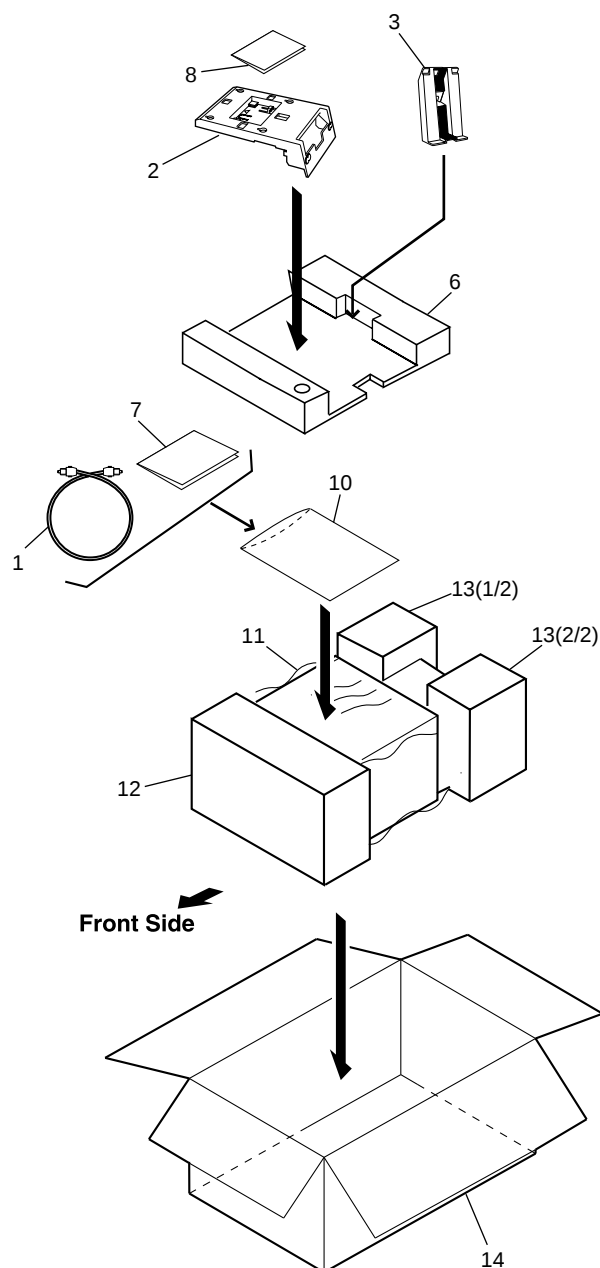
LASER DIODE CHARACTERISTICS

MAXIMUM OUTPUT POWER: 32 mW
WAVELENGTH: 785 nm

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 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.
 ● Screws adjacent to ▼ mark on the product are used for disassembly.

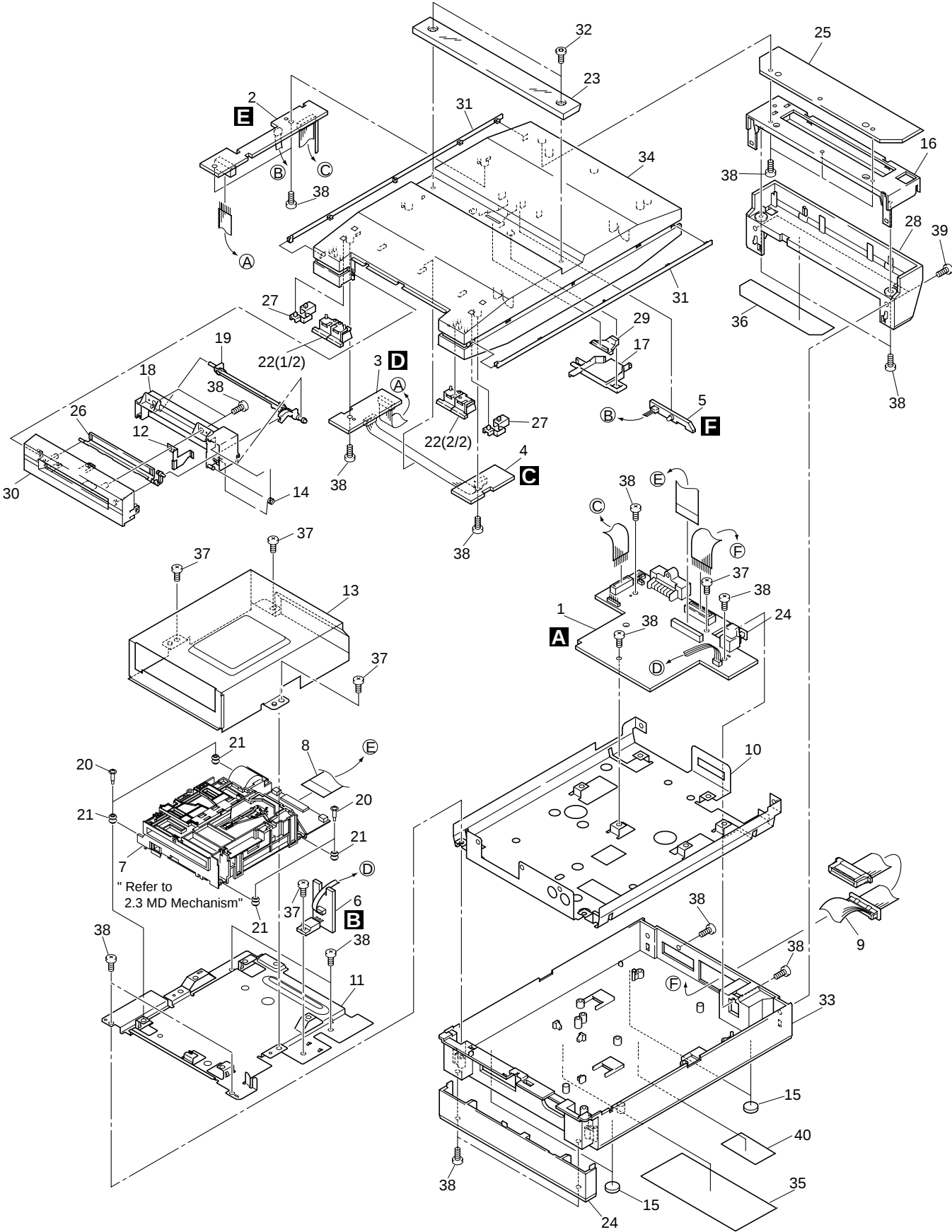
2.1 PACKING



(1) PACKING PARTS LIST

Mark	No.	Description	Part No.
	1	Optical Digital Cable	RKX1031
	2	Stand A	AXG7096
	3	Stand B	AXG7097
	4		
	5		
	6	Spacer MD ,TC	AHB7038
	7	Operating Instructions (English/Chinese)	ARE7266
NSP	8	Warranty Card	ARY7027
	9		
NSP	10	Polyethylene Bag (230×340×0.03)	Z21-038
	11	Sheet (550×550×0.5)	Z23-026
	12	Front Pad M (PLS)	AHA7295
	13	Rear Pad M (PLS)	AHA7296
	14	Packing Case	AHD7901

2.2 EXTERIOR



●EXTERIOR PARTS LIST

Mark	No.	Description	Part No.
	1	MAIN UNIT	AWU7607
NSP	2	RELAY UNIT	AWU7576
NSP	3	KEY L UNIT	AWU7577
NSP	4	KEY R UNIT	AWU7652
NSP	5	BLUE UNIT	AWU7653
NSP	6	IC UNIT	AWU7654
NSP	7	MD Mechanism	AXA7087
	8	Lead Card 30P (J4101) (MAIN CN4101 ↔ MD CORE CN104)	ADD7280
	9	Cord with Plug (J4103) (System Cable to CD Receiver)	ADE7065
NSP	10	Bottom Chassis MDTC	ANA7108
	11	Sub Chassis (MTL)	AND7036
	12	Disc Guard (MTL)	ANG7319
	13	Shield Case (FE)	ANK7077
	14	MD Spring	ABH7189
	15	Leg	AEB7090
	16	FL Holder (PLS)	AMR7312
	17	Illumination Holder	AMR7317
	18	MD Flap Holder (PLS)	AMR7318
	19	MD Cam (PLS)	AMR7319
	20	Float Screw (FE)	RBA1133
	21	Float Rubber (Rubber)	REB1328
	22	Button MD (PLS)	AAD7582
	23	Display Window MD (PLS)	AAK7763
	24	Rear Cap MD TC (PLS)	AAK7772
	25	FL window MD TC (PLS)	AAK7793
	26	Door NS (PLS)	AAK7807
	27	Lens MD TC (PLS)	AAK7838
	28	FL Cover	AAK7841
	29	Illuminate Lens (PLS)	AAK7842
	30	Sub Panel MD (PLS)	AAP7069
	31	Side Line (PLS)	AAP7074
	32	Screw (Steel)	ABA7062
	33	Bottom Base CDMD (PLS)	AMA7017
	34	Top Panel MD (PLS)	AMB7700
NSP	35	Name Label (PAP) MD/ZP	AAL7254
	36	Connector Label	ARW7110
	37	Screw	BBZ30P080FMC
	38	Screw	BBZ30P080FZK
	39	Screw	VBZ30P100FZK
	40	Caution Label	PRW1018

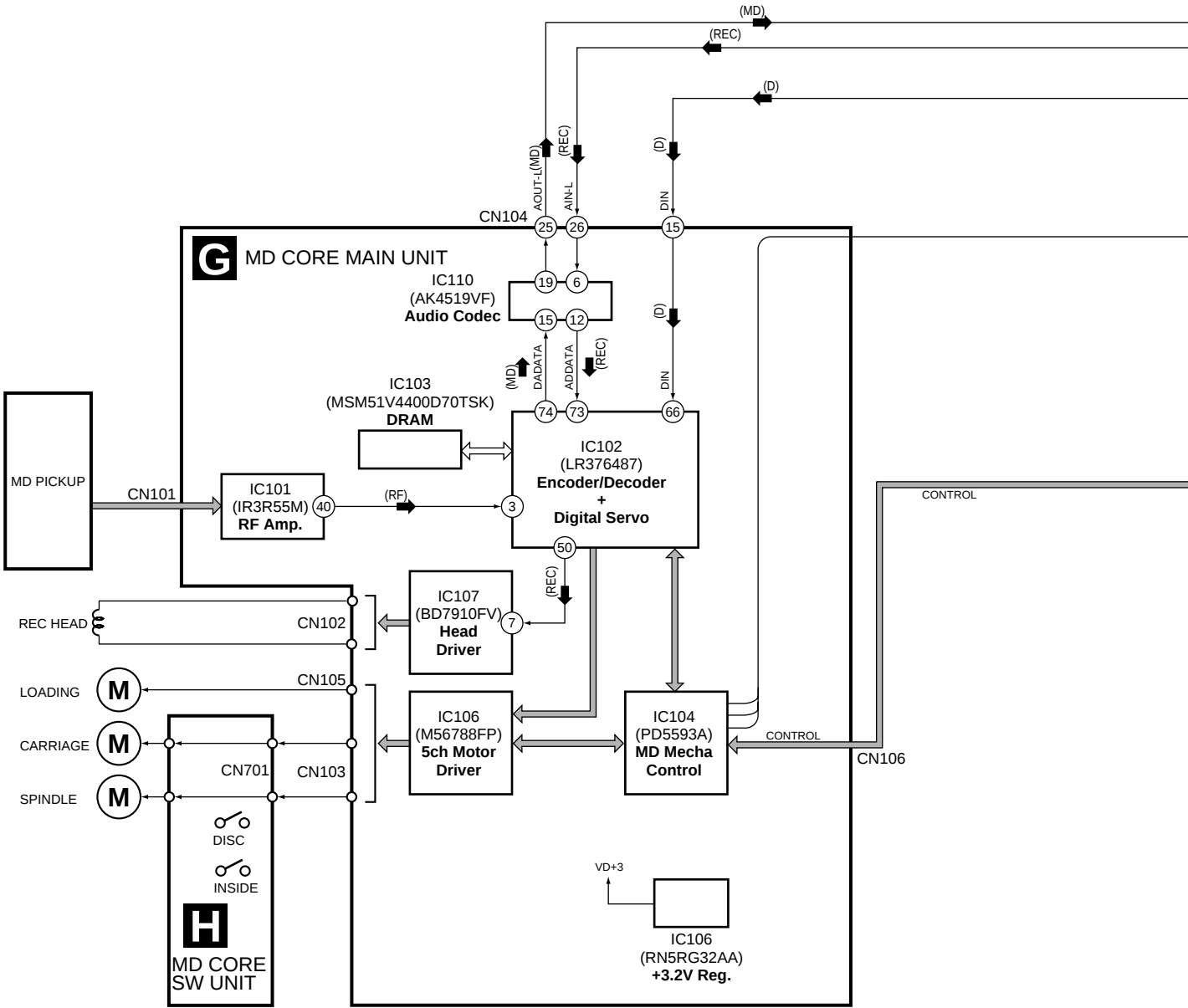


● MD MECHANISM PARTS LIST

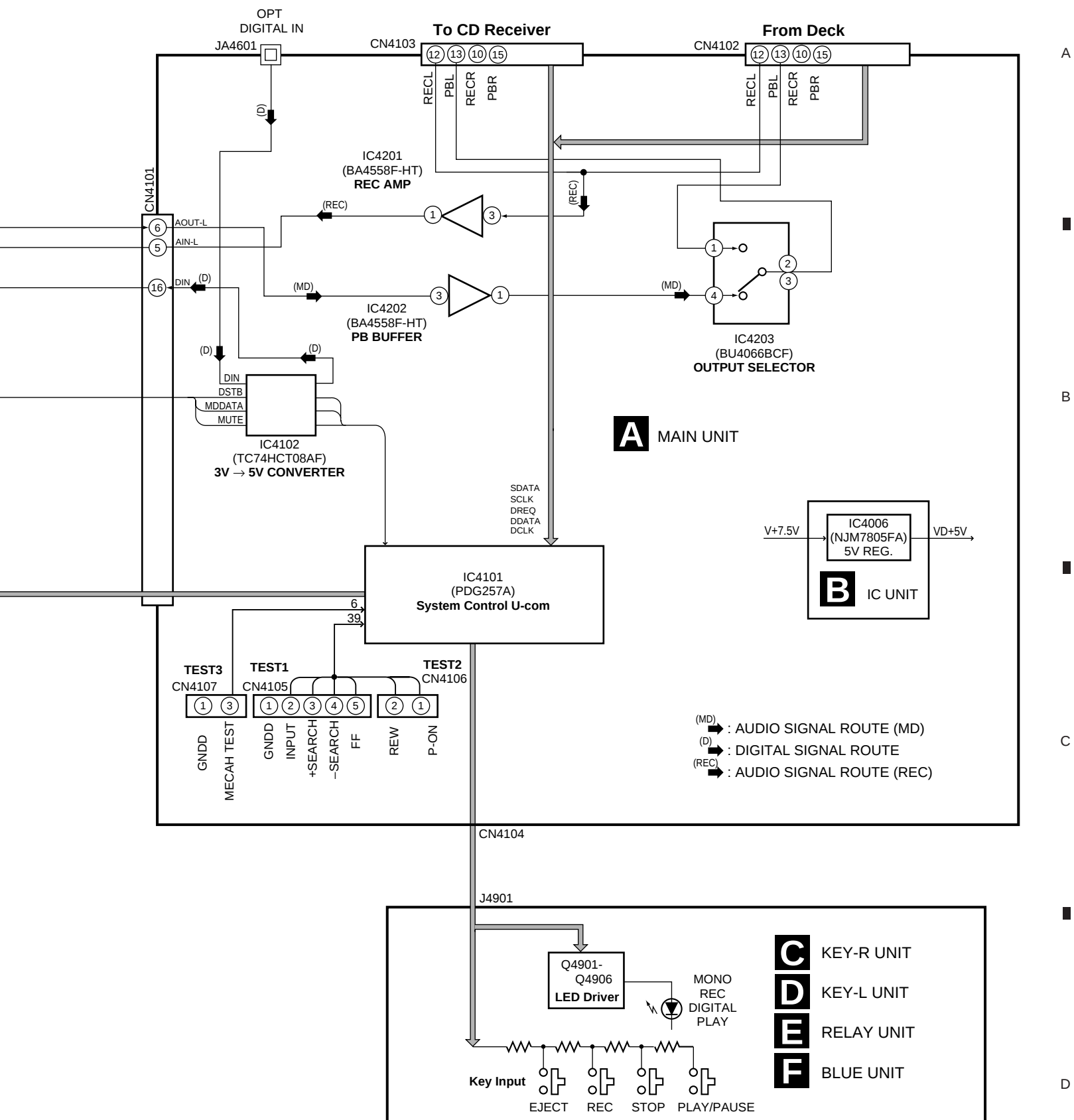
Mark	No.	Description	Part No.	Mark	No.	Description	Part No.
NSP	1	MD CORE MAIN UNIT	AWU7591		31	S. Holder	RNK2307
	2	MD CORE SW UNIT	AWU7592		32	Worm Wheel	RNK2309
	3	Lead Card 7P	RDD1403		33	Hook (POM)	RNK2310
	4	Lead Wire 2P	RKP1814		34	Head Lifter	RNK2311
	5	Lever Spring	RBH1463		35	MD Head	RPB1063
	6	Clamp Spring	RBK1074		36	MD Pick-Up	RWY1019
	7	••••••••••			37	Screw (FE)	Z39-019
	8	Loading Belt	REB1329		38	Screw	JFZ17P020FZK
	9	Lock Plate	RNE1949		39	Screw	JGZ14P020FMC
	10	Loading Base (ABS)	RNK2323		40	Screw	JGZ17P028FMC
NSP	11	Under Slider (POM)	RNK2314		41	Screw	JGZ17P040FMC
	12	Gear Pulley (POM)	RNK2316		42	Screw	PMB20P040FMC
	13	Drive Gear (POM)	RNK2317		43	Servo Base Assy	REA1283
	14	Clutch Gear (POM)	RNK2318	NSP	44	Clamp Magnet	RMF1002
	15	Flip Disk (POM)	RNK2319	NSP	45	Servo Base	RNE1951
	16	SW Lever	RNK2320	NSP	46	Disk Table	RNK2305
	17	Shutter Assy (FE)	RXA1774	NSP	47	Spindle Motor	RXM1091
	18	Upper Slider Assy	RXA1782		48	Carriage Motor Assy	REA1284
	19	Eject Spring	RBH1461		49	Worm	RNK2308
	20	Upper Slider (POM)	RNK2324	NSP	50	Carriage Motor	RXM1090
NSP	21	Carrier (POM)	RNK2315		51	Loading Motor Assy	REA1290
	22	••••••••••			52	DC Motor /0.75W	PXM1010
	23	Spindle Spring	RBH1460		53	CA Pulley	RNK2322
	24	Lifter Spring	RBH1462		54	Screw	BPZ20P080FMC
	25	Screw Guide (SUS)	RBK1072				
	26	S.H. Spring (SUS)	RBK1073				
	27	Guide Shaft	RLA1312				
	28	Lead Screw (SUS)	RLA1311				
	29	Shield Case (FE)	RNE1950				
	30	Reference Plate	RNK2306				

3. BLOCK DIAGRAM AND SCHEMATIC DIAGRAM

3.1 BLOCK DIAGRAM



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



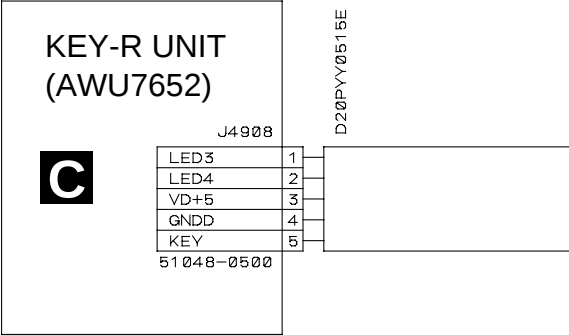
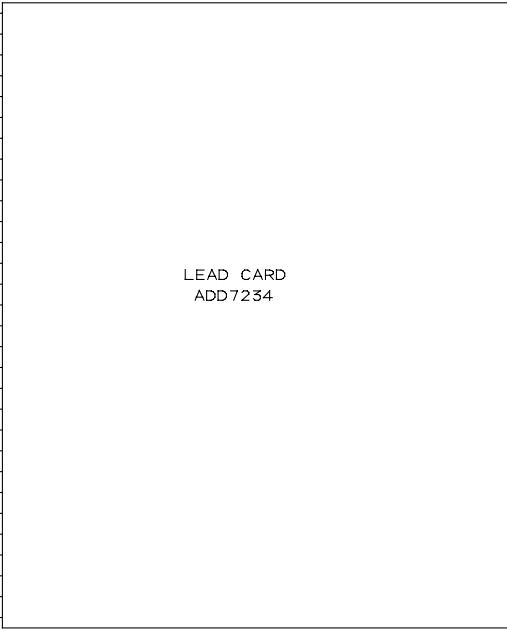
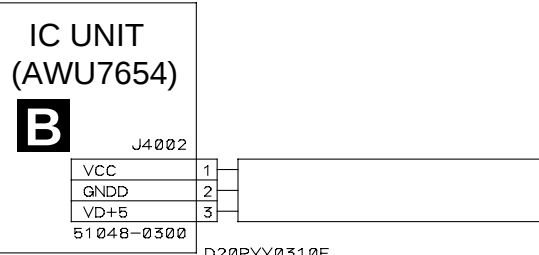
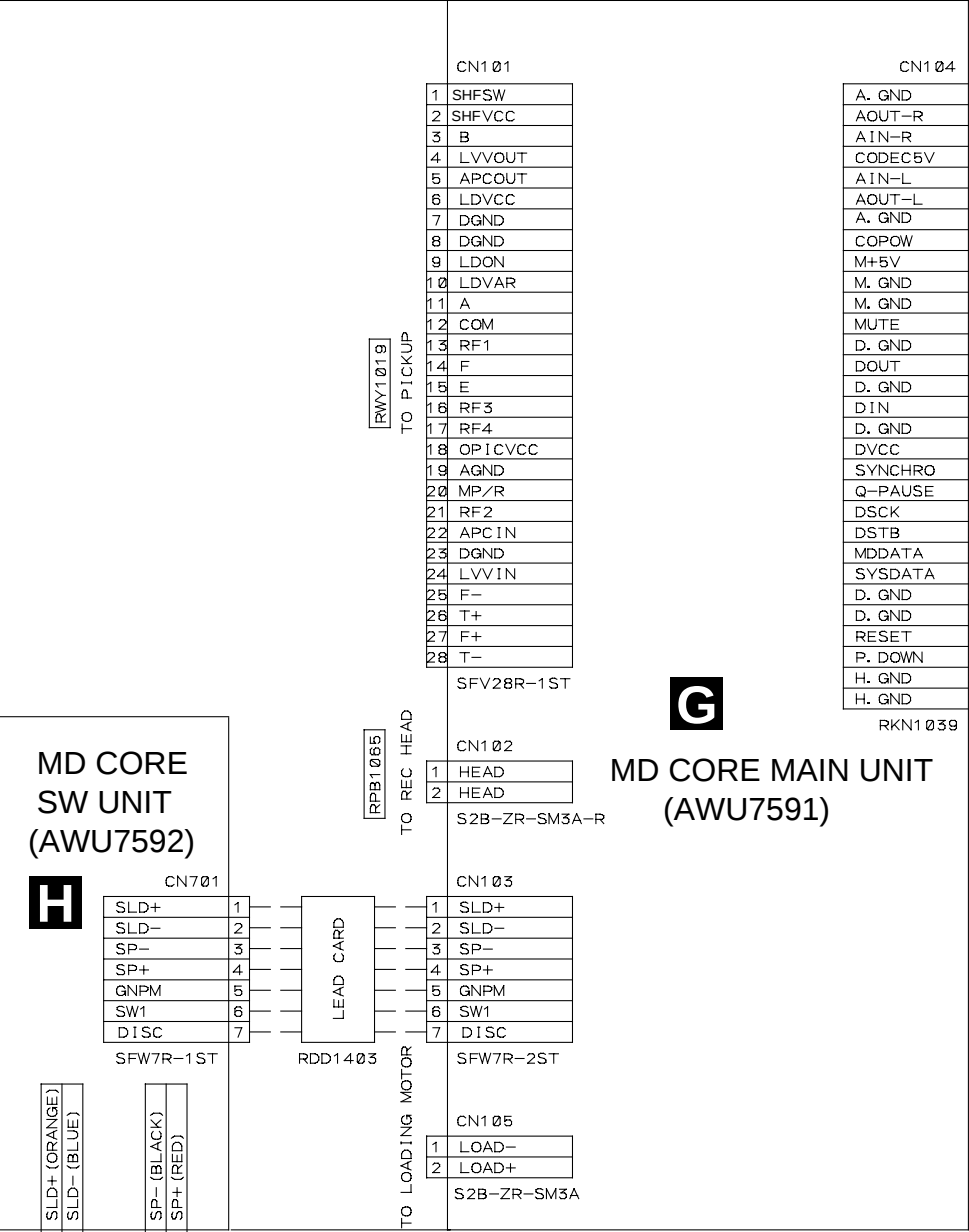
3.2 OVERALL CONNECTION DIAGRAM

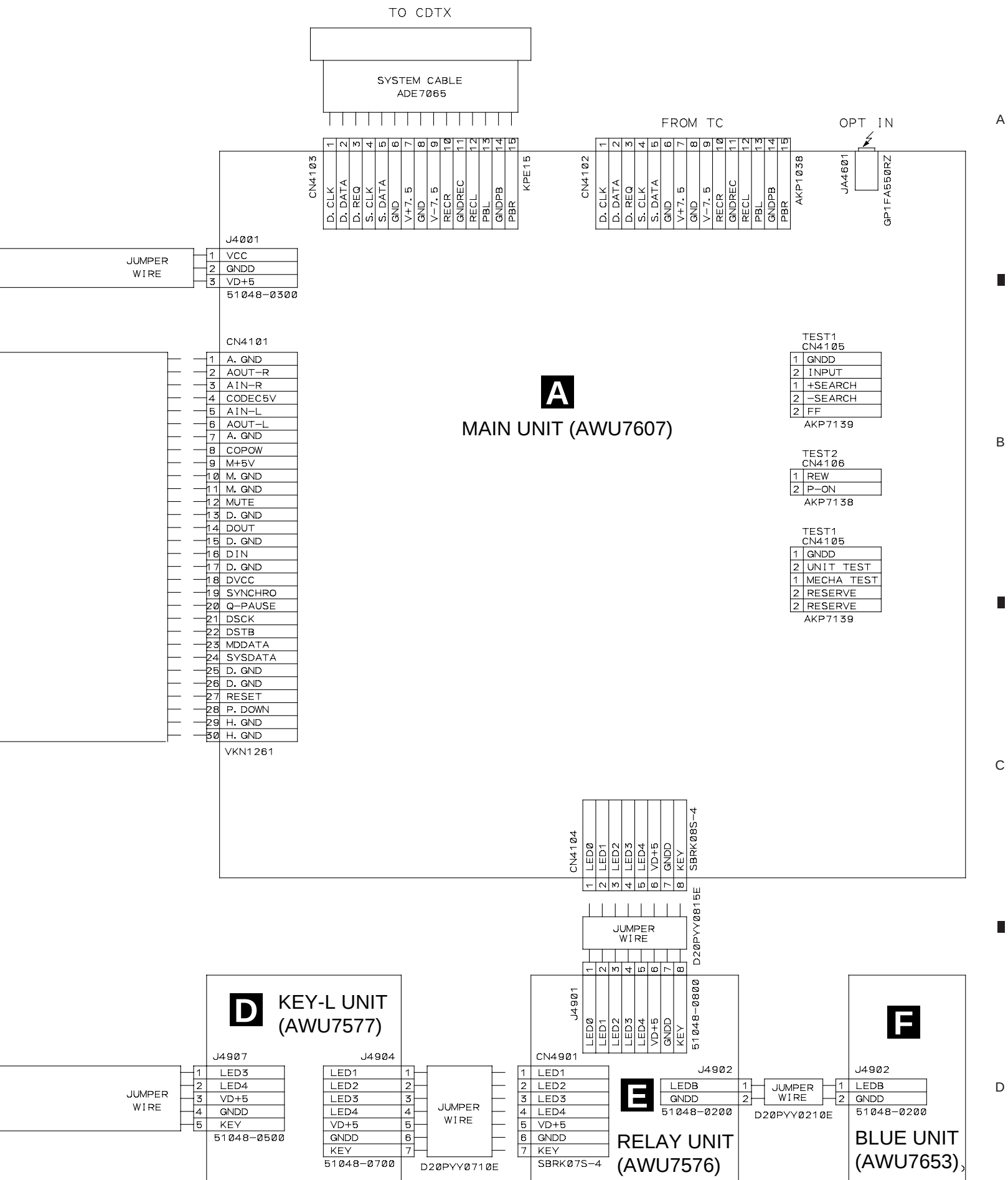
A

B

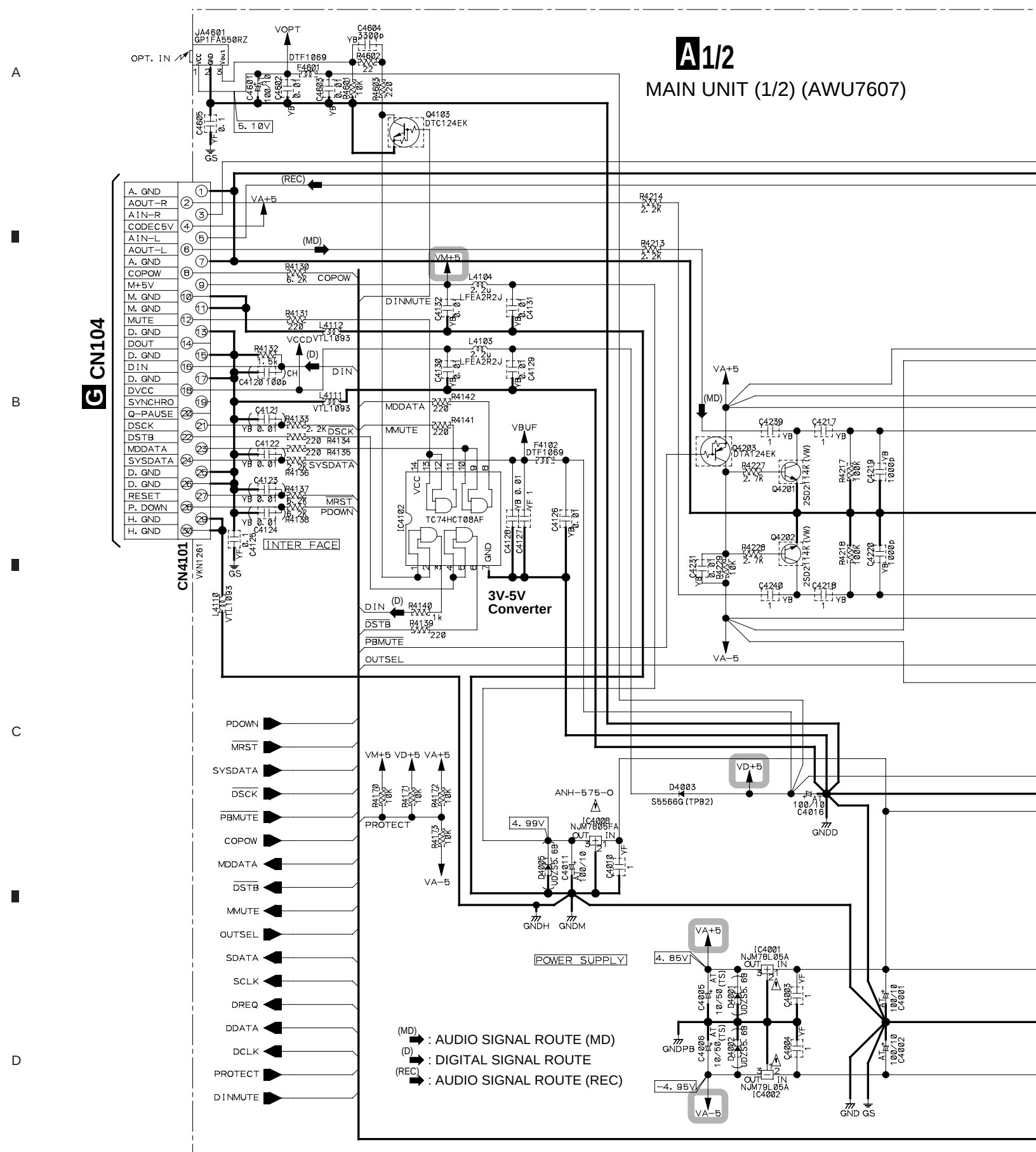
C

D





3.3 MAIN UNIT (1/2)



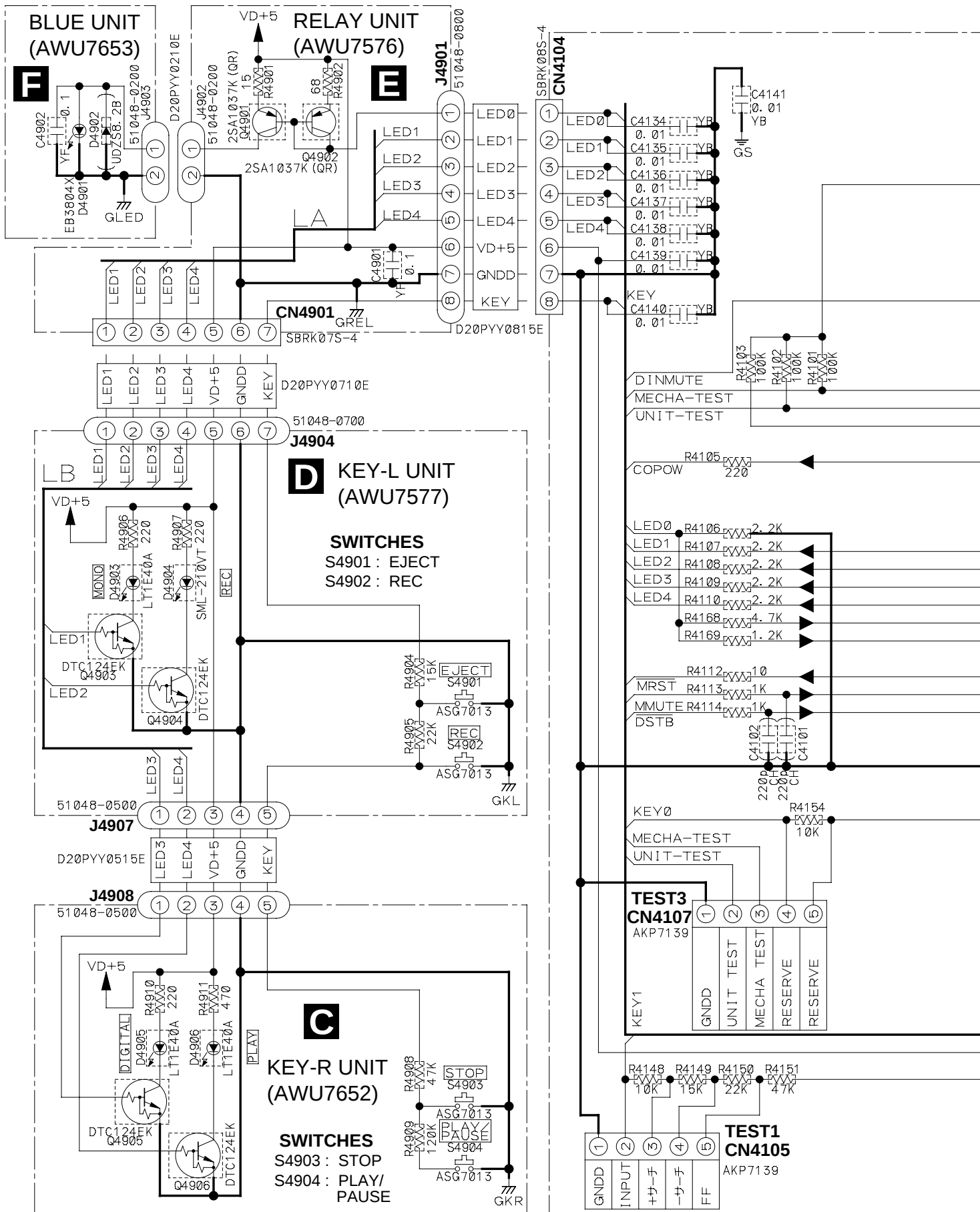
B



D

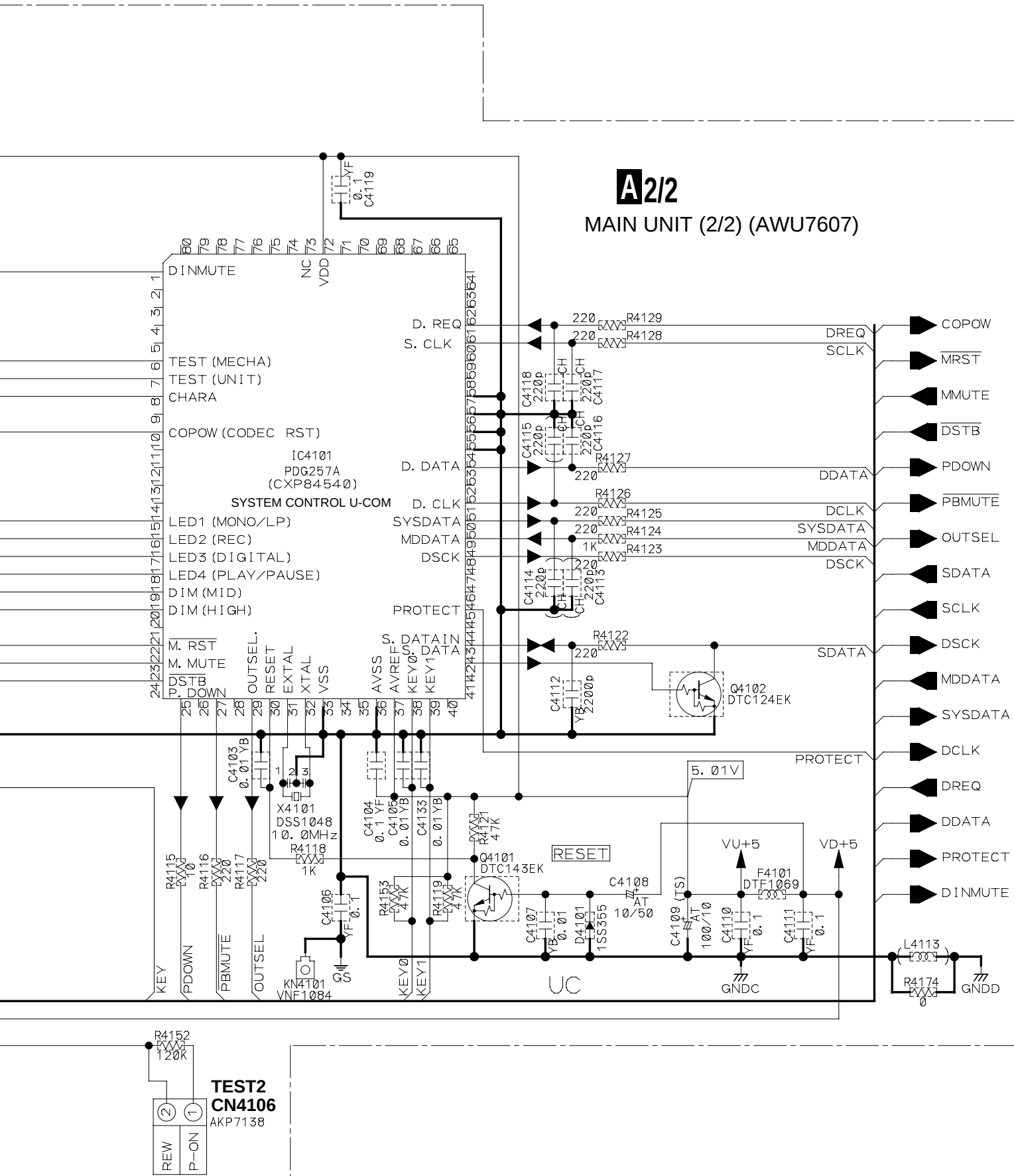
MJ-NS1

3.4 MAIN UNIT (2/2), KEY-R, KEY-L, RELAY and BLUE UNITS



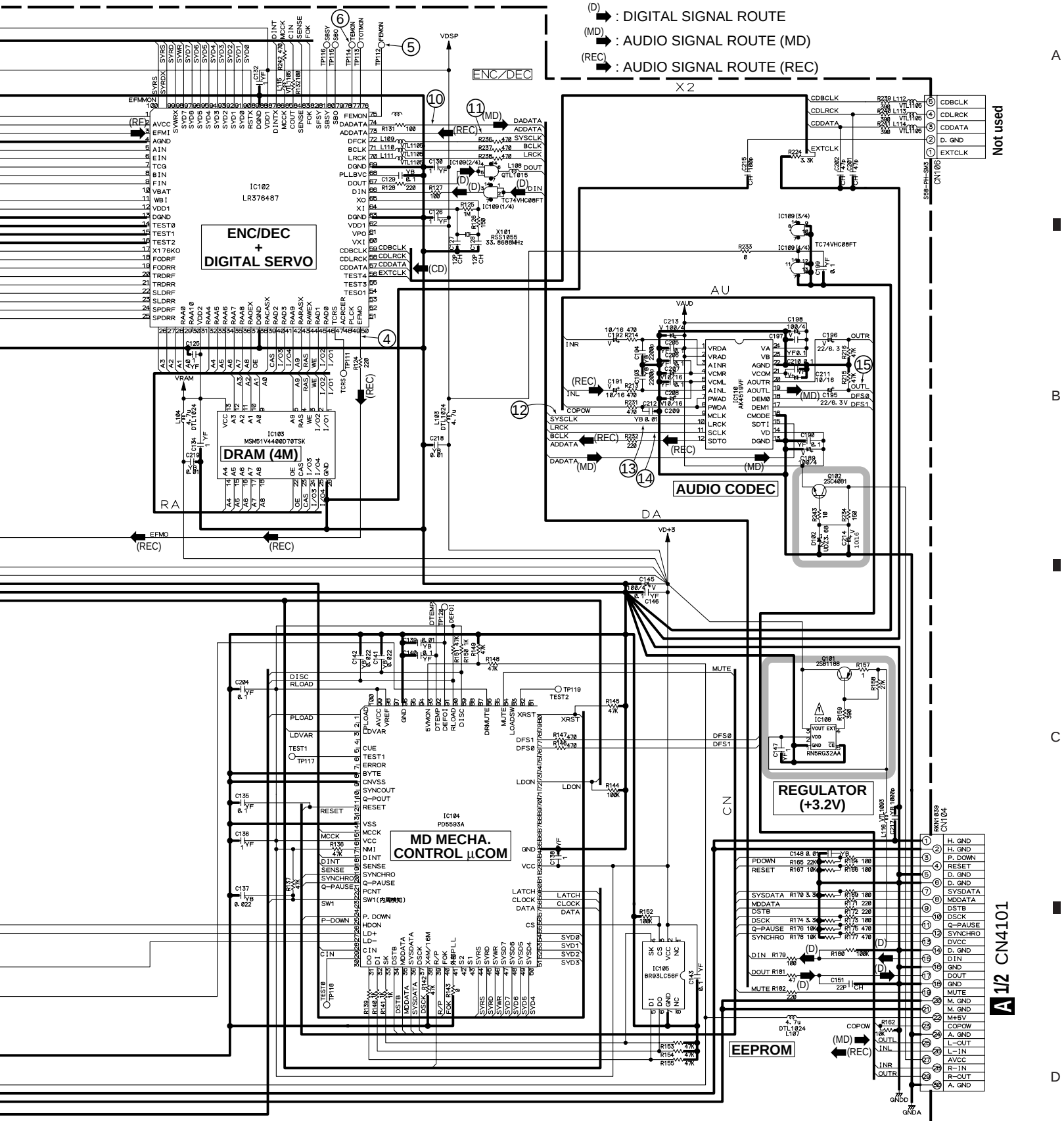
A2/2

MAIN UNIT (2/2) (AWU7607)



 : The power supply is shown with the marked box.

- (RF) : RF SIGNAL ROUTE
- (D) : DIGITAL SIGNAL ROUTE
- (MD) : AUDIO SIGNAL ROUTE (MD)
- (REC) : AUDIO SIGNAL ROUTE (REC)

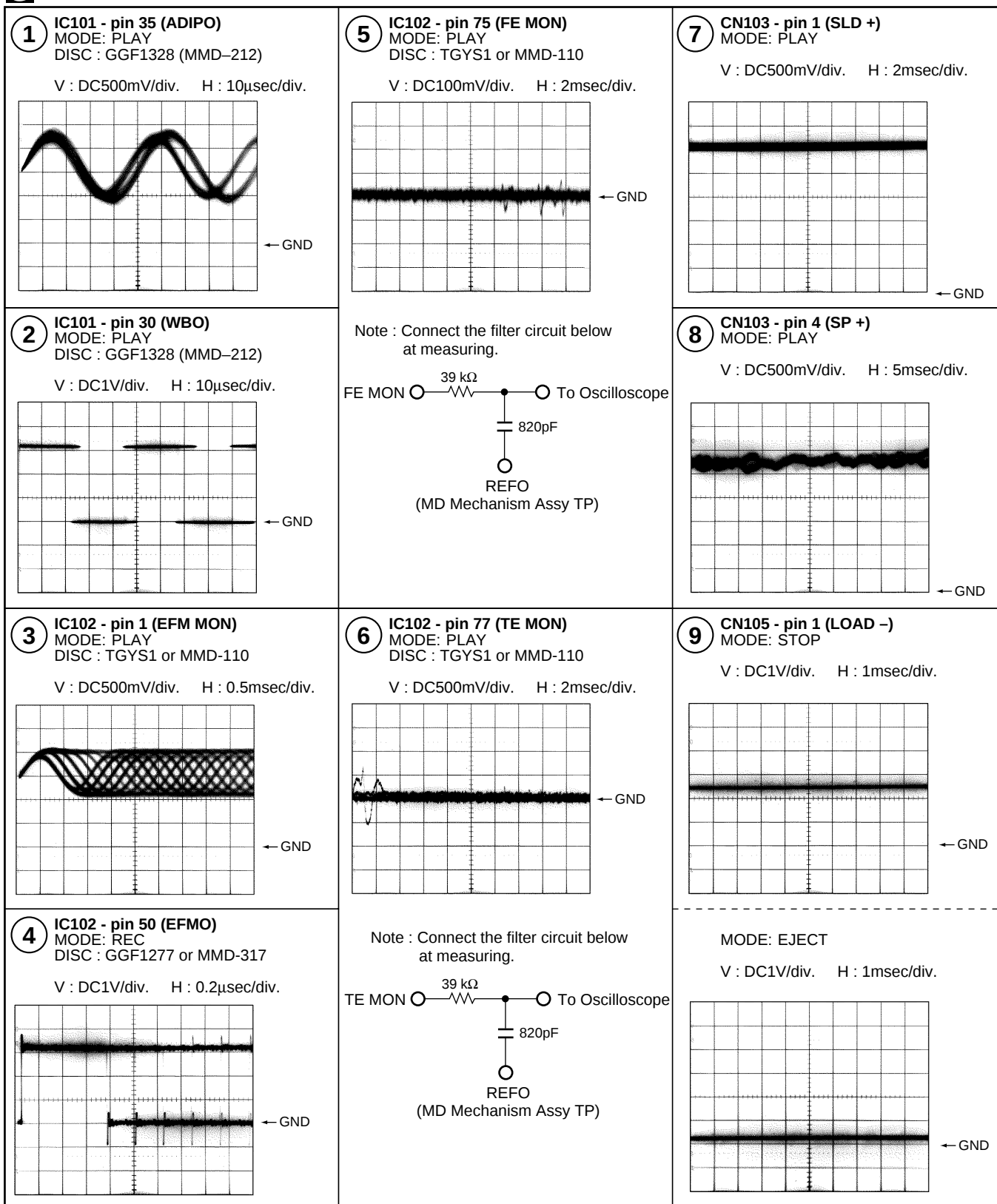


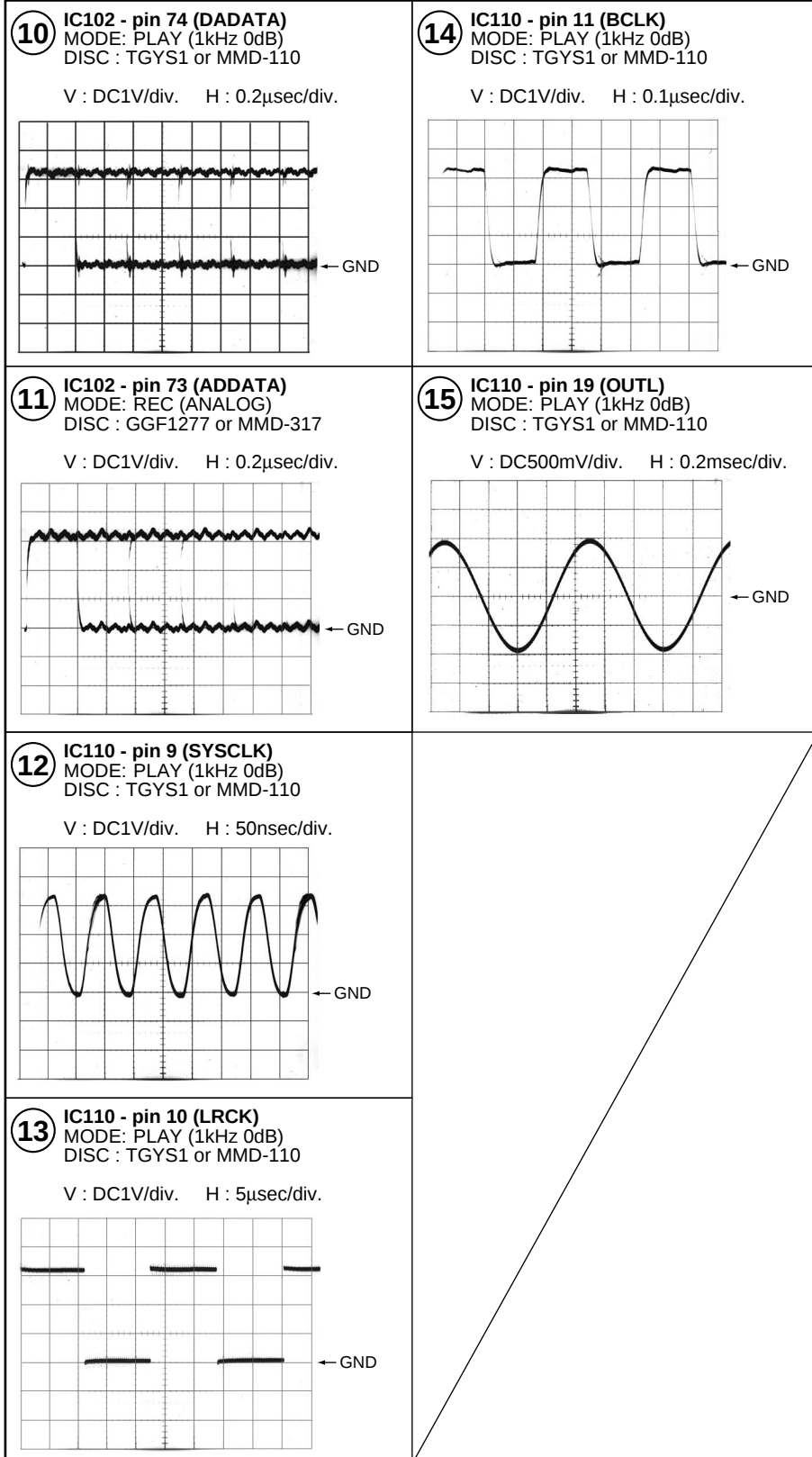
A 1/2 CN4101

WAVEFORM OF EACH PART

Note : The number with ○ indicate the each measuring point number of the schematic diagram.

MD CORE MAIN UNIT





VOLTAGE OF EACH PART

MD CORE MAIN UNIT (1kHz 0dB PLAY)

IC101

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0.78	25	2
2	0.73	26	0
3	0.77	27	1.4
4	0.75	28	1.42
5	1.61	29	1.4
6	1.61	30	1.63
7	0.75	31	1.61
8	1.61	32	1.61
9	1.61	33	0
10	1.61	34	0
11	1.61	35	0
12	1.61	36	1.62
13	3.19	37	0.59
14	3.19	38	1.61
15	0	39	1.61
16	0	40	1.61
17	3.19	41	1.61
18	0	42	3.19
19	0	43	0
20	1.5	44	1.08
21	3.2	45	1.61
22	0	46	1.61
23	0	47	0
24	3.19	48	0.74

IC102

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	1.53	51	1.59
2	3.18	52	0
3	1.65	53	0
4	0	54	1.59
5	1.42	55	1.8
6	0	56	0
7	1.59	57	0
8	1.41	58	0
9	1.97	59	0
10	1.39	60	0
11	1.64	61	0.56
12	3.18	62	3.18
13	0	63	0
14	0	64	1.5
15	0	65	1.5
16	0	66	3.2
17	1.69	67	1.6
18	1.52	68	0.96
19	1.7	69	0
20	1.47	70	1.6
21	1.47	71	1.6
22	1.65	72	1.48
23	1.54	73	0
24	1.69	74	0
25	1.51	75	1.68
26	0.82	76	1.82
27	2	77	1.59
28	2	78	0.35
29	1.81	79	0.02
30	1.4	80	3.2
31	0.82	81	3.2
32	1.67	82	0.02
33	1.67	83	0.03
34	1.67	84	1.9
35	2.86	85	1.56
36	1.32	86	3.1
37	2.23	87	3.2
38	0	88	0
39	2.4	89	3.19
40	1.2	90	0.5
41	1.5	91	0.5
42	0	92	0.5
43	2	93	0.5
44	3	94	0.9
45	1.2	95	0.5
46	1.2	96	0.5
47	0.02	97	0.5
48	3.04	98	0.8
49	1.57	99	3.18
50	0.05	100	0.06

IC103

Pin No.	Voltage (V)
1	1.2
2	1.2
3	3
4	2
5	1.45
6	-
7	-
8	-
9	1.80
10	0.8
11	2.36
12	1.21
13	3.18
14	1.21
15	2.45
16	1.26
17	1.65
18	1.32
19	-
20	-
21	-
22	2.23
23	2.4
24	1.2
25	1.2
26	0

IC104

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	0	51	1.2
2	0	52	1.2
3	0.22	53	1.0
4	3.18	54	1.1
5	1.29	55	0
6	0	56	0
7	0	57	0
8	0	58	0
9	0	59	3.2
10	0	60	0
11	0	61	0
12	2.83	62	3.2
13	1.53	63	0
14	0	64	0
15	1.57	65	3.2
16	3.2	66	0
17	3.19	67	0
18	3.1	68	0
19	0	69	0
20	0	70	0
21	0	71	0
22	3.18	72	3.1
23	3.2	73	3.2
24	0	74	0
25	2.92	75	0
26	3.19	76	3.2
27	0	77	0
28	0	78	0
29	1.5	79	0
30	0	80	3.2
31	0	81	0
32	0	82	0
33	0	83	0
34	0	84	3.19
35	1.17	85	0
36	0	86	3.18
37	2.27	87	3.2
38	0	88	0
39	3.18	89	1.03
40	0	90	3.17
41	0	91	0
42	3.2	92	1.49
43	0	93	2.48
44	0	94	0
45	3.18	95	0
46	3.19	96	0
47	0.51	97	0
48	0.4	98	3.2
49	1.3	99	3.2
50	1.1	100	0

IC105

Pin No.	Voltage (V)
1	0
2	3.2
3	0
4	0
5	0
6	0
7	0
8	0

IC108

Pin No.	Voltage (V)
1	0
2	4.19
3	3.21
4	2.81
5	0

IC109

Pin No.	Voltage (V)
1	1.4
2	1.4
3	1.4
4	1.58
5	1.58
6	1.56
7	0
8	0
9	0
10	0
11	0
12	0
13	0
14	3.2

IC106

Pin No.	Voltage (V)	Pin No.	Voltage (V)
1	1.69	22	1.61
2	1.69	23	1.61
3	1.67	24	0
4	4.99	25	3.17
5	5.0	26	3.17
6	0	27	1.61
7	0	28	1.62
8	1.63	29	0
9	2.14	30	1.57
10	2.15	31	2.54
11	0	32	2.38
12	2.48	33	0
13	2.47	34	2.51
14	2.55	35	2.46
15	2.41	36	1.62
16	1.63	37	1.61
17	1.61	38	4.99
18	1.61	39	4.99
19	1.36	40	1.61
20	1.36	41	4.86
21	1.61	42	1.6

IC107

Pin No.	Voltage (V)
1	4.98
2	0
3	0
4	4.99
5	3.2
6	0
7	0.03
8	3.18
9	0
10	0
11	0
12	0.73
13	0
14	0.9
15	0.85
16	2.94
17	0.85
18	4.94
19	2.94
20	1.33

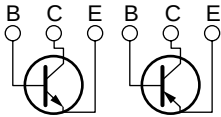
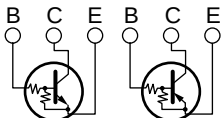
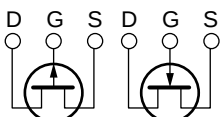
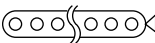
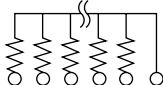
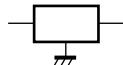
IC110

Pin No.	Voltage (V)
1	3.12
2	3.12
3	1.38
4	1.39
5	1.39
6	1.38
7	2.84
8	2.84
9	1.55
10	1.58
11	1.56
12	0.95
13	0
14	3.12
15	0.98
16	0
17	0
18	3.18
19	1.38
20	1.38
21	0
22	0
23	3.12
24	3.12

4. PCB CONNECTION DIAGRAM

NOTE FOR PCB DIAGRAMS:

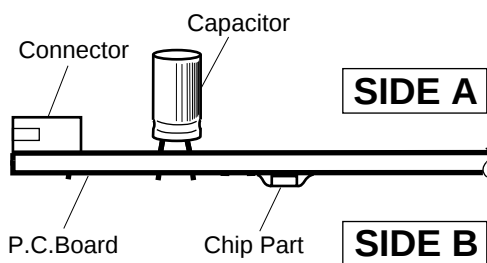
1. Part numbers in PCB diagrams match those in the schematic diagrams.
2. A comparison between the main parts of PCB and schematic diagrams is shown below.

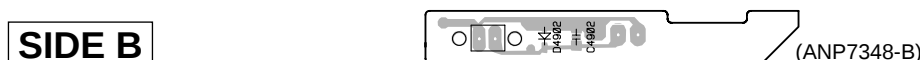
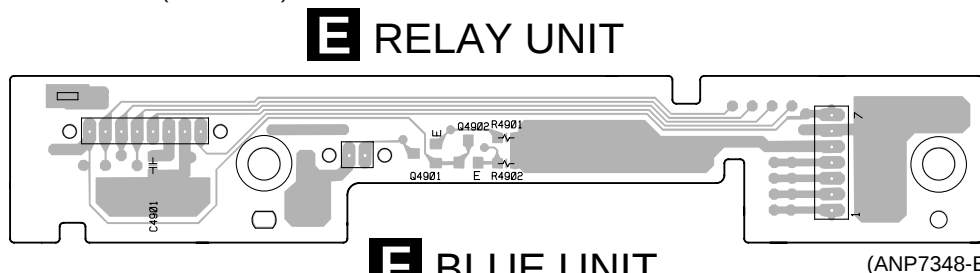
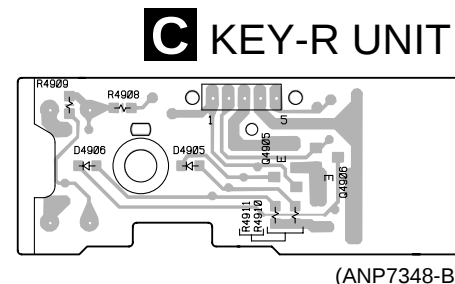
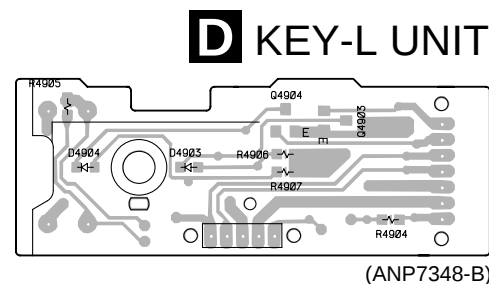
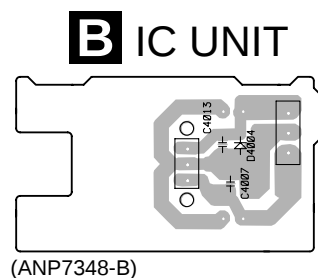
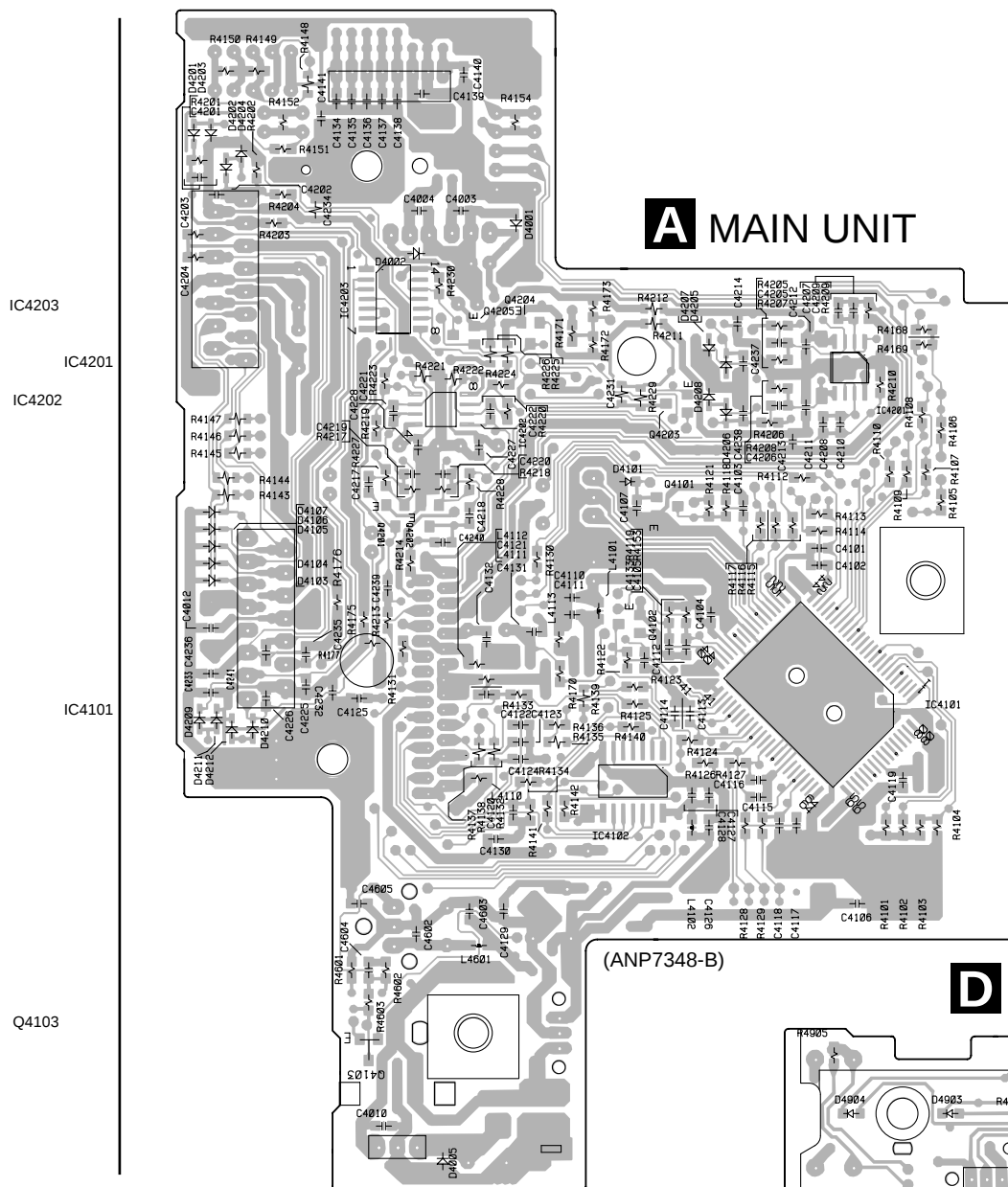
Symbol in PCB Diagrams	Symbol in Schematic Diagrams	Part Name
		Transistor
		Transistor with resistor
		Field effect transistor
		Resistor array
		3-terminal regulator

3. The parts mounted on this PCB include all necessary parts for several destination.

For further information for respective destinations, be sure to check with the schematic diagram.

4. Viewpoint of PCB diagrams

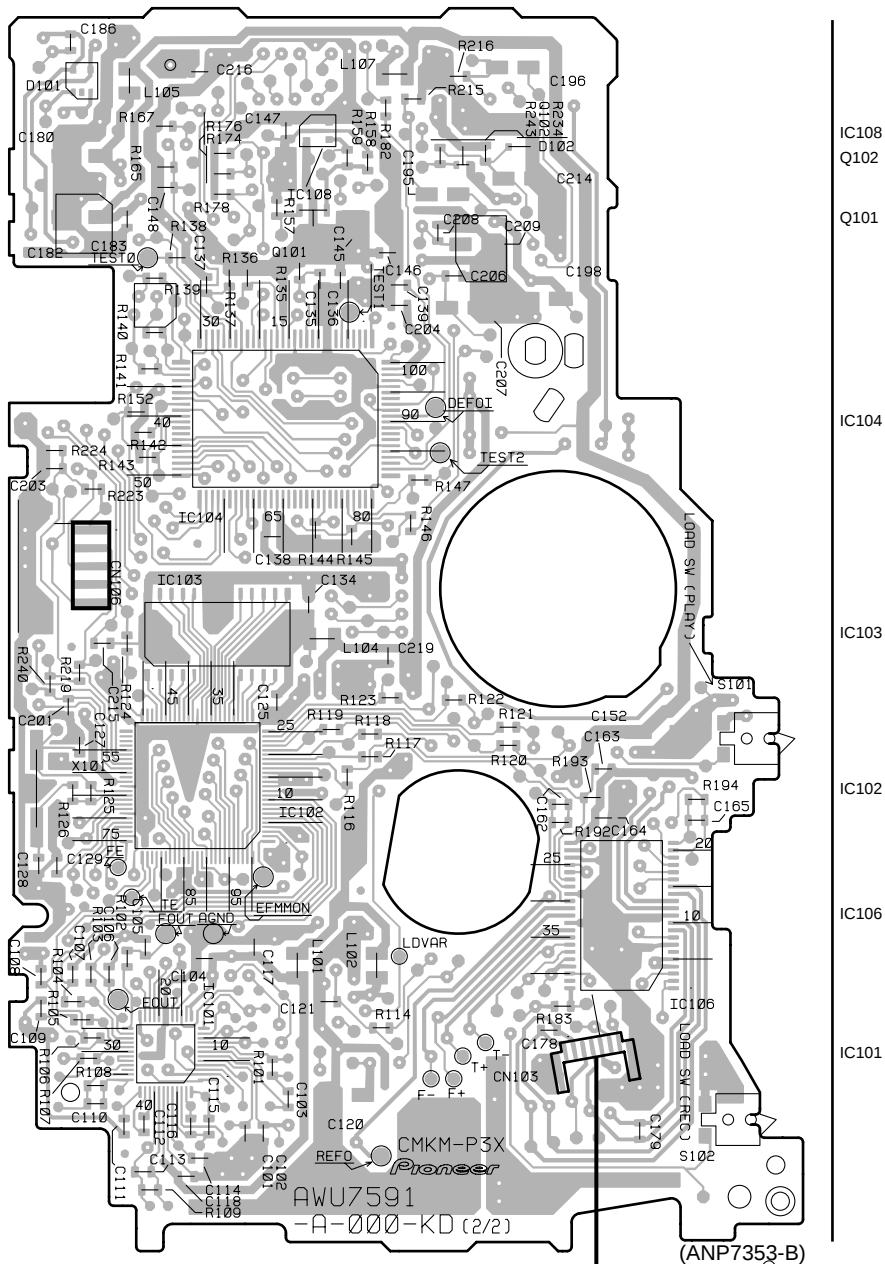




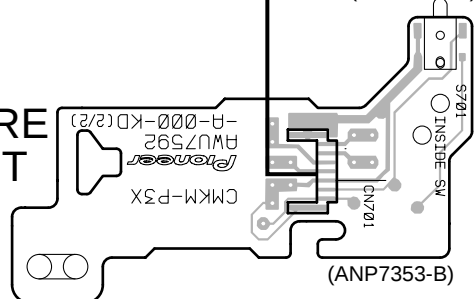
SIDE B

4.2 MD CORE MAIN and MD CORE SW UNITS

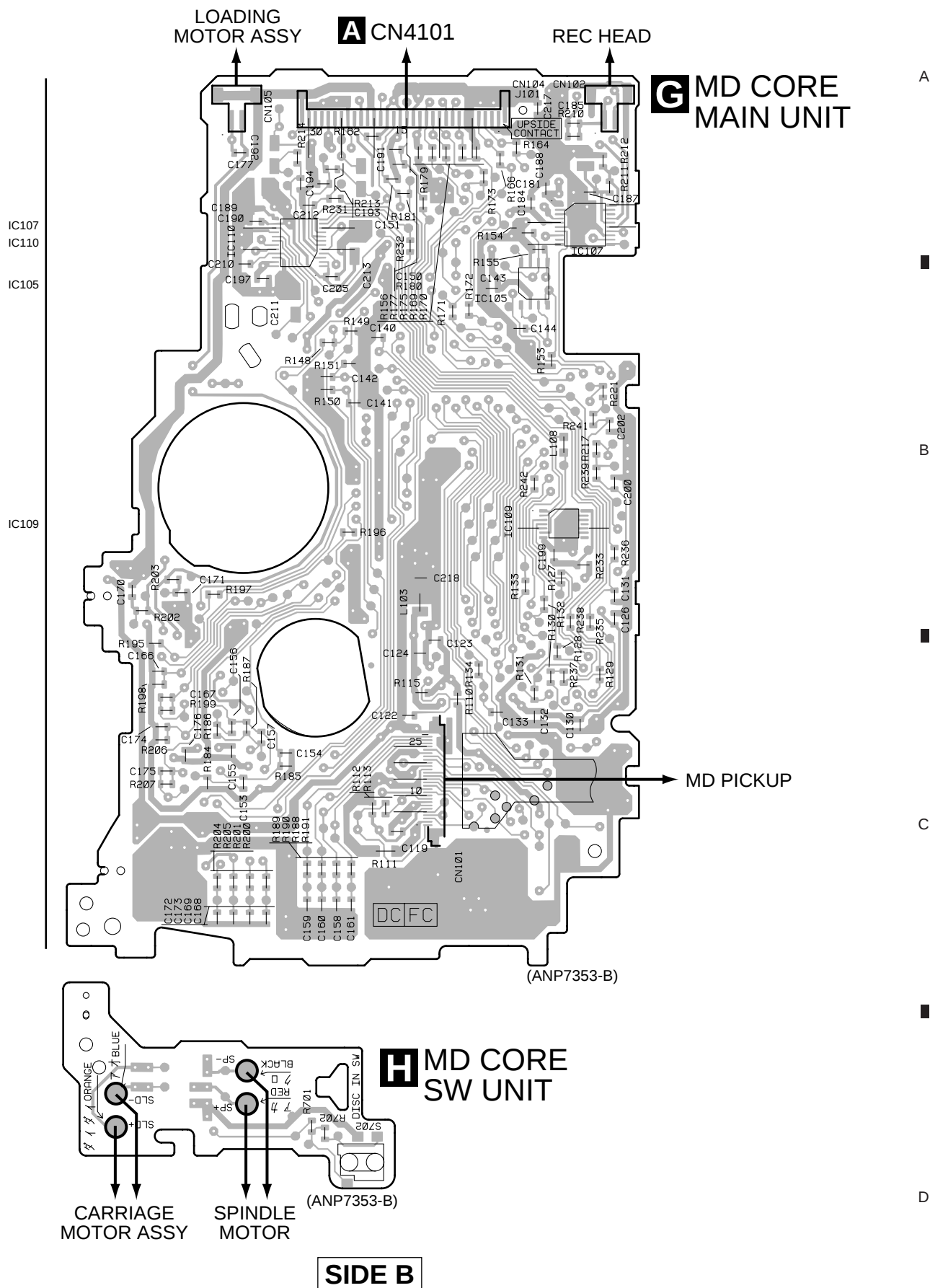
G MD CORE MAIN UNIT



H MD CORE SW UNIT



SIDE A



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 Ω $\rightarrow$ 56×10^1 $\rightarrow$ 561 RD1/4PU $\boxed{5} \boxed{6} \boxed{1} J$
 47k Ω $\rightarrow$ 47×10^3 $\rightarrow$ 473 RD1/4PU $\boxed{4} \boxed{7} \boxed{3} J$
 0.5 Ω $\rightarrow$ R50 RN2H $\boxed{R} \boxed{5} \boxed{0} K$
 1 Ω $\rightarrow$ 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 Ω $\rightarrow$ 562×10^1 $\rightarrow$ 5621 RN1/4PC $\boxed{5} \boxed{6} \boxed{2} \boxed{1} F$

Mark	No.	Description	Part No.
LIST OF ASSEMBLIES			
NSP	MD MAIN ASSY		AWM7522
	└ MAIN UNIT		AWU7607
NSP	└ RELAY UNIT		AWU7576
NSP	└ KEY L UNIT		AWU7577
NSP	└ KEY R UNIT		AWU7652
NSP	└ BLUE UNIT		AWU7653
NSP	└ IC UNIT		AWU7654
	MD CORE UNIT		AWM7516
	└ MD CORE MAIN UNIT		AWU7591
NSP	└ MD CORE SW UNIT		AWU7592

A MAIN ASSY

SEMICONDUCTORS

	IC4201,IC4202	BA4558F-HT
	IC4203	BU4066BCF
Δ	IC4008	NJM7805FA
Δ	IC4001	NJM78L05A
Δ	IC4002	NJM79L05A
	IC4101	PDG257A
	IC4102	TC74HCT08AF
	Q4201,Q4202	2SD2114K
	Q4203,Q4204	DTA124EK
	Q4102,Q4103,Q4205	DTC124EK
	Q4101	DTC143EK
	D4101	1SS355
	D4003	S5566G(TPB2)
	D4103-D4107,D4201-D4212	UDZS8.2B

COILS AND FILTERS

F4101,F4102,F4601	DTF1069
L4103,L4104	LFEA2R2J
L4110-L4112	VTL1093

CAPACITORS

C4221,C4222	CCSQCH100D50
C4115-C4118	CCSQCH221J50
C4203,C4204,C4235,C4236	CCSQSL471J50
C4005,C4006,C4108,C4223,C4224	CEAT100M50
C4229,C4230	CEAT100M50
C4001,C4002,C4011,C4016,C4109	CEAT101M10
C4601	CEAT101M10
C4201,C4202,C4219,C4220	CKSQYB102K50
C4225,C4226,C4234	CKSQYB102K50

Mark	No.	Description	Part No.
	C4103,C4105,C4107,C4126		CKSQYB103K50
	C4128-C4141,C4231,C4602,C4603		CKSQYB103K50
	C4205,C4206,C4209,C4210		CKSQYB105K10
	C4217,C4218,C4239,C4240		CKSQYB105K10
	C4112		CKSQYB222K50
	C4604		CKSQYB332K50
	C4104,C4106,C4110,C4111,C4119		CKSQYF104Z25
	C4125,C4233,C4241,C4605		CKSQYF104Z25
	C4003,C4004,C4010,C4127		CKSQYF105Z16
	C4211,C4212,C4227,C4228		CKSQYF473Z25

RESISTORS

All Resistors

RS1/10S□□□□J

OTHERS

	3P Cable Holder	51048-0300
CN4102	15P Socket	AKP1038
CN4106	Header (2P)	AKP7138
CN4105,CN4107	Header (5P)	AKP7139
	Heat Sink	ANH-575
X4101 (10.0 MHz)		DSS1048
JA4601	Optical Module	GP1FA550RZ
CN4103	15P Jumper Connector	KPE15
	PCB Binder	VEF1040
CN4101	30P FFC Connector	VKN1261
KN4101	Earth Plate	VNF1084

B IC UNIT

SEMICONDUCTORS

Δ IC4006	NJM7805FA
-----------------	-----------

CAPACITORS

C4009	CEAT101M10
C4008	CEAT1R0M50

OTHERS

	3P Cable Holder	51048-0300
J4002	3P Parallel Cable	D20PYY0310E

C KEY-R UNIT

SEMICONDUCTORS

Q4905,Q4906	DTC124EK
D4905,D4906	LT1E40A

Mark	No.	Description	Part No.
SWITCHES AND RELAYS			
		S4903,S4904	ASG7013

RESISTORS			
		All Resistors	RS1/10S□□□J

OTHERS			
		5P Cable Holder	51048-0500

D KEY-L UNIT

SEMICONDUCTORS			
		Q4903,Q4904	DTC124EK
		D4903	LT1E40A
		D4904	SML-210VT

SWITCHES AND RELAYS			
		S4901,S4902	ASG7013

RESISTORS			
		All Resistors	RS1/10S□□□J

OTHERS			
		5P Cable Holder	51048-0500
		7P Cable Holder	51048-0700
	J4907	5P Parallel Cable	D20PYY0515E
	J4904	7P Parallel Cable	D20PYY0710E

E RELAY UNIT

SEMICONDUCTORS			
		Q4901,Q4902	2SA1037K

CAPACITORS			
		C4901	CKSQYF104Z25

RESISTORS			
		All Resistors	RS1/10S□□□J

OTHERS			
		2P Cable Holder	51048-0200
		8P Cable Holder	51048-0800
	J4902	2P Parallel Cable	D20PYY0210E
	J4901	8P Parallel Cable	D20PYY0815E
	CN4901	Jumper Connector	SBRK07S-4
		PCB Binder	VEF1040

F BLUE UNIT

SEMICONDUCTORS			
		D4901	EB3804X

CAPACITORS			
		C4902	CKSQYF104Z25

OTHERS			
		2P Cable Holder	51048-0200

Mark	No.	Description	Part No.
MD CORE MAIN UNIT			

SEMICONDUCTORS			
		IC110	AK4519VF
		IC107	BD7910FV
		IC105	BR93LC56F
		IC101	IR3R55M
		IC102	LR376487
		IC106	M56788FP
		IC103	MSM51V4400D70TSK
		IC104	PD5593A
	△	IC108	RN5RG32AA
		IC109	TC74VHC08FT

		Q101	2SB1188
		Q102	2SC4081
		D101	SBE803
		D102	UDZ3.6B

COILS AND FILTERS			
		L101,L103,L104,L107	DTL1024
		chip coil (4.7μH)	
		L108 chip solid inductor	QTL1015
		L105 chip coil (47μH)	RTL1003
		L102 chip coil (0.47μH)	RTL1007
		L116 chip beads	VTL1093
		L109-L115 chip beads	VTL1105

SWITCHES AND RELAYS			
		S101,S102	RSF1012

CAPACITORS			
		C122,C186,C215	CCSQCH101J50
		C127,C128	CCSQCH120J50
		C151	CCSQCH220J50
		C105-C109	CCSQCH271J50
		C110	CCSQCH331J50
		C201,C202	CCSQCH470J50
		C191,C192,C207,C209,C211	CEV100M16
		C214	CEV100M16
		C145,C189,C198,C213	CEV101M4
		C152	CEV101M6R3
		C195,C196	CEV220M6R3
		C180,C182,C188	CEV470M6R3
		C120	CEV4R7M35
		C217	CKSQYB102K50
		C139,C148,C212,C216	CKSQYB103K50

		C218,C219	CKSQYB103K50
		C129	CKSQYB104K25
		C101,C102,C104,C117,C118	CKSQYB105K10
		C166,C167	CKSQYB153K50
		C193,C194	CKSQYB222K50

		C137,C141,C142	CKSQYB223K50
		C103,C185	CKSQYB273K50
		C116	CKSQYB332K50
		C115,C121	CKSQYB333K50
		C112	CKSQYB472K50

		C133	CKSQYB473K16
		C111,C114	CKSQYB474K16
		C174,C175	CKSQYB562K50
		C154,C157,C162,C163	CKSQYB821K50
		C135,C140,C143,C146,C155	CKSQYF104Z25

		C176,C181,C183,C184,C187	CKSQYF104Z25
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MJ-NS1

Mark	No.	Description	Part No.
	C190,C197,C199,C204-C206 C208,C210		CKSQYF104Z25 CKSQYF104Z25
	C119,C123-C126,C130,C132 C134,C136,C138,C147,C164 C177		CKSQYF105Z16 CKSQYF105Z16 CKSQYF105Z16

RESISTORS

R111	RS1/8S270J
Other Resistors	RS1/10S□□□J

OTHERS

CN104	30P Connector	RKN1039
X101	(33.8MHz)	RSS1055
CN105	ZR Connector	S2B-ZR-SM3A
CN102	Connector 2P	S2B-ZR-SM3A-R
CN106	PH Connector	S5B-PH-SM3
CN101	Connector for flex. cable	SFV28R-1ST
CN103	Connector for flex. cable	SFW7R-2ST

MD CORE SW UNIT

SWITCHES AND RELAYS

S701	RSF1009
S702	RSF1010

RESISTORS

All Resistors	RS1/10S□□□J
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OTHERS

CN701	Flexible Connector	SFW7R-1ST
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6. ADJUSTMENT

6.1 MD SECTION ADJUSTMENT

■ Jigs and Measuring Instructions

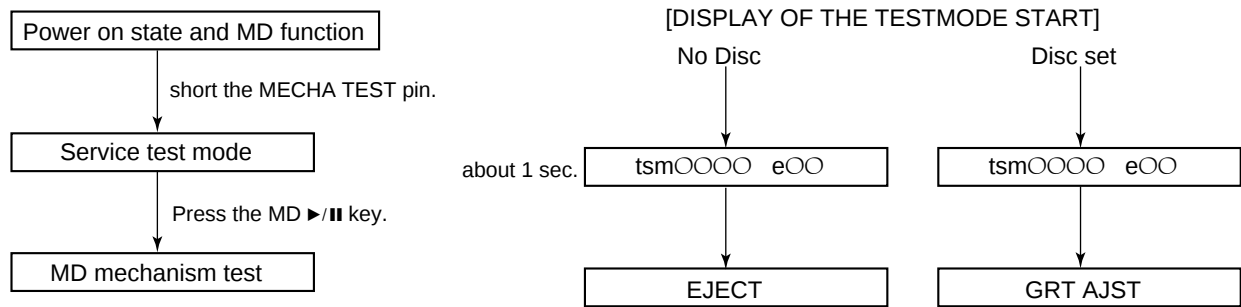
- Thermometer
- Oscilloscope
- Optical Power Meter
- Jitter Meter
- Test Disc
- For servo system adjustment : GGF1328 (MMD-212)
- For recording/playback inspection : GGF1328 (MMD-212), GGF1277 (or MMD-317)
TGYS1 (or MMD-110), Commercial discs

6.1.1 Necessary Adjustment Points

When		Adjustment points
Exchange PICKUP	➡	② – ⑧ → Page 31–36
Exchange Servo Base Assy (SPINDLE MOTOR)	➡	③ – ⑧ → Page 32–36
Exchange MD CORE MAIN UNIT	➡	①, ④ – ⑧ → Page 31, 33–36
Exchange MD HEAD	➡	⑧ → Page 36
Exchange Loading Mechanism Assy	➡	_____
Exchange Servo Mechanism Assy	➡	③ – ⑧ → Page 32–36
Exchange MD Mechanism Assy (Loading Mechanism Assy + Servo Mechanism Assy)	➡	③ – ⑧ → Page 32–36

6.1.2 Test Mode

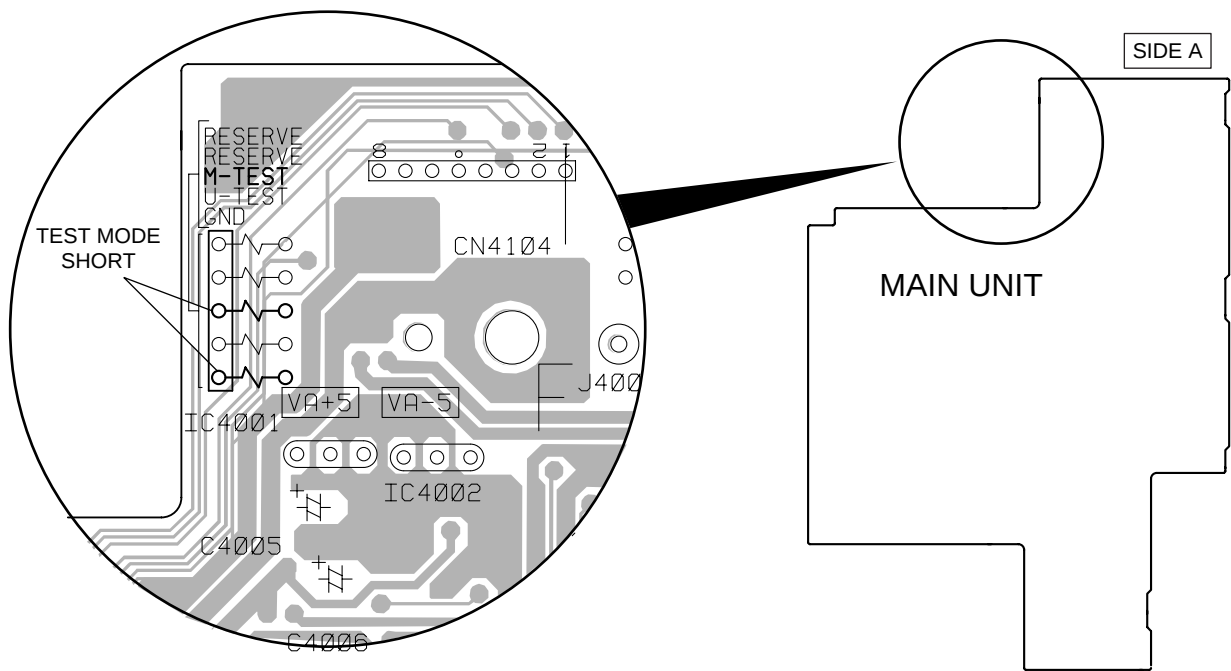
- Use the Remote Control Unit of Accessory or Service Remote Control Unit (GGF1067) at the Test Mode.
Note1 : It is impossible to enter the Test Mode in the Single Operation Mode.
Note2 : Unit Test Mode (U-TEST) is for inspection by the function checker of the production line.



■ Correspondence key of the Test mode

Command Name	Remote Control Unit of Accessory+(Main Unit Key)	CLD Service Remote Control Unit (GGF1067)	SR Code
TEST MODE	Short-circuit the MECHA TEST pin	ESC	(A85F)
EJECT	▲ (MD EJECT) of the main unit key	◀◀ (STILL)	(A854)
MENU next 1	MENU	FRM / TIM	(A841)
MENU next 2	● (REC) of the main unit key	CHAP	(A840)
MENU next 3	CANCEL	CHP / TIM	(A813)
MENU previous	DISPLAY	CLEAR	(A845)
SET (Decision, Execution)	►/■ of the main unit key	PLAY	(A817)
STOP	■ (STOP) of the main unit key	■ / EJECT	(A816)
CHANGE (switch)	SET	SEARCH	(A842)
Set UP	►► (SCAN)	►► (SCAN)	(A810)
Set DOWN	◀◀ (SCAN)	◀◀ (SCAN)	(A811)
FORWARD	+	►►I (SKIP)	(A852)
REVERSE	-	I◀◀ (SKIP)	(A853)

■ Test Point



6.1.3 MD Mechanism Assy Adjustment and Check

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

Note: When IC101 (RF-AMP) or IC104 (mechanical controller) has been exchanged or when a correction changing VD+3 has been made, be sure to correctly perform all steps up to step 7.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks												
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode													
2	Press the ● (REC) key.	TEMP○○□□	The microcomputer starts measuring	○○: Measuring value □□: Set value												
3	When □□ is 80 or more at this time, the adjustment is OK (step 4 and following can be omitted.)		End													
When □□ is 80 (not passed)		TEMP○○80	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>Measuring value (○○) –2</td></tr><tr><td>17.0 to 22.3</td><td>Measuring value (○○) –1</td></tr><tr><td>22.4 to 27.6</td><td>Measuring value (○○)</td></tr><tr><td>27.7 to 33.0</td><td>Measuring value (○○) +1</td></tr><tr><td>33.1 to 38.4</td><td>Measuring value (○○) +2</td></tr></table> When the microcomputer value is 79 ↑ 7A – 7B 7C + 7D ↓			Room Temperature [T (°C)]	hex= (○○ – □□)	11.6 to 16.9	Measuring value (○○) –2	17.0 to 22.3	Measuring value (○○) –1	22.4 to 27.6	Measuring value (○○)	27.7 to 33.0	Measuring value (○○) +1	33.1 to 38.4	Measuring value (○○) +2
Room Temperature [T (°C)]	hex= (○○ – □□)															
11.6 to 16.9	Measuring value (○○) –2															
17.0 to 22.3	Measuring value (○○) –1															
22.4 to 27.6	Measuring value (○○)															
27.7 to 33.0	Measuring value (○○) +1															
33.1 to 38.4	Measuring value (○○) +2															
5	Change □□ with the + key and – key.	TEMP 7B 7B														
6	Turn off the power of the CD tuner.		Data writes to the EEPROM and turns the system power to off. Test mode returns to the normal mode.													

② Laser Power Check

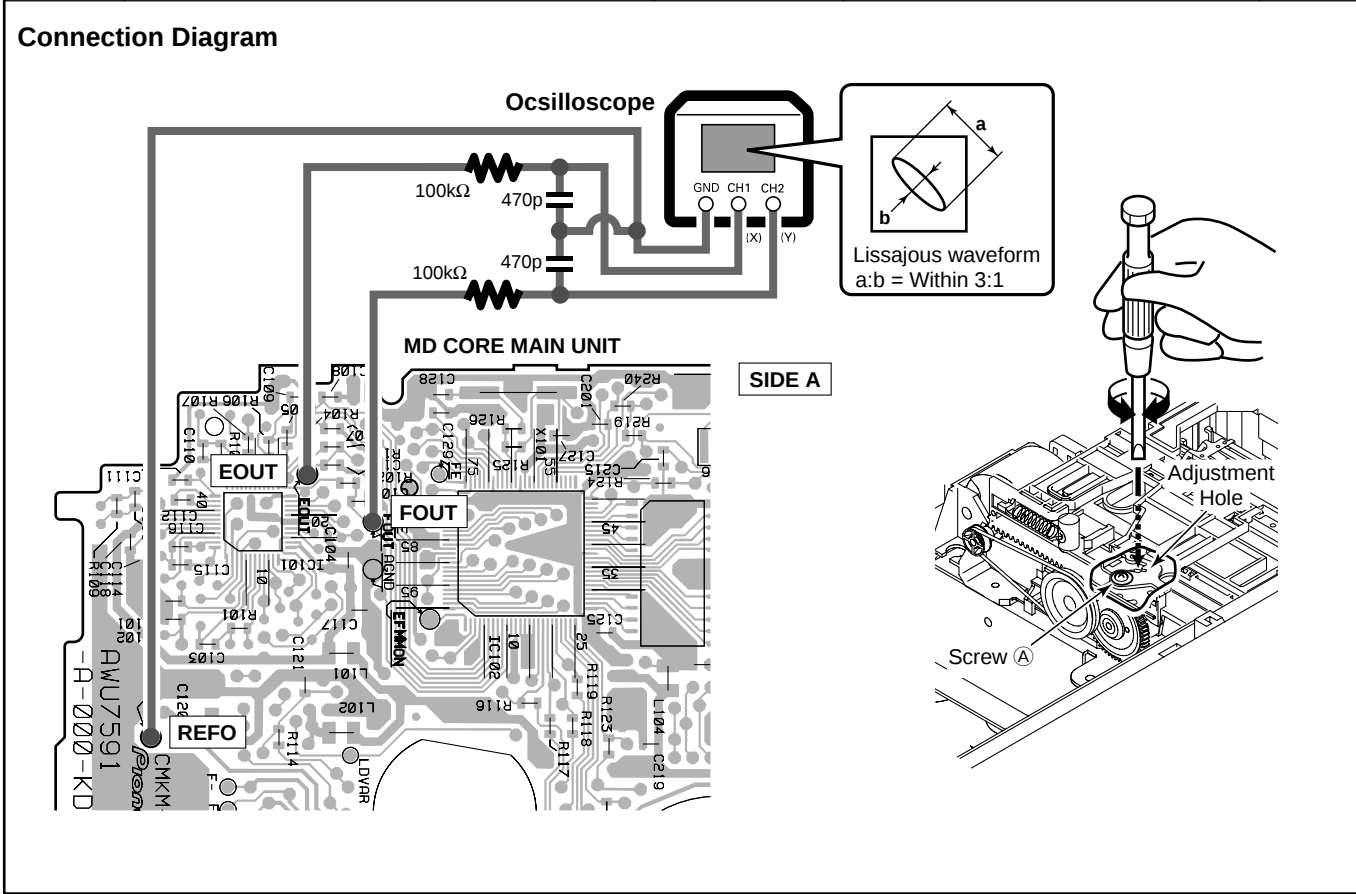
Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks								
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode	Laser wavelength: 780 nm								
2	Press the SET key (Remote control unit).	ppw	PLAY power output status									
3	Measure the laser 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○○□□ 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 SET 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

Press the ▲ (MD EJECT) key to take out the cartridge of Optical power meter in the state of step 7 of ② , and then it is possible from steps 2 of this item.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST	Grating adjustment state	
3	Press the ►/ key.	LON : LAg : GEG :	Playback is started in tracking open state. (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

It is possible from steps 3 of this item in the state of step 5 of ③.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the ■ (STOP) key.	tsm○○○○e○○	Return to menu display.	
4	Press the MENU key (until "AUT YOBI" is displayed).	AUT YOBI	Preliminary adjustment mode	
5	Preliminary adjustment starts when the ►/■ key is pressed.	HAo : RFg : PTG : Can't ADJ. COMPLETE	Defective adjustment (problem with the servo system) Adjutment end	
6	Press the ■ (STOP) key.	AUT YOBI	Return to menu display.	
7	Turn off the power of the CD tuner.		Data writes to the EEPROM and turns the system power to off. Test mode returns to the normal mode.	

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

⑤ Normal Adjustment

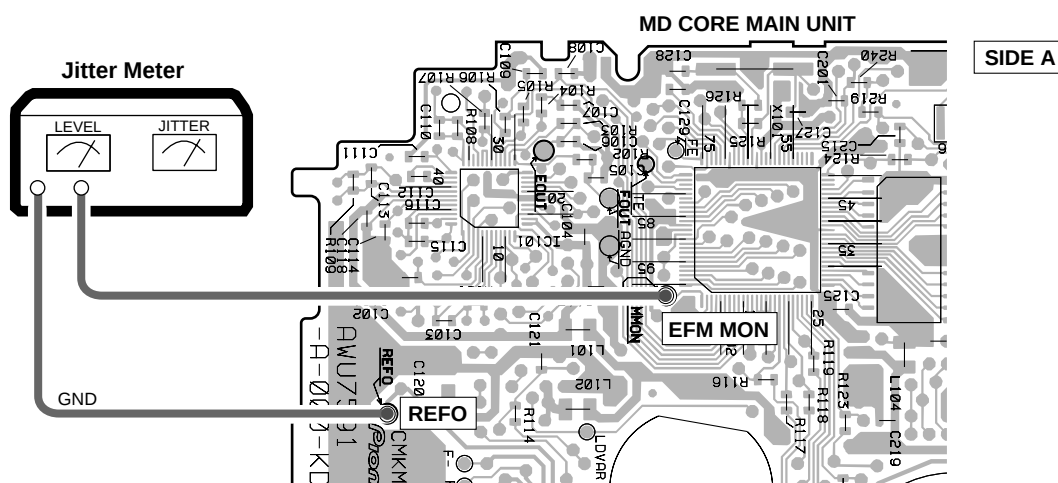
Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the MENU key (until "AUT YOBI" is displayed).	AUT AJST	Normal adjustment mode	
4	Normal adjustment starts when the ►/■ key is pressed.	PEG : HAG : Can't ADJ. COMPLETE	Defective adjustment (problem with the servo system) Adjutment end	
5	Press the ■ (STOP) key.	AUTO AJST	Return to menu display.	

⑥ Defocus Adjustment

It is possible from steps 3 of this item in the state of step 5 of ⑤.

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks
1	In the Power ON state, selecting MD function, short the "MECHA TEST pin".	EJECT	Test mode	
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST		
3	Press the MENU key.(until "deFO AJST" is displayed.)	deFO AJST		
4	Press the ►/ key. of ○○○○ c □□□□ Defocus Value 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 ● (REC) key.	of+04 c0032	The C1 error with application of a focus offset of about 0.4μm on the + side is displayed. The jitter value (J+) at this time is recorded.	
7	Press the ● (REC) key.	of-04 c0020	The C1 error with application of a focus offset of about 0.4μm on the – side is displayed. The jitter value (J–) at this time is recorded.	
8	When J+ is larger than J–, press the ● (REC) key and display the C1 error when the focus offset is applied up to +0.4μm. (Do nothing when J– is larger than J+.)	of+04 c0032		
9	Change the value with ◀◀ and ▶▶ keys 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 ENTER key and return to step 4.	
10	Press the ►/ 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	Turn off the power of the CD tuner.		Release from the test mode.	

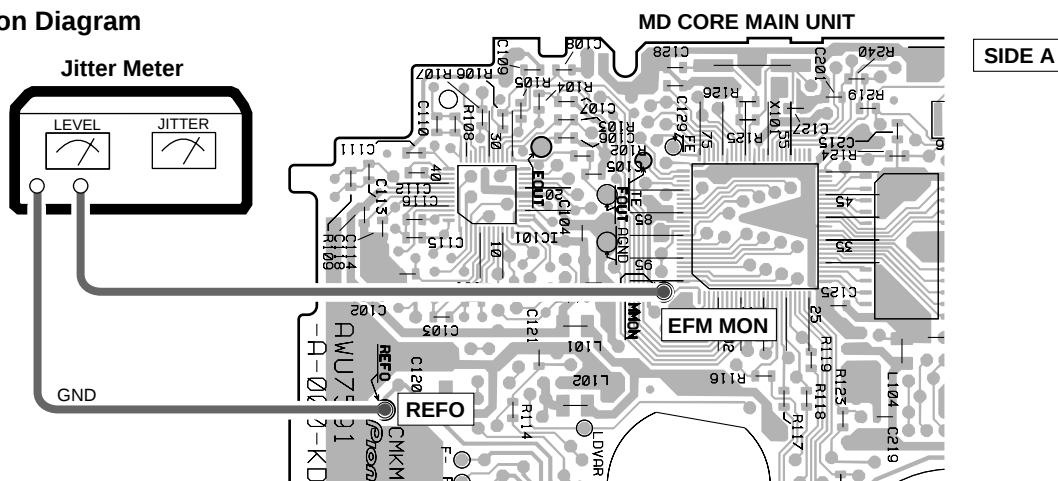
Connection Diagram



⑦ Jitter/C1 Error Check at the time of Playback

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks						
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode							
2	Insert the test disc GGF1328 (MMD-212).	LOADING GRT AJST								
3	Perform "㊦ Normal Adjustment" (steps 3 to 5).	AUT AJST								
4	Press the ● (REC) key.	TEST PLAY	TEST PLAY mode							
5	Press the SET key and display the inner circumference address.	ADRES 0050								
6	Press the ►/■ 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 DISPLAY 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 <u>200</u> or less.							
8	Press the DISPLAY key.	a006F c0017	The fixed display of the C1 error is enabled.							
9	Press the ■ (STOP) key.	TEST PLAY								
10	Press the SET key and display the inner circumference address.	ADRES 0050		Intermediate and outer circumference may be omitted.						
11	Press the ● (REC) key and display the intermediate circumference address. Perform steps 6 to 9 in this condition.	ADRES 03C0 a03C0 c0009 TEST PLAY								
12	Press the SET key and display the inner circumference address.	ADRES 0050								
13	Press the ● (REC) 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 ▲ (MD 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 ▲ (MD EJECT) key.	EJECT	The test disc TGYS1 (or MMD-110) is ejected.							
17	Power OFF		Release from the test mode.							

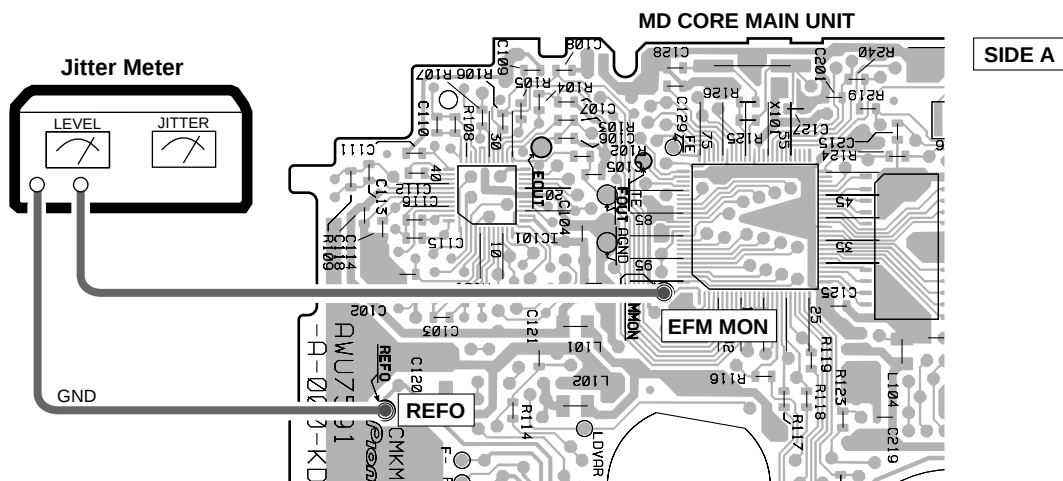
Connection Diagram



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

Step No.	Operation Keys and Operation Method	FL Display	Status	Remarks						
1	In the Power ON state, selecting MD function,short the "MECHA TEST pin".	EJECT	Test mode							
2	Insert the test disc GGF1277 (or MMD-317).	LOADING GRT AJST								
3	Perform "⑤ Normal Adjustment" (steps 3 to 5).	AUTO AJST								
4	Press the ● (REC) key.	TEST REC	TEST REC mode							
5	Press the SET key and display the inner circumference address.	a0050 pw0D								
6	When the ►/II 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 2 (SCAN) key and shift the address by 10 hex. (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 SET key and display the inner circumference address.	a0050 pw0D								
8	Press the ● (REC) key and display the intermediate circumference.	a03C0 pw0D								
9	Perform step 6.	a03D9 pw0D TEST REC								
10	Press the SET key and display the inner circumference address.	a0050 pw0D								
11	Press the ● (REC) key twice and display the outer circumference address.	a0700 pw0D								
12	Perform step 6.	a0719 pw0D TEST REC								
13	Press the ● (REC) 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 DISPLAY 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 that the jitter/C1 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 ▲ (MD EJECT) key.	EJECT	The test disc (GGF1277) is ejected.							
16	Turn off the power of the CD tuner.		Release from the test mode.							

Connection Diagram



7. GENERAL INFORMATION

7.1 DIAGNOSIS

7.1.1 SINGLE OPERATION MODE

■ How to enter the single operation mode

1. Supply DC power to CN4103 power supply pin of the MD MAIN UNIT. (Pin7 : +9V ,Pin8 : GND ,Pin9 : -9V)
2. Short-circuit the "P-ON" pin and "GND" pin.

■ Key operation in the single operation mode

[REC]	: To record	} MD key
[PLAY]	: To playback	
[STOP]	: To stop the recording and playing	
[EJECT]	: To eject	
[INPUT] (IN)	: To switch the input in the recording mode (Digital/Analog)	
[+]	: To search track forward	
[-]	: To search track reverse	
[CUE] (FF)	: To forward	
[REV]	: To reverse	

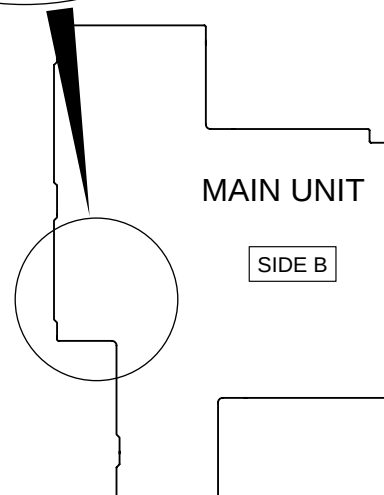
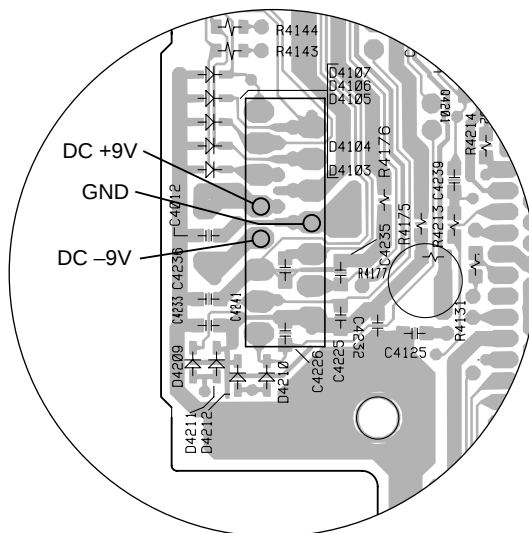
■ About the recording input switch

Recording input is able to switch with the "INPUT" key. Digital and analog are selected alternately whenever press the "INPUT" key. Initial value is the Digital input mode.

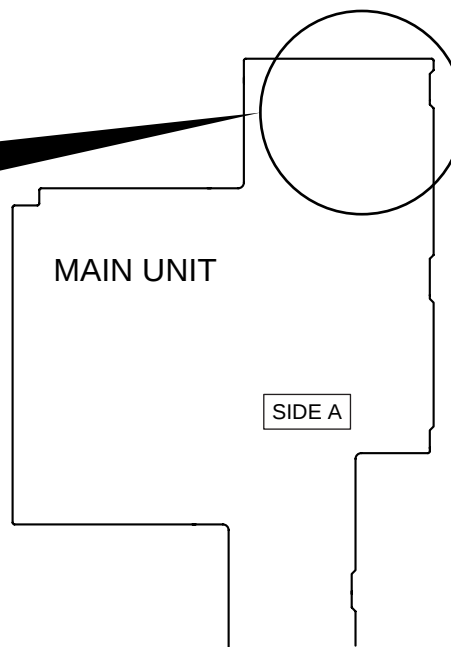
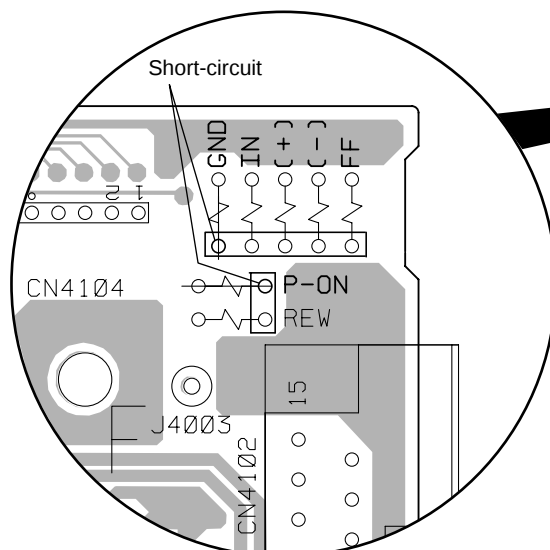
Note:

- (1) Recording input can switch only during REC PAUSE.
- (2) Blue LED of the center of MD flashes in the single operation mode.
- (3) It cannot enter the adjustment mode of the mechanism unit in the single operation mode.

■ POWER SUPPLY POINT



■ Test Point

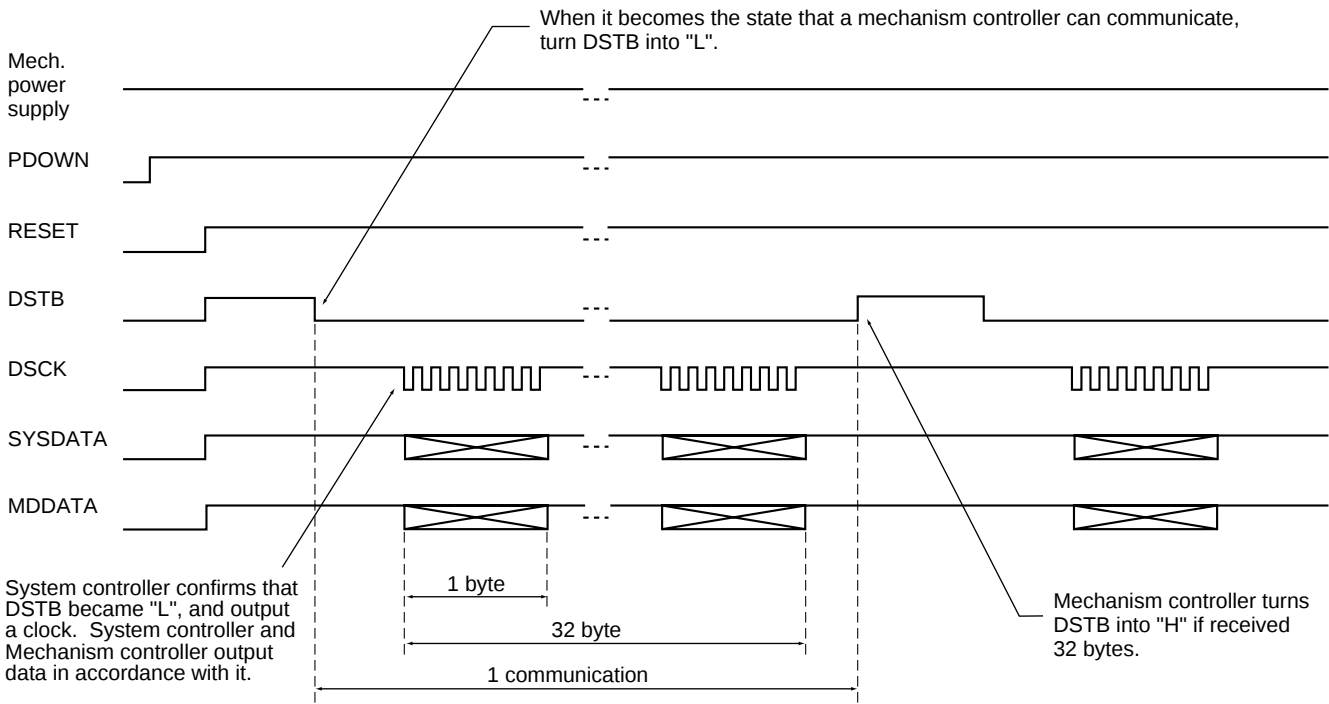


7.1.2 POWER ON SEQUENCE

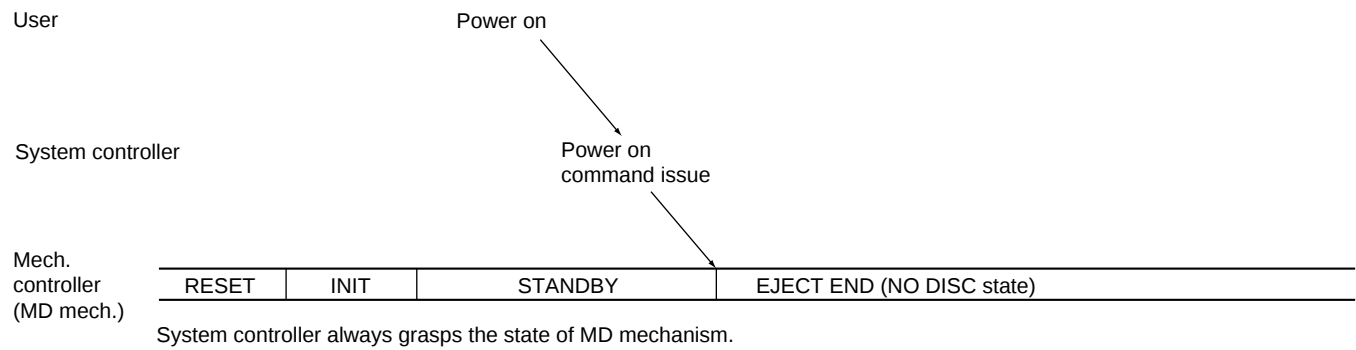
Outline

- When MD mechanism is normal, an operation of MD is decided whether communication is done normally.
When MD mechanism does not perform a correct operation, first confirm waveform of communication. (Refere to step 1.)
- The command that System controller transfers please refer to 4 from step 2.

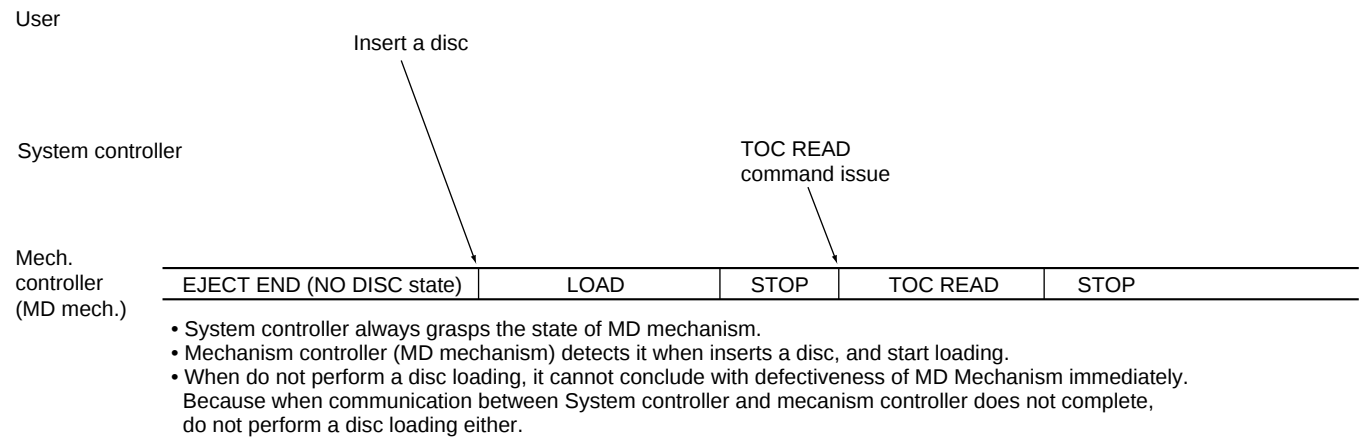
1. Reset and communication



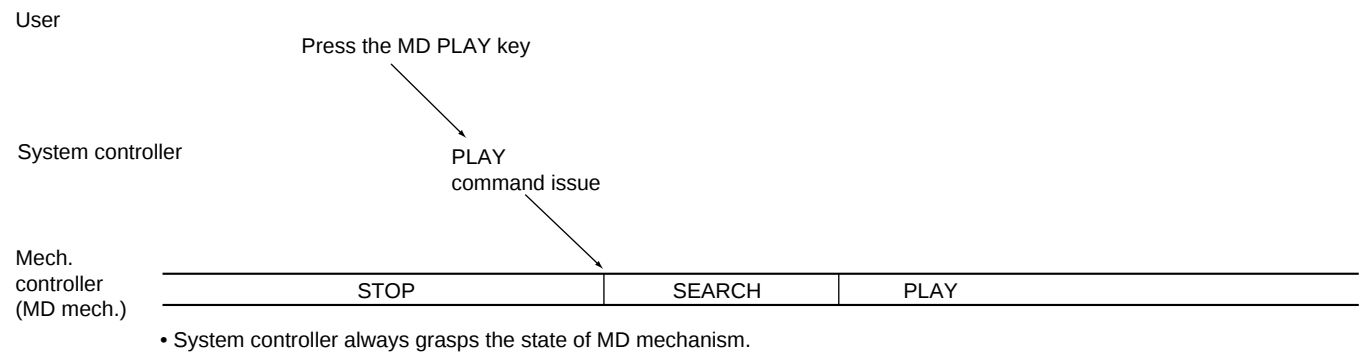
2. Power ON



3. Disc insertion and TOC READ

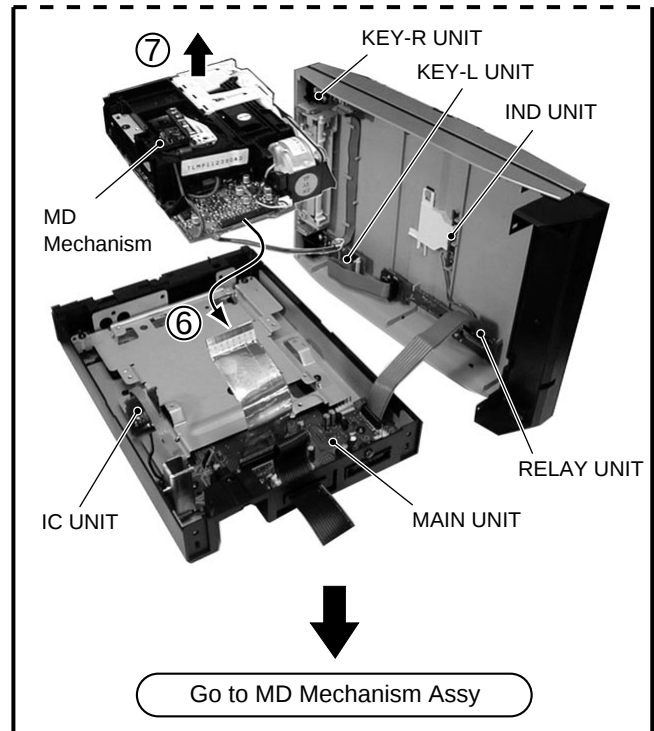
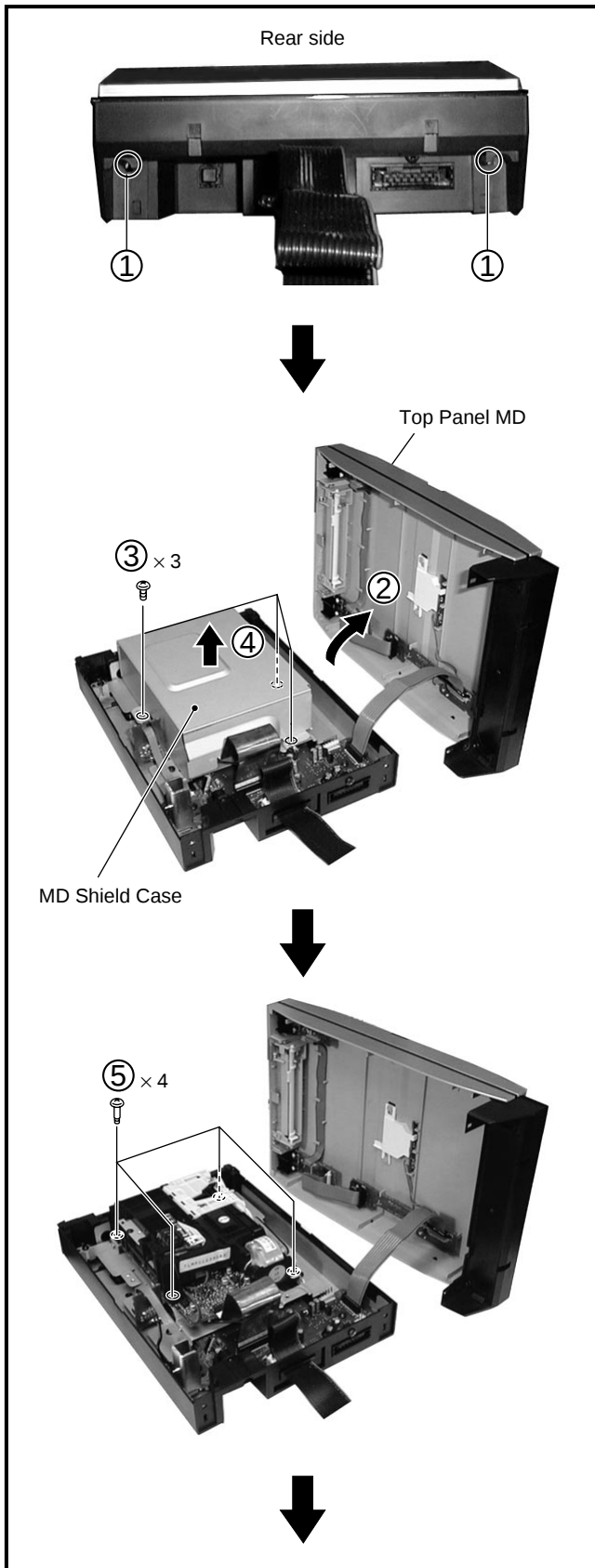


4. PLAY



7.1.3 DISASSEMBLY

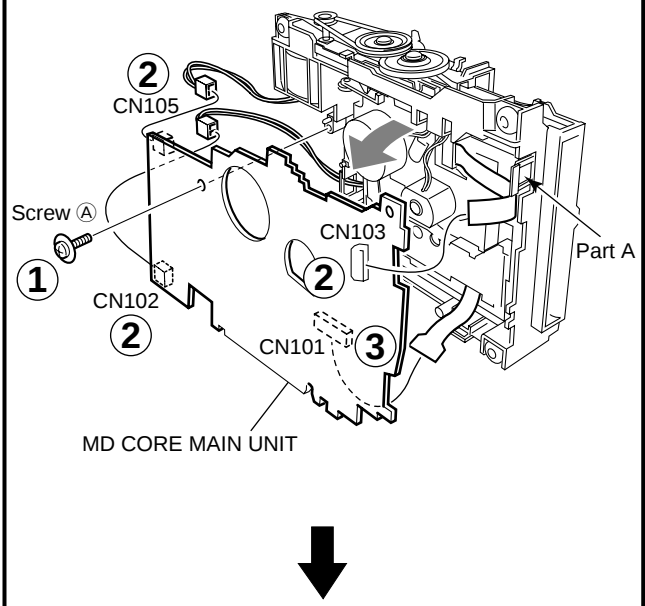
■ Top Panel and MD Mechanism



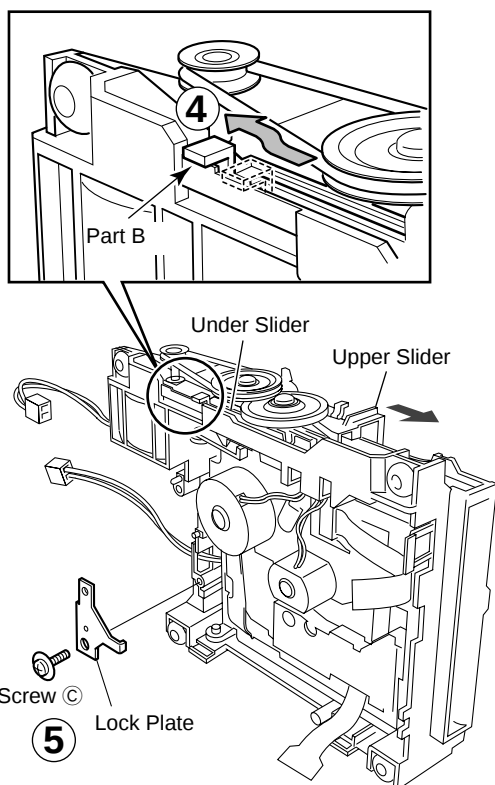
■ MD Mechanism Assy

• Removal of the MD Mechanism Assy

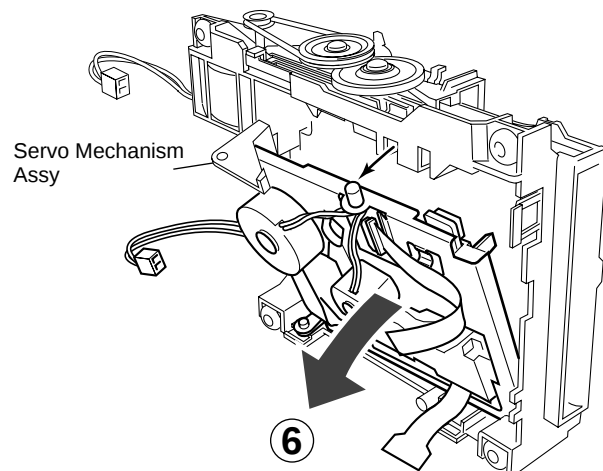
- ① Remove a screw (A).
- ② Disconnect the connectors (CN102, CN103 and CN105), open the hook of part A, and tilt the upper side of the MD CORE MAIN UNIT to the front.
- ③ Disconnect the connector (CN101) at the rear of the MD CORE MAIN UNIT and remove the MD CORE MAIN UNIT.



- ④ 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.)
- ⑤ Remove the Lock Plate. (One screw ③)



- ⑥ Remove the Servo Mechanism Assy.

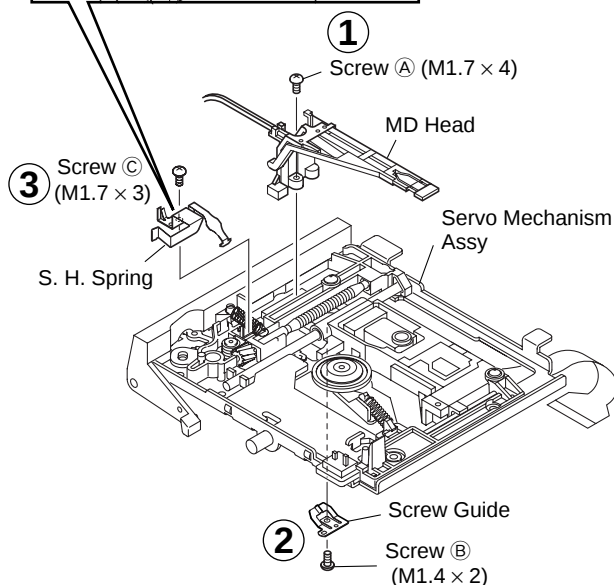
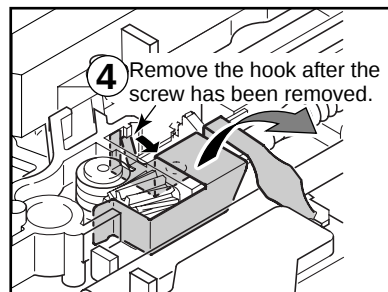


• Caution for the time of installation of the servo mechanism assy

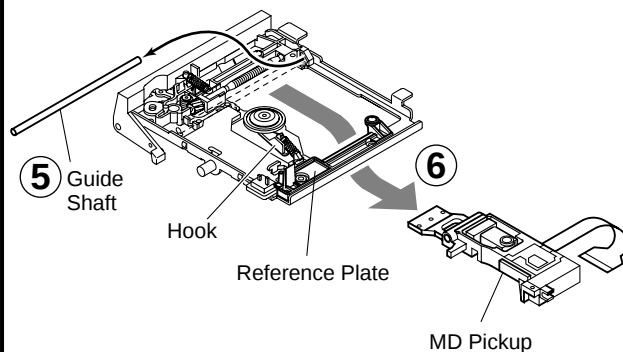
Move the MD Pickup to the innermost circumference.
The Servo Mechanism Assy is not installed other than the innermost circumference.

• Removal of the MD Pickup

- ① Remove the MD Head. (One screw ①)
- ② Remove the Screw Guide at the lower side of the MD Pickup. (One screw ②)
- ③ Remove the S. H. Spring. (One screw ③)
- ④ Remove the hook of the S. H. Spring as shown in the figure.



- ⑤ Raise the left side of the Guide Shaft and pull it out to the left.
- ⑥ Remove the MD Pickup. (With the front facing down, remove it to the front. At this time, the MD Pickup can be removed more easily when the Reference Plate is removed.)

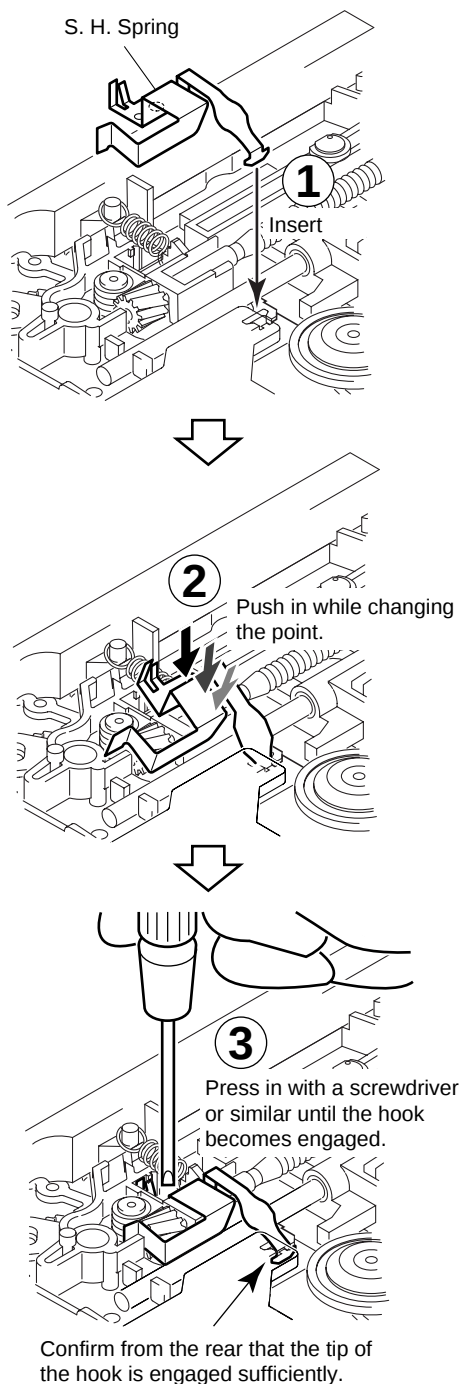


• MD Pickup Installation

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

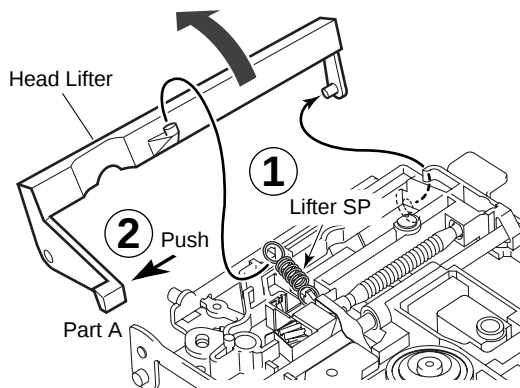
When the Reference Plate has been removed, confirm that the hook is engaged with the shaft of the spindle motor. (Take care that the mounting reference boss does not ride up.)

• S. H. Spring Installation



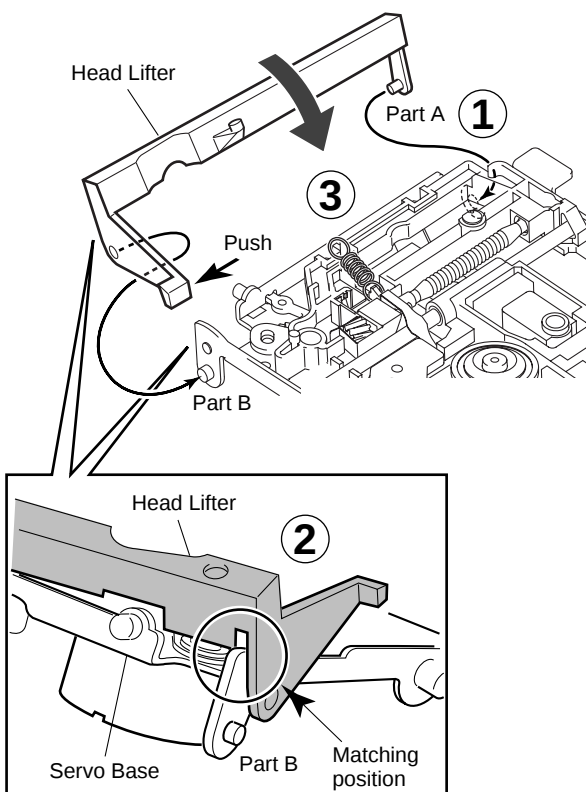
• Removal of the Head Lifter

- 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 IC

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

■ PDG257A [MAIN UNIT (2/2) : IC4101]

• System Control U-COM

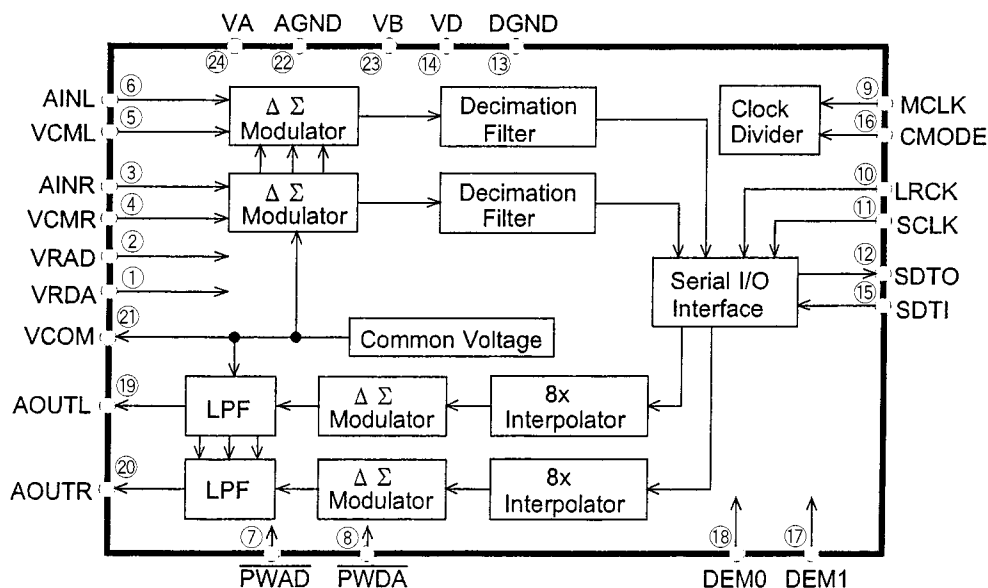
No.	FUNCTION	PIN NAME	I/O	NOTE	ACTIVE
1	PF3	D.MUTE	O	DIN MUTE H: MUTE	H
2	PF4	(NC)	O		
3	PF5	(NC)	O		
4	PF6	(NC)	O		
5	PF7	(NC)	O		
6	PD0	TEST	I	MECHA TEST MODE Input	L
7	PD1	TESTU	I	UNIT TEST MODE Input	L
8	PD2	CHARA	I	CHARACTER Exist or Not (types) input L : Chara. exist	
9	PD3	(NC)	O		
10	PD4	COPOW	O	Codec Power control	H
11	PD5	(NC)	O		
12	PD6	(NC)	O		
13	PD7	(NC)	O		
14	PC0	(NC)	O	big current port (12mA)	
15	PC1	LED1	O	MONO LP big current port (12mA)	H
16	PC2	LED2	O	REC big current port (12mA)	H
17	PC3	LED3	O	DIGITAL big current port (12mA)	H
18	PC4	LED4	O	PLAY big current port (12mA)	H
19	PC5	DIM(MID)	O	H : light L : dark	
20	PC6	DIM(HIGH)	O	H : H : L :	
21	PC7	(NC)	O	big current port (12mA)	
22	PH0	M.RST	O	MD MECHANISM control Rest Input	L
23	PH1	M.MUTE	I	MD MECHANISM control MUTE request Input	L
24	PH2	DSTB	I	MD MECHANISM control communication request Input	
25	PH3	P.DOWN	O	MD MECHANISM control power down detection output	L
26	PH4	(NC)	O		
27	PH5	XPBMUTE	O	MDPBMUTE output	L
28	PH6	(NC)	O		
29	PH7	OUTSEL	O	PBSELECT output L : MD H: other	
30	RST	RESET	I	RESET	
31	EXTAL	EXTAL	I	input terminal for ceramic oscillator device (10MHz)	-
32	XTAL	XTAL	O	output terminal for ceramic oscillator device	-
33	Vss	VSS	-		-
34	PE6	(NC)	O		-
35	PE7	(NC)	O		-
36	Avss	AVSS	O		-
37	Avref	AVREF	O		-
38	PA0/AN0	KEY0	I	key detection input 0	-
39	PA1/AN1	KEY1	I	key detection input 1	-
40	PA2/AN2	(NC)	O		-
41	PA3/AN3	(NC)	O		-
42	PA4/AN4	S.DATA	O	system bus data output	-
43	PA5/AN5	S.DATAIN	I	system bus data input	-
44	PA6/AN5	(NC)	O		-
45	PA7/AN7	PROTECT	I	abnormal voltage detection input normal : 2.5V	-
46	PB0/LAT0	(NC)	O		-
47	PB1/CS0	(NC)	O		
48	PB3/SCK0	DSCK	O	MD MECHANISM control communication clock output	
49	PB3/SI0	MD DATA	I	MD MECHANISM control communication data input	
50	PB4/SC0	SYS DATA	O	MD MECHANISM control communication data output	

No.	FUCTION	PIN NAME	I/O	NOTE	ACTIVE
51	PB5/SCK1PF4	D.CLK	I/O	MD display communication clock output	-
52	PB6/SI1	(NC)	I/O		
53	PB7/SO1	D.DATA	I	MD display communication data output	
54	PE0/EC0	(to GND)	I		
55	PE1/EC1	(to GND)	I		
56	PE2/CINT	(to GND)	I		
57	PE3/NM1	(to GND)	I		
58	PE4/PWM0	(NC)	O	Take care to use also device test terminal	
59	PES/TO/PWM1	(NC)	O	Take care to use also device test terminal	
60	PI0/INT0	S.CLK	I	system bus clock input	
61	PI1/INT1	D.REQ	I	MD display communication request input	
62	PI2/INT2	(NC)	-		
63	PI3/INT3	(NC)	O		
64	PI4	(NC)	-		
65	PI5	(NC)	O		
66	PI6	(NC)	O		
67	PI7	(NC)	O		
68	PG0	(NC)	O		
69	PG1	(NC)	O		
70	PG2	(NC)	O		
71	PG3	(NC)	O		
72	VDD	VDD	-		
73	NC	(NC)	O		
74	PG4	DSTB	O		
75	PG6	(NC)	O		
76	PG6	(NC)	O		
77	PG7	(NC)	O		
78	PF0	(NC)	O		
79	PF1	(NC)	O		
80	PF2	(NC)	O		

• I/O port is able to select function as input or output by 1bit unit.

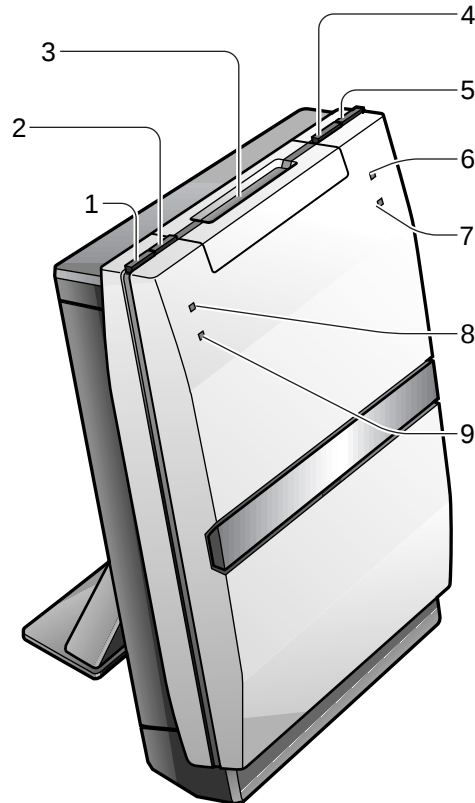
AK4519VF [MD CORE MAIN UNIT : IC110]

• Audio Codec IC



No.	PIN NAME	I/O	FUNCTION
1	VRDA	I	Voltage Reference Input Pin for DAC, VA
2	VRAD	I	Voltage Reference Input Pin for ADC, VA
3	AINR	I	Rch Analog Input Pin
4	VCMR	O	Rch Common Voltage Output Pin, 0.45 x VA Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal.
5	VCML	O	Lch Common Voltage Output Pin, 0.45 X VA Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal.
6	AINL	I	Lch Analog Input Pin
7	$\overline{\text{PWAD}}$	I	ADC Power-Down Mode Pin "L": Power down
8	$\overline{\text{PWDA}}$	I	DAC Power-Down Mode Pin "L": Power down
9	MCLK	I	Master Clock Input Pin
10	LCLK	I	Input/Output Channel Clock Pin
11	SCLK	I	Audio Serial Data Clock Pin
12	SDTO	O	Audio Serial Data Output Pin
13	DGND	-	Digital Ground Pin
14	VD	-	Digital Power Supply Pin
15	SDTI	I	Audio Serial Data Input Pin
16	CMODE	I	Master Clock Select Pin "H": 384fs or 512fs, "L": 256fs
17	DEM1	I	De-emphasis Frequency Select Pin
18	DEM0	I	De-emphasis Frequency Select Pin
19	AOUTL	O	Lch Analog Output Pin
20	AOUTR	O	Rch Analog Output Pin
21	VCOM	O	Common Voltage Output Pin, 0.45xVA Connect about 4.7 uF chemical capacitor and 0.1uF ceramic capacitor between AGND and this terminal.
22	AGND	-	Analog Ground Pin
23	VB	-	Substrate Pin
24	VA	-	Analog Power Supply Pin

8. PANEL FACILITIES AND SPECIFICATIONS



Top Panel

1. ►/|| – Press to play an MD, or pause one that's already playing (press again to restart playback). In record mode, also use to start or pause recording.
2. ■ – Press to stop playback or recording of the current MD.
3. MD loading slot
4. ● – Press to record.
5. ▲ – Press to eject the MD.

Front Panel

6. MD REC indicator – Lights up during record or record-pause mode.
7. Mono indicator – Lights up when recording in mono.
8. PLay indicator – Lights up while paused or during playback.
9. Digital indicator – Lights up when MD recorder is in digital signal input mode.

■ SPECIFICATIONS

Recording method	Magnetic field modulation overwritten type
Playback method	 Non-contact optical type
Sampling frequency	44.1KHz, 32KHz, 48KHz
Frequency response	 20Hz – 20KHz
Wow and flutter	 Limit of measurement (±0.001% W.PEAK) or less (EIAJ)
Power requirements	 DC
Dimensions	 170(W) × 268(H) × 66 (D) mm (without stands)
Weight	 1.5kg

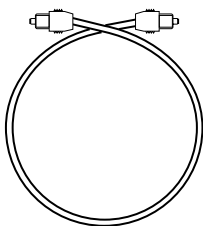
Accessories	
Optical digital cable	1
Stand A	1
Stand B	1
Operating instructions	1

Note: Specifications and design subject to possible modification without notice,due to improvement.

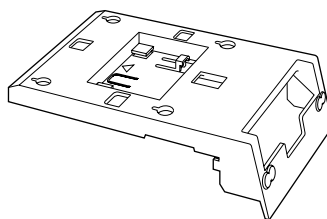
Cleaning external surfaces

To clean this unit, wipe with a soft, dry cloth. For stubborn dirt, wet a soft cloth with mild detergent solution made by diluting one part detergent to 5 or 6 parts water, wring well, then wipe off the dirt. Use a dry cloth to wipe the surface dry. Do not use volatile liquids such as benzene and thinner which may damage the surfaces.

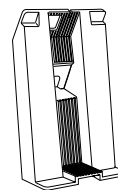
Accessories



Optical digital cable
(RKX1031)



Stand A
(AXG7096)



Stand B
(AXG7097)

Service Manual

Pioneer

ORDER NO.
RRV2399

MINIDISC RECORDER

MJ-NS1

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

Type	Model	Power Requirement	Remarks
	MJ-NS1		
ZPW/DF	○	DC power supplied from other system component	

- This product is a system(s) component.
This product does not function properly independently ; to avoid malfunctions, be sure to connect it to the prescribed system component(s), otherwise damage may result.
- Please connect it to the STEREO CD TUNER XC-NS3V and STEREO POWER AMPLIFIER M-NS1 for adjustment and operation inspection.

Component	Model	Service manual	Remarks
STEREO CD/VCD TUNER	XC-NS3V	RRV2395 (RRV2381)	
STEREO POWER AMPLIFIER	M-NS1	RRV2397 (RRV2321)	
SPEAKER SYSTEM	S-NS1-LRW	RRV2371	
MINIDISC RECORDER	MJ-NS1	RRV2399(RRV2363)	This manual.

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

Model	Order No.	Remarks
MJ-NS1/ZPWXJ	RRV2363	

■ CONTRAST OF MISCELLANEOUS PARTS

- NOTES:
- Parts marked by "NSP" are generally unavailable because they are not in our Master Spare Parts List.
 - The  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.
 - Screws adjacent to  mark on product are used for disassembly.
 - Reference Nos. indicate the pages and Nos. in the service manual for the base model.

● CONTRAST TABLE

MJ-NS1/ZPW/DF and MJ-NS1/ZPWXJ are constructed the same except for the following:

Ref. No.	Mark	Symbol and Description	Part No.		Remarks
			MJ-NS1/ZPWXJ	MJ-NS1/ZPW/DF	
P3-14		Packing Section Packing Case	AHD7901	AHD7950	
P5-35	NSP	Exterior Section Name Label	AAL7254	AAL7272	