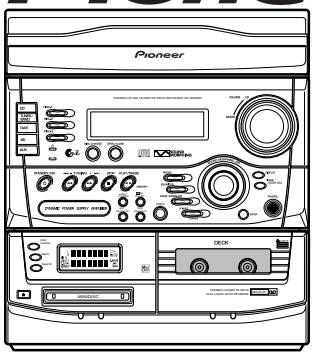
Service Manual



ORDER NO.
RRV2107

COMPACT MINI COMPONENT

XR-A550MD

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.
	XR-A550MD		
KUCXJ	◯	AC120V	
DBDXJ	◯	AC110-127V/220-230V/240V	With the voltage selector

CONTENTS

PIONEER ELECTRONIC CORPORATION 4-1, Meguro 1-Chome, Meguro-ku, Tokyo 153-8654, Japan
PIONEER ELECTRONICS SERVICE, INC. P.O. Box 1760, Long Beach, CA 90801-1760, U.S.A.
PIONEER ELECTRONIC (EUROPE) N.V. Haven 1087, Keetberglaan 1, 9120 Melsele, Belgium
PIONEER ELECTRONICS ASIACENTRE PTE. LTD. 253 Alexandra Road, #04-01, Singapore 159936

T – IZE MAR. 1999 Printed in Japan

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.

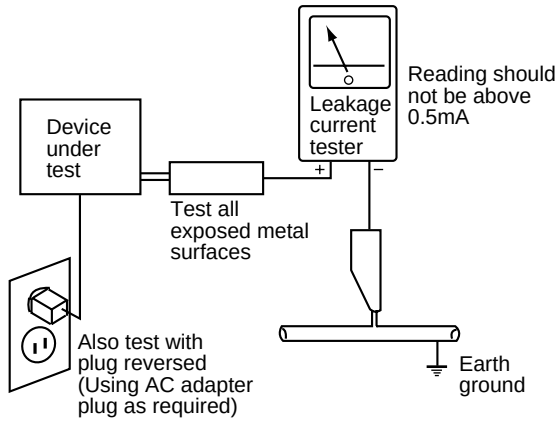
(FOR USA MODEL ONLY)

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 60Hz outlet and turn the AC power switch on. Any current measured must not exceed 0.5mA.



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.

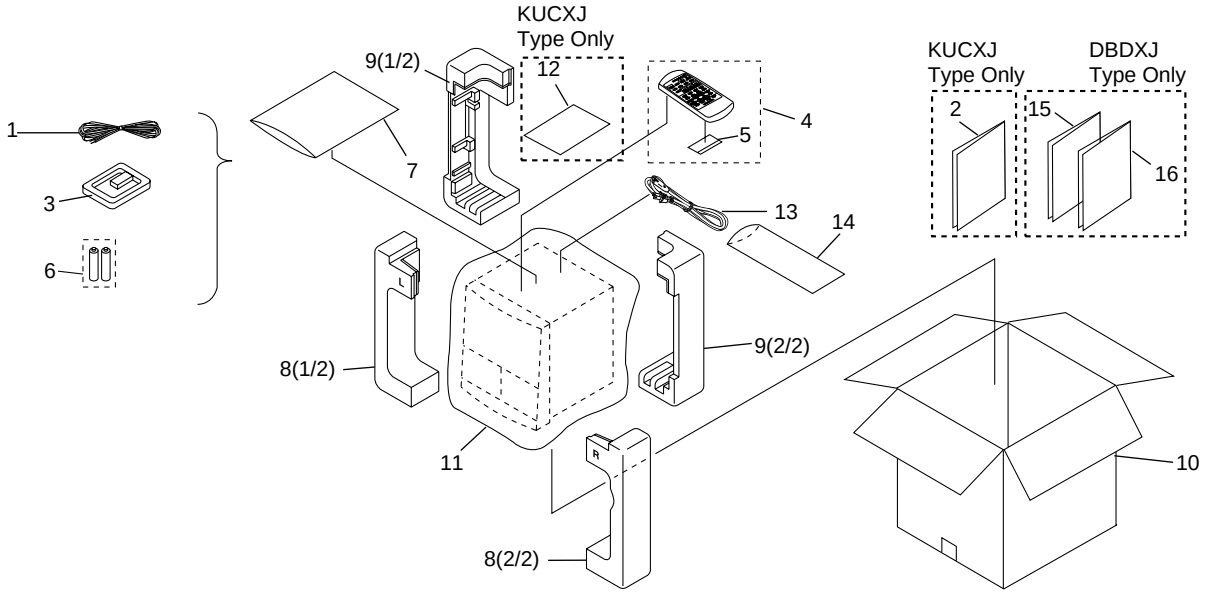
Product Safety is continuously under review and new instructions are issued from time to time. For the latest information, always consult the current PIONEER Service Manual. A subscription to, or additional copies of, PIONEER Service Manual may be obtained at a nominal charge from PIONEER.

2. EXPLODED VIEWS AND PARTS LIST

NOTES: ● **Parts marked by "NSP" and ⊗ can not be supplied.**

- *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 the product are used for disassembly.*

2.1 PACKING



(1) PACKING PARTS LIST

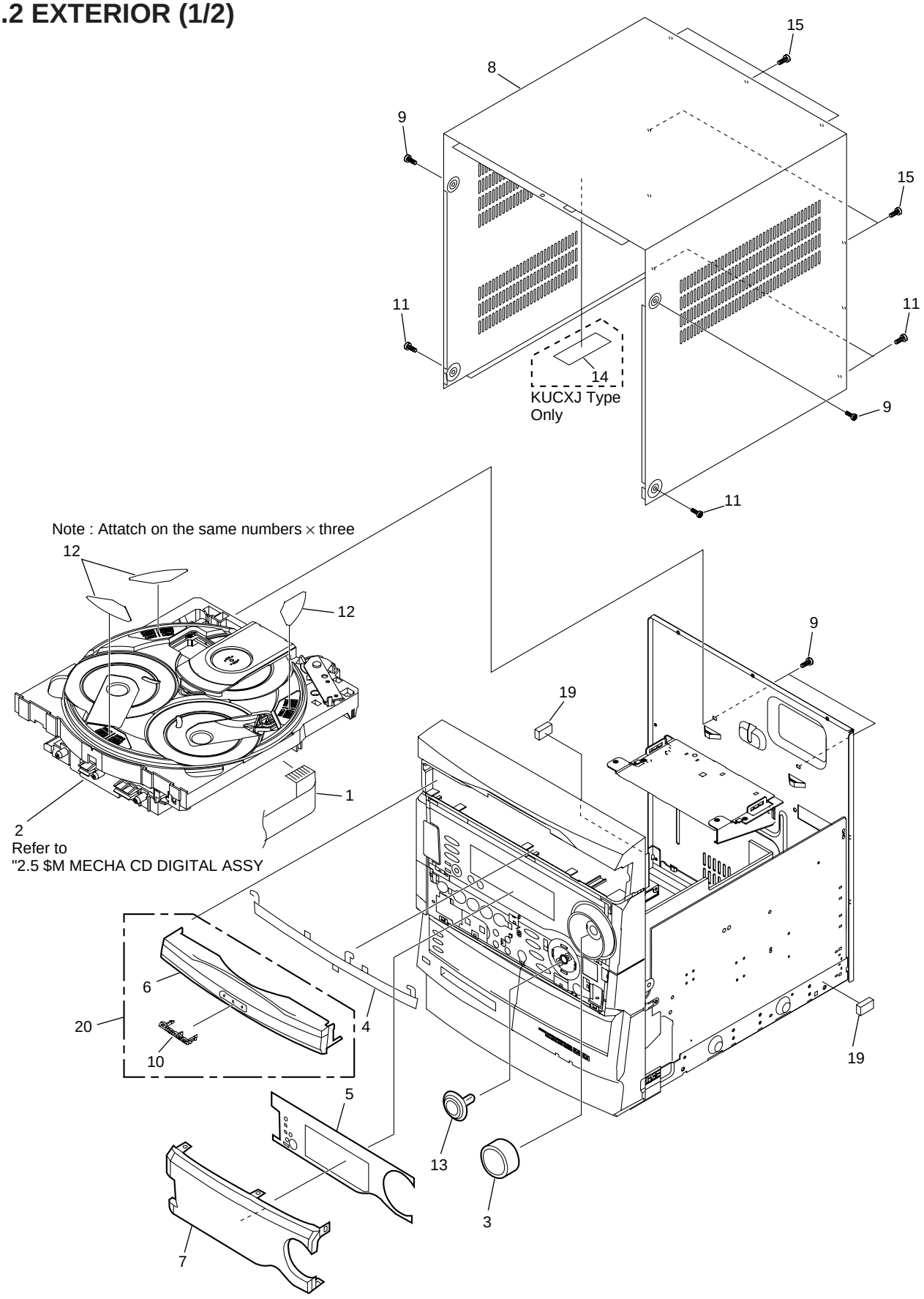
Mark	No.	Description	Part No.
	1	FM Antenna	ADH7004
	2	Operating Instructions (English/French)	See Contrast table (2)
	3	AM Loop Antenna	XTB3001
	4	Remote Control Unit (CU-XR054)	XZN3046
	5	Battery Cover	AZA7204
NSP	6	Dry Cell Battery (R6P, AA)	VEM-013
	7	Catalog Bag (0.03 × 230 × 340)	Z21-038
	8	Front Pad	XHA3003
	9	Rear Pad	XHA3004
	10	Packing Case	See Contrast table (2)
	11	Packing Sheet	AHG7049
NSP	12	Warranty Card	See Contrast table (2)
⚠	13	Power Cord	See Contrast table (2)
NSP	14	Polyethylene Bag	AHG7033
	15	Operating Instructions (Chinese/portuguese)	See Contrast table (2)
	16	Operating Instructions (English/Spanish)	See Contrast table (2)

(2) CONTRAST TABLE

XR-A550MD/KUCXJ and DBDXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			KUCXJ Type	DBDXJ Type	
	2	Operating Instructions (English/French)	XRE3021	Not used	
	10	Packing Case	XHD3078	XHD3079	
NSP	12	Warranty Card	ARY7023	Not used	
⚠	13	Power Cord	ADG7022	ADG1158	
	15	Operating Instructions (Chinese/Portuguese)	Not used	XRC3011	
	16	Operating Instructions (English/Spanish)	Not used	XRE3022	

2.2 EXTERIOR (1/2)



(1) EXTERIOR (1/2) PARTS LIST

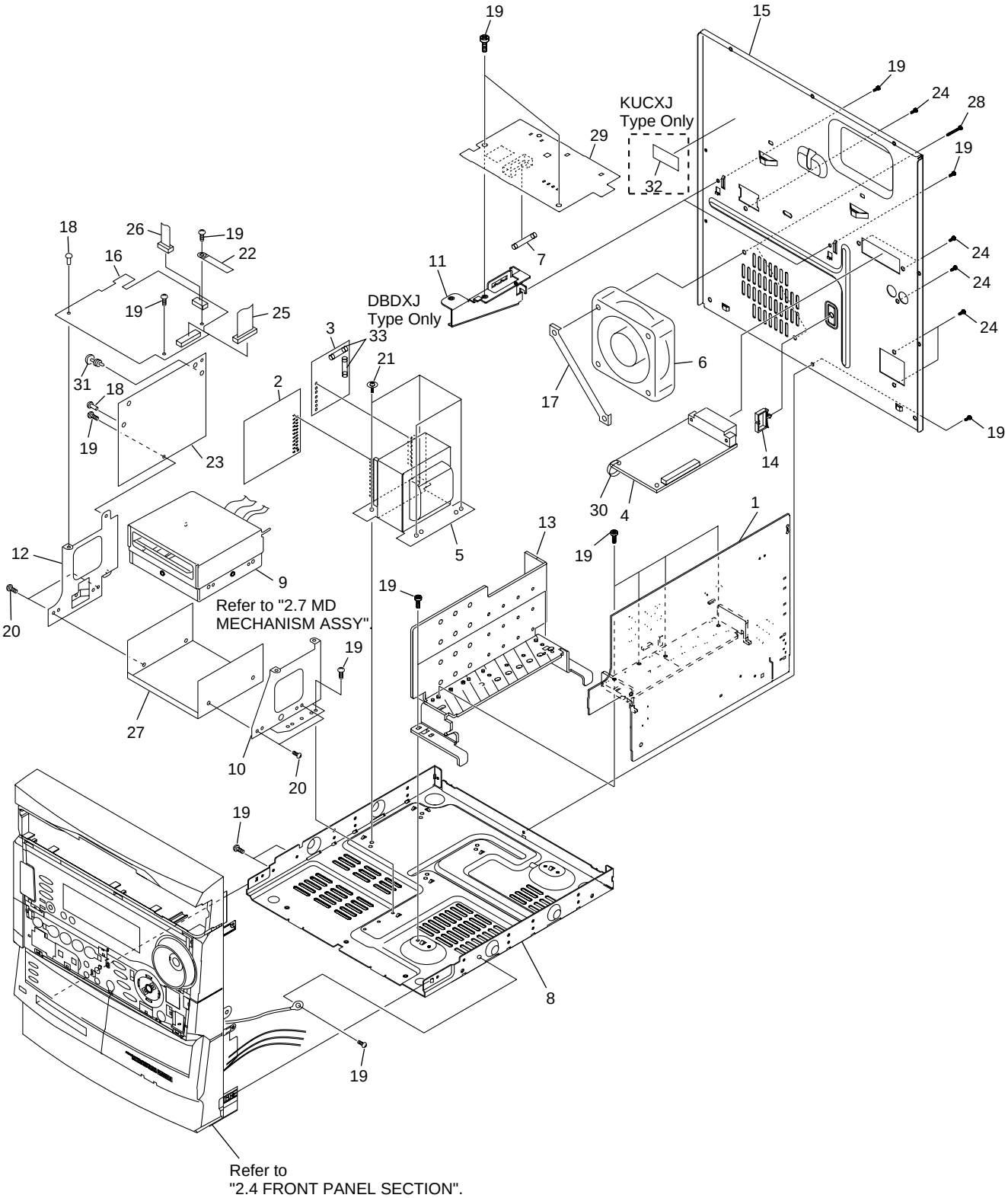
Mark	No.	Description	Part No.
	1	22P F.F.C/30V	XDD3018
NSP	2	$M MECHA CD DIGITAL Assy	XXA3006
	3	Volume Knob	XAA3005
	4	FL Cover A	See Contrast table (2)
	5	FL Cover C	XAK3071
	6	Tray Cap	XAK3075
	7	Display Panel	See Contrast table (2)
	8	Bonnet Case	XZN3001
	9	Screw	BPZ30P100FZK
	10	Pioneer Badge	XAM3001
	11	Screw	VBT30P080FZK
	12	Disc Label	XAX3127
	13	Jog Knob Assy	XXG3023
	14	65 Label	See Contrast table (2)
	15	Screw	BCZ30P080FZK
	16	•••••	
	17	•••••	
	18	•••••	
	19	Cushion Rubber	XEB3002
NSP	20	Tray Cap Assy	XXG3031

(2) CONTRAST TABLE

XR-A550MD/KUCXJ and DBDXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			KUCXJ Type	DBDXJ Type	
	4	FL Cover A	XAK3093	XAK3026	
	7	Display Panel	XAK3057	XAK3064	
	14	65 Label	ARW7050	Not used	

2.3 EXTERIOR (2/2)



(1) EXTERIOR (2/2) PARTS LIST

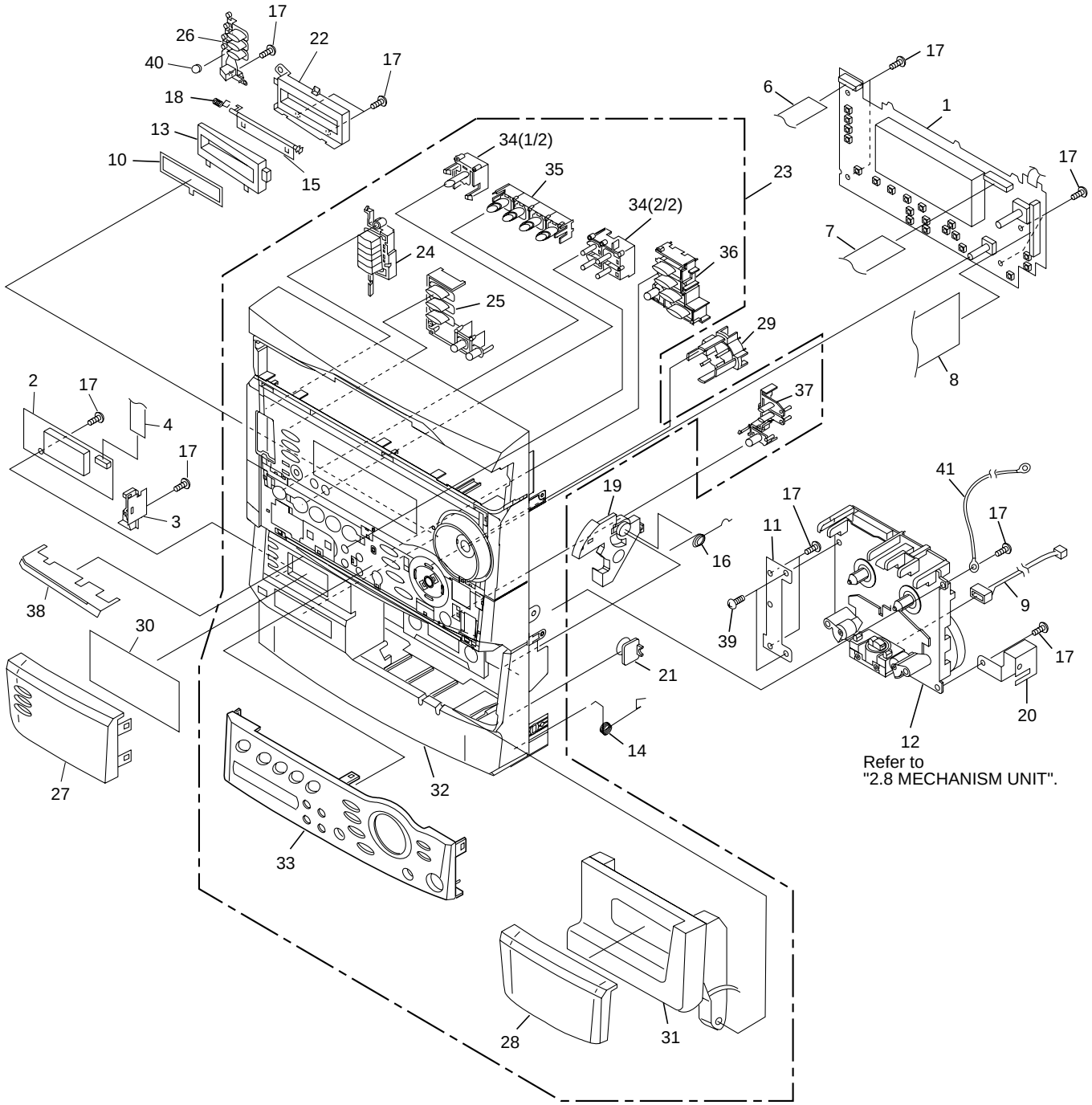
Mark	No.	Description	Part No.
⊗	1	AF Assy	See Contrast table (2)
⊗	2	SECONDARY Assy	See Contrast table (2)
⊗	3	PRIMARY Assy	See Contrast table (2)
	4	FM/AM TUNER MODULE	AXQ7065
⚠	5	Power Transformer (T1)	See Contrast table (2)
	6	DC Fan Motor	AXM7003
⚠	7	Fuse (FU1)	See Contrast table (2)
NSP	8	Chassis	XNA3002
	9	MD Mechanism Assy	AXA7054
	10	MD Bracket R	XNG3011
	11	PCB Bracket	XNG3006
	12	MD Bracket L	XNG3010
	13	Heat Sink	XNH3003
	14	Wire Clip	XEC3002
	15	Rear Panel	See Contrast table (2)
⊗	16	MD MAIN Assy	See Contrast table (2)
	17	Fan Plate	ANG7153
	18	Push Rivet	AEC7149
	19	Screw	VBZ30P080FZK
	20	M3 Plastic Screw	XBB3001
	21	Screw	ASZ40P060FMC
	22	Cord Clamper	RNH-184
⊗	23	MD SUB Assy	See Contrast table (2)
	24	Screw	BPZ30P100FZK
	25	Connector Assy 9P	XDE3008
	26	Connector Assy 3P	XDE3024
	27	Separation Sheet	XEC3010
	28	Screw	BBZ30P300FMC
⊗	29	SUB TRANS Assy	See Contrast table (2)
	30	Binder	ZCA-SKB90BK
NSP	31	PCB Spacer	AEC7080
	32	Fuse Caution Label	See Contrast table (2)
⚠	33	Fuse (FU2, FU3 : T1.6A)	See Contrast table (2)

(2) CONTRAST TABLE

XR-A550MD/KUCXJ and DBDXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			KUCXJ Type	DBDXJ Type	
⊗	1	AF Assy	XWZ3172	XWZ3181	
⊗	2	SECONDARY Assy	XWZ3173	XWZ3182	
⊗	3	PRIMARY Assy	XWZ3175	XWZ3184	
⚠	5	Power Transformer (T1)	XTS3030	XTS3028	
⚠	7	Fuse (FU1 : 4A)	REK1082	Not used	
⚠	7	Fuse (FU1 : T3.15A)	Not used	AEK1059	
	15	Rear Panel	XNC3031	XNC3032	
⊗	16	MD MAIN Assy	XWZ3177	XWZ3186	
⊗	23	MD SUB Assy	XWZ3179	XWZ3188	
⊗	29	SUB TRANS Assy	XWZ3176	XWZ3185	
	32	Fuse Caution Label	XAX3132	Not used	
⚠	33	Fuse (FU2, FU3 : T1.6A)	Not used	AEK1056	

2.4 FRONT PANEL SECTION



(1) FRONT PANEL SECTION PARTS LIST

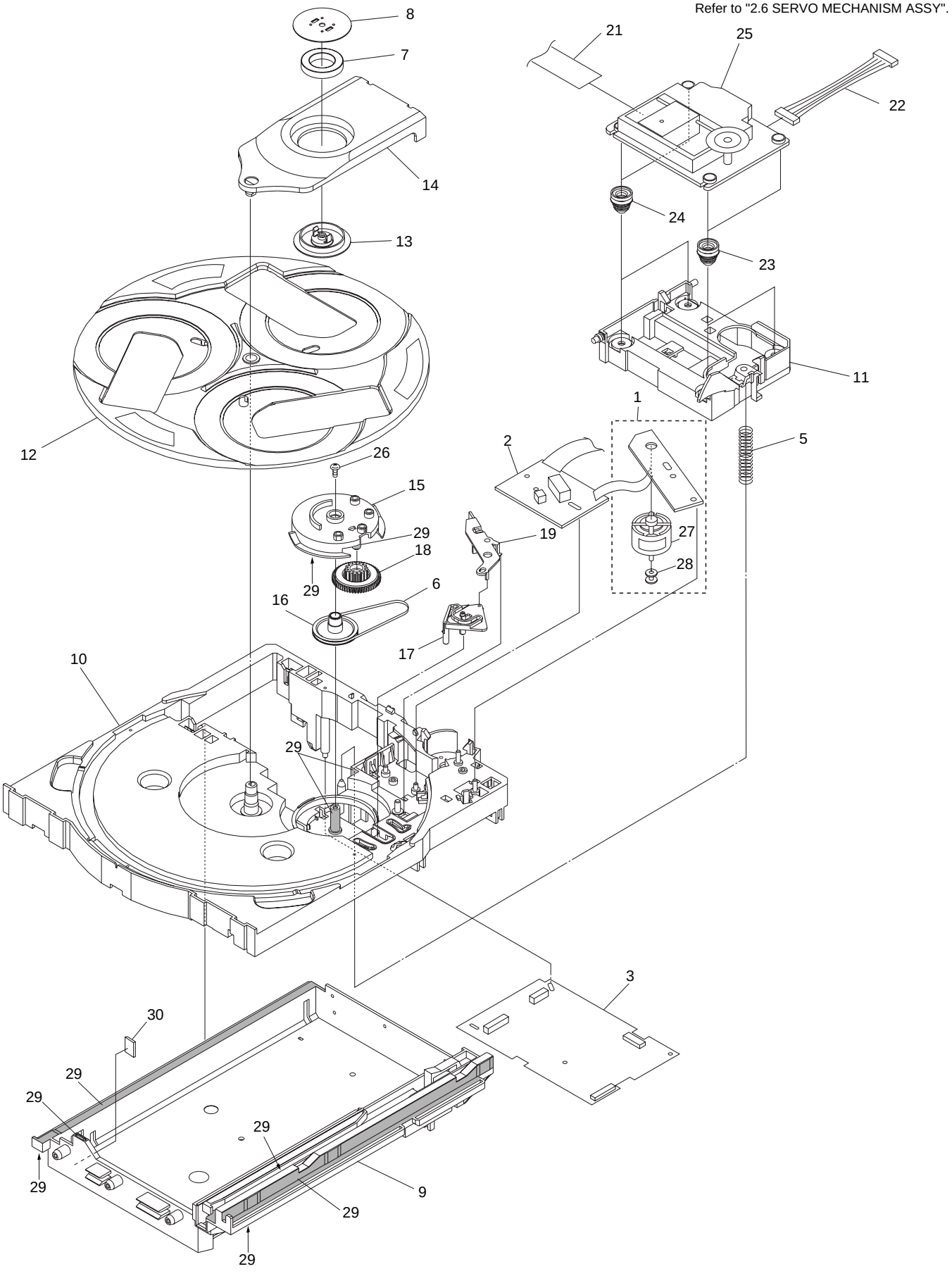
Mark	No.	Description	Part No.
⊗	1	DISPLAY Assy	See Contrast table (2)
⊗	2	MD FRONT Assy	See Contrast table (2)
⊗	3	MD LED Assy	See Contrast table (2)
	4	Flexible Cable 11P	XDD3020
	5	• • • • •	
	6	Flexible Cable 13P	XDD3021
	7	Flexible Cable 11P	XDD3019
	8	Flexible Cable 38P	XDD3004
	9	Connector Assy 5P	XDE3002
	10	MD Lens	XAK3073
	11	Deck Bracket	XNG3013
	12	Mechanism Unit	XYM3004
	13	LT Conductor	XAK3074
	14	Door Spring R	XBH3002
	15	MD Flap	AAN7186
	16	Latch Spring R	ABH7131
	17	Screw	BPZ30P100FZK
	18	MD Spring	ABH7154
	19	Latch Mold R	XMR3002
	20	GND Plate C	XNG3012
	21	Damper Assy	AXA7052
	22	Flap Holder	XMR3004
	23	Front Panel Assy	XXG3018
	24	Function Button	XAD3020
	25	CD Button	XAD3010
	26	Eject Button	XAD3023
	27	FL Window MD	XAK3070
	28	Deck Lens R	XZN3063
NSP	29	Jog Lens	XAK3025
	30	FL Cover MD	XAK3072
	31	Deck Door R	XAN3009
	32	Front Panel	XMB3015
	33	Sub Panel A	XAK3046
NSP	34	Power Button	XAD3007
	35	Play Button	XAD3022
NSP	36	S.C. Button	XAD3009
NSP	37	TIMER Button	XAD3016
	38	FL Cover D	See Contrast table (2)
	39	Screw	PCZ20P040FMC
	40	Cushion A	PED1001
NSP	41	Cord with Plug	DE007VE0

(2) CONTRAST TABLE

XR-A550MD/KUCXJ and DBDXJ are constructed the same except for the following :

Mark	No.	Symbol and Description	Part No.		Remarks
			KUCXJ Type	DBDXJ Type	
⊗	1	DISPLAY Assy	XWZ3174	XWZ3183	
⊗	2	MD FRONT Assy	XWZ3178	XWZ3187	
⊗	3	MD LED Assy	XWZ3180	XWZ3189	
	38	FL Cover D	XAK3094	XAK3092	

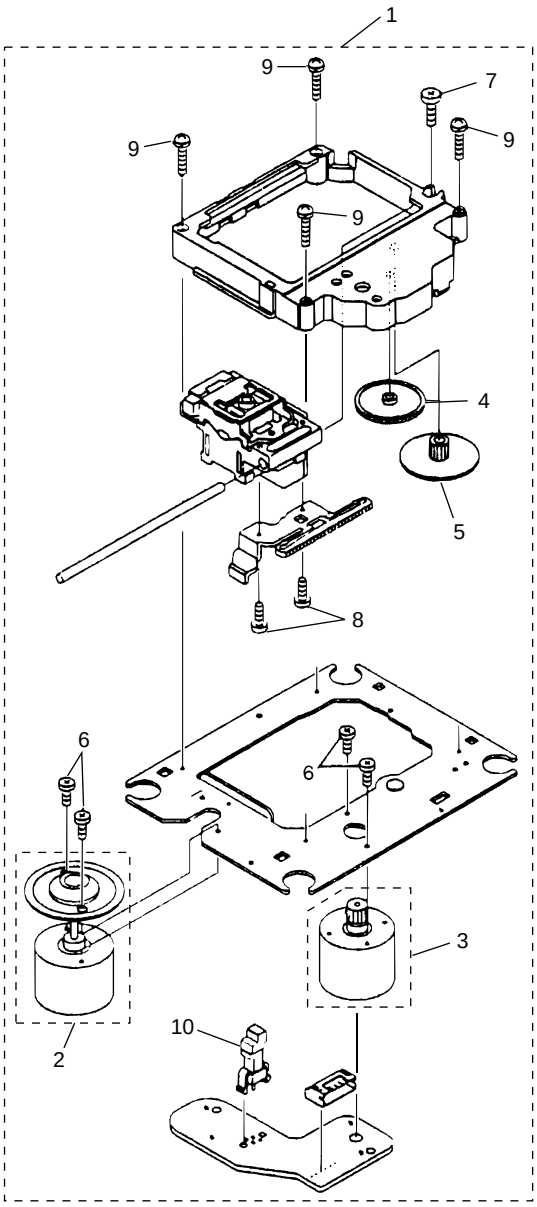
2.5 $M MECHANISM CD



2.6 SERVO MECHANISM ASSY

● $M MECHANISM CD PARTS LIST

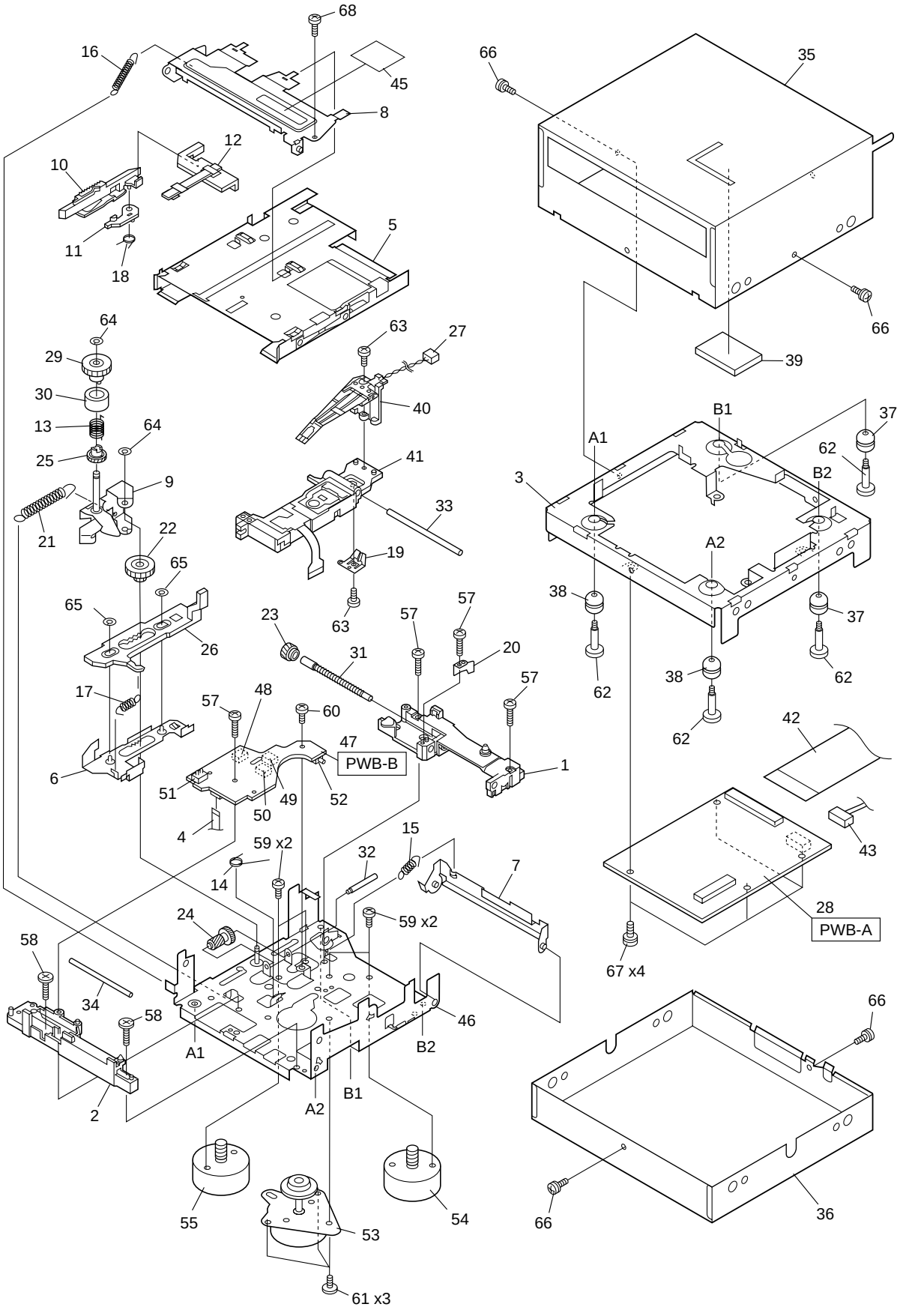
Mark	No.	Description	Part No.
⊗	1	MOTOR Assy	AWZ8428
NSP	2	SW Assy	AWZ8429
⊗	3	CD Assy	XWZ3141
	4	• • • • •	
	5	Servo Spring	ABH7126
	6	Belt	AEB7072
	7	Clamp Magnet	AMF7001
	8	Yoke	ANB7067
	9	Mecha Base	ANW7125
	10	Loading Tray	ANW7088
	11	Servo Base	ANW7089
	12	Rotary Tray	ANW7113
	13	Clamper	ANW7091
	14	Clamper Holder	ANW7092
	15	Main Cam	ANW7093
	16	Gear Pully	ANW7094
	17	Lock Lever	ANW7095
	18	Planet Gear	ANW7096
	19	Actuater	ANW7097
	20	• • • • •	
	21	15P F.F.C/30V	ADD7038
	22	Connector Assy (6P)	ADE7010
	23	Float Rubber A	AEB7063
	24	Float Rubber B	AEB7066
	25	Servo Mechanism Assy	AXA7039
	26	Screw	IPZ30P080FMC
	27	Carriage Motor	VXM1033
	28	Motor Pulley	PNW1634
	29	Ha Narl	GEM1016
	30	Cushion Rubber	XEB3003



● SERVO MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
	1	Servo Mechanism	AXA7039
	2	SPINDLE MOTOR Assy	AEA7009
	3	SLEAD MOTOR Assy	AEA7010
	4	Gear A	AEA7013
	5	Gear B	AEA7014
	6	Screw	AEA7015
	7	Screw	AEA7016
	8	Screw	AEA7017
	9	Screw	AEA7018
	10	Leaf Switch	AEA7011

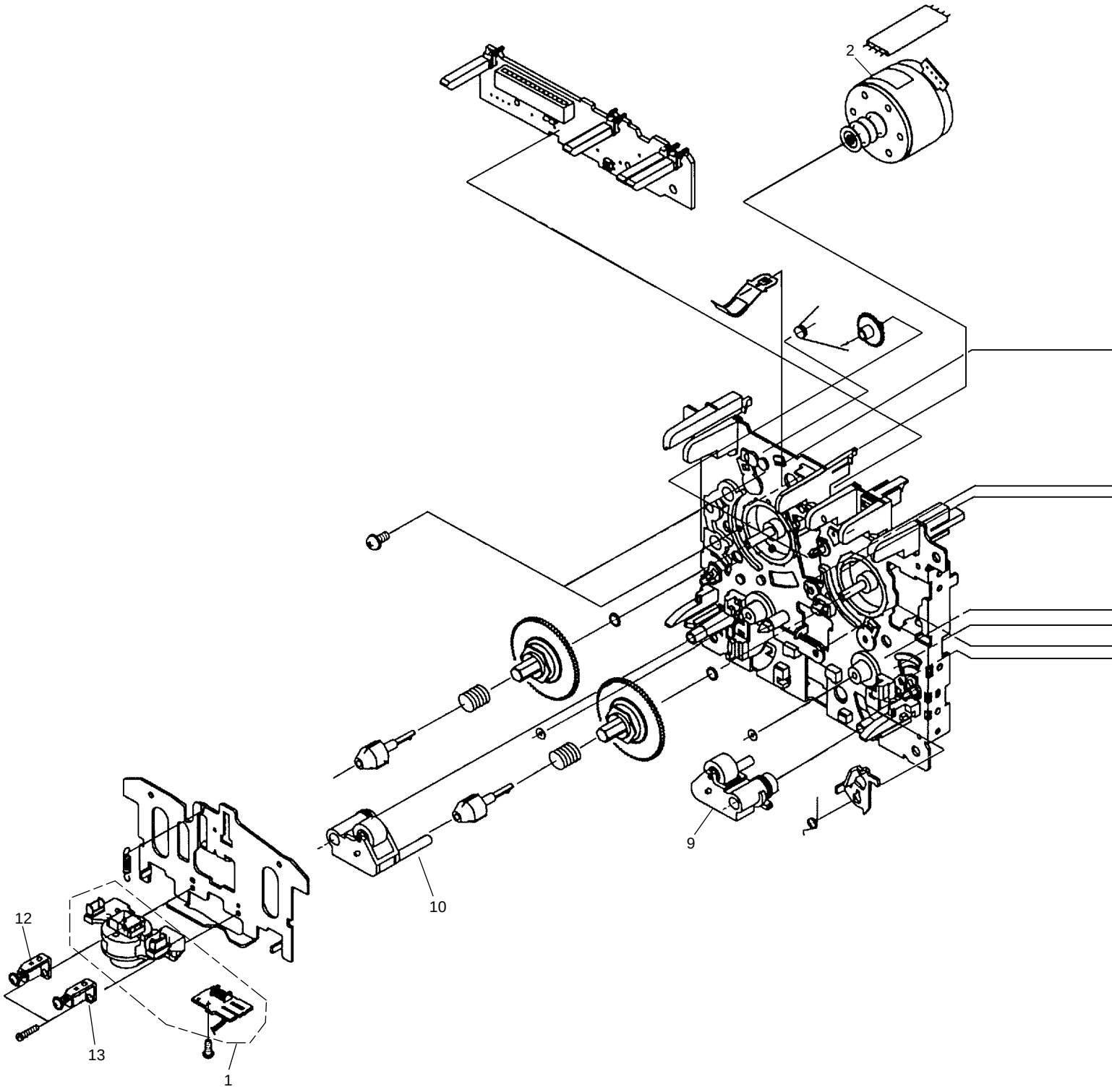
2.7 MD MECHANISM ASSY

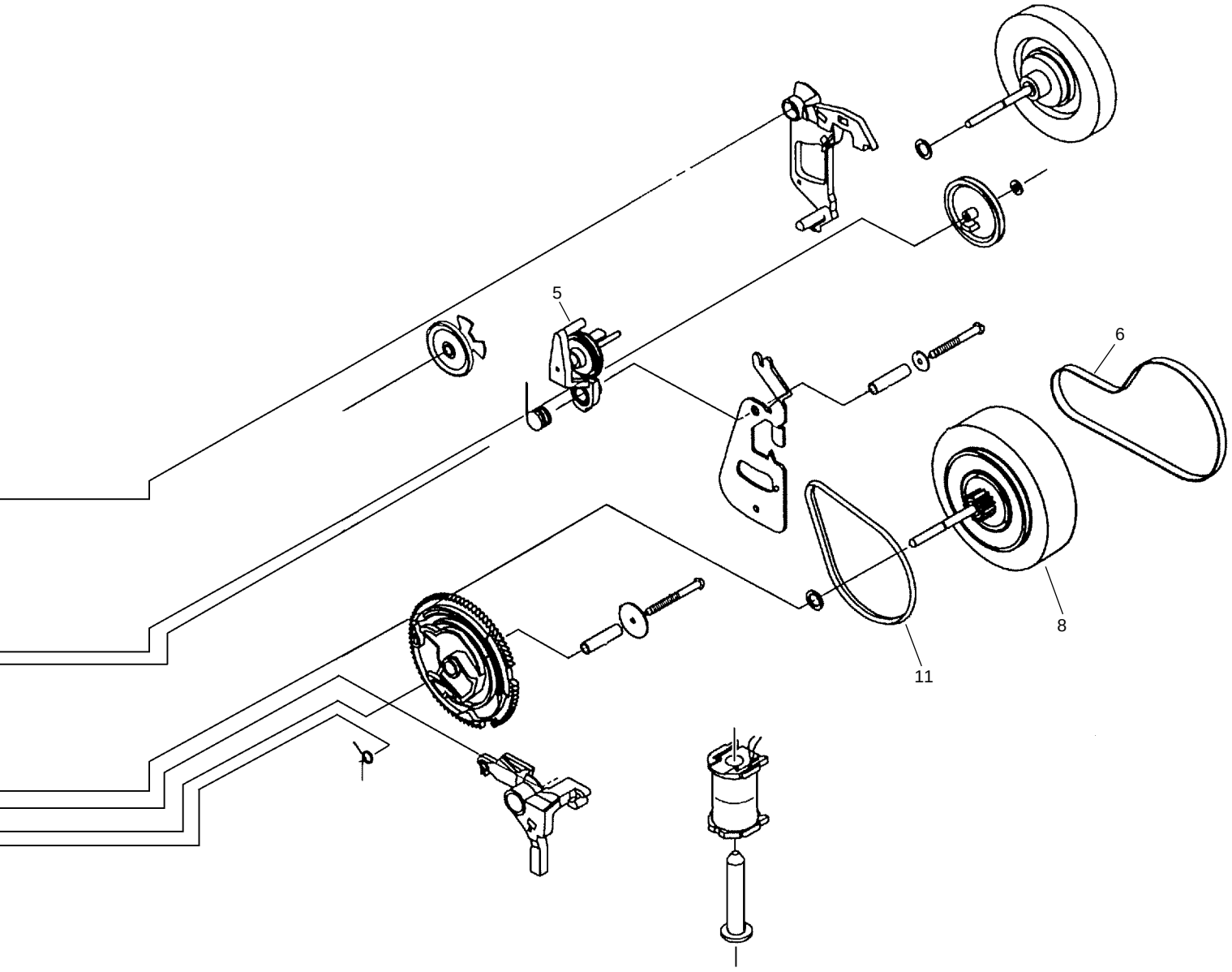


● MD MECHANISM ASSY PARTS LIST

Mark	No.	Description	Part No.
	1	Loading Gear Shaft	1242900108
	2	MD Guide (B)	1242000209
	3	Base Frame	1242000210
	4	Flat Cable 5P (CW1901)	1245120287
	5	Cartridge Holder	1242140138
	6	Cam Plate Lever	1242480122
	7	H/A Shift Arm	1242480123
	8	Holder Arm	1242480124
	9	Roller Arm Lever	1242480125
	10	Clamper Lever	1242480126
	11	Catch	1242480127
	12	Slider Lever	1242480128
	13	Roller Holder Spring	1242580157
	14	Spring	1242580159
	15	Shift Arm Spring	1242580053
	16	Holder Arm Spring	1242580054
	17	Rack Spring	1242580055
	18	Catch Spring	1242580094
	19	Spring (A)	1242580160
	20	Drive Shaft Spring	1242580161
	21	Roller Arm Spring	1242580093
	22	Loading Gear (B)	1242810063
	23	Drive Gear	1242810064
	24	Loading Gear (A)	1242810065
	25	Roller Gear	1242810066
	26	Rack Gear	1242810067
	27	Connector 2P (CN1903)	1245120288
	28	PWB-A (MD Main Assy)	1246840167
	29	Roller Holder	1242860001
	30	Transfer Roller	1242870014
	31	Drive Shaft	1242900105
	32	Pickup Guide Shaft	1242900040
	33	MD Guide (A)	1242000208
	34	Pickup Slide Shaft	1242900039
	35	Top Cover	1243230027
	36	Bottom Cover	1243230028
	37	Cushion (A)	1243260020
	38	Cushion (B)	1243260021
	39	Cushion	1243260097
	40	Magnet Head	1246100008
	41	Pickup	1246170019
	42	MD Flexible Cable (24P)	1245120301
	43	Connector Assy	1245120299
	44	• • • • •	
	45	Head Guard Sheet	1244030163
	46	Drive Chassis	1242070047
	47	PWB-B (MD Mechanism Switch Assy)	1245210149
	48	Push Switch (SW1956)	1245300025
	49	Push Switch (SW1954)	1245300026
	50	Push Switch (SW1955)	1245300026
	51	Push Switch (SW1952)	1245300027
	52	Slide Switch (SW1953)	1305301315
	53	Spindle Motor (M901)	1246300048
	54	Sled Motor (M902)	1246300049
	55	Loading Motor (M903)	1246300050
	56	• • • • •	
	57	Screw	1249700161
	58	Screw	1249700162
	59	Screw	1249700163
	60	Screw	1249700061
	61	Screw	1249700065
	62	Screw	1249700076
	63	Screw	1249700108
	64	Washer	1249900005
	65	Washer	1249900006
	66	Screw	1189700020
	67	Screw	1249700077
	68	Screw	1249700011

2.8 MECHANISM UNIT



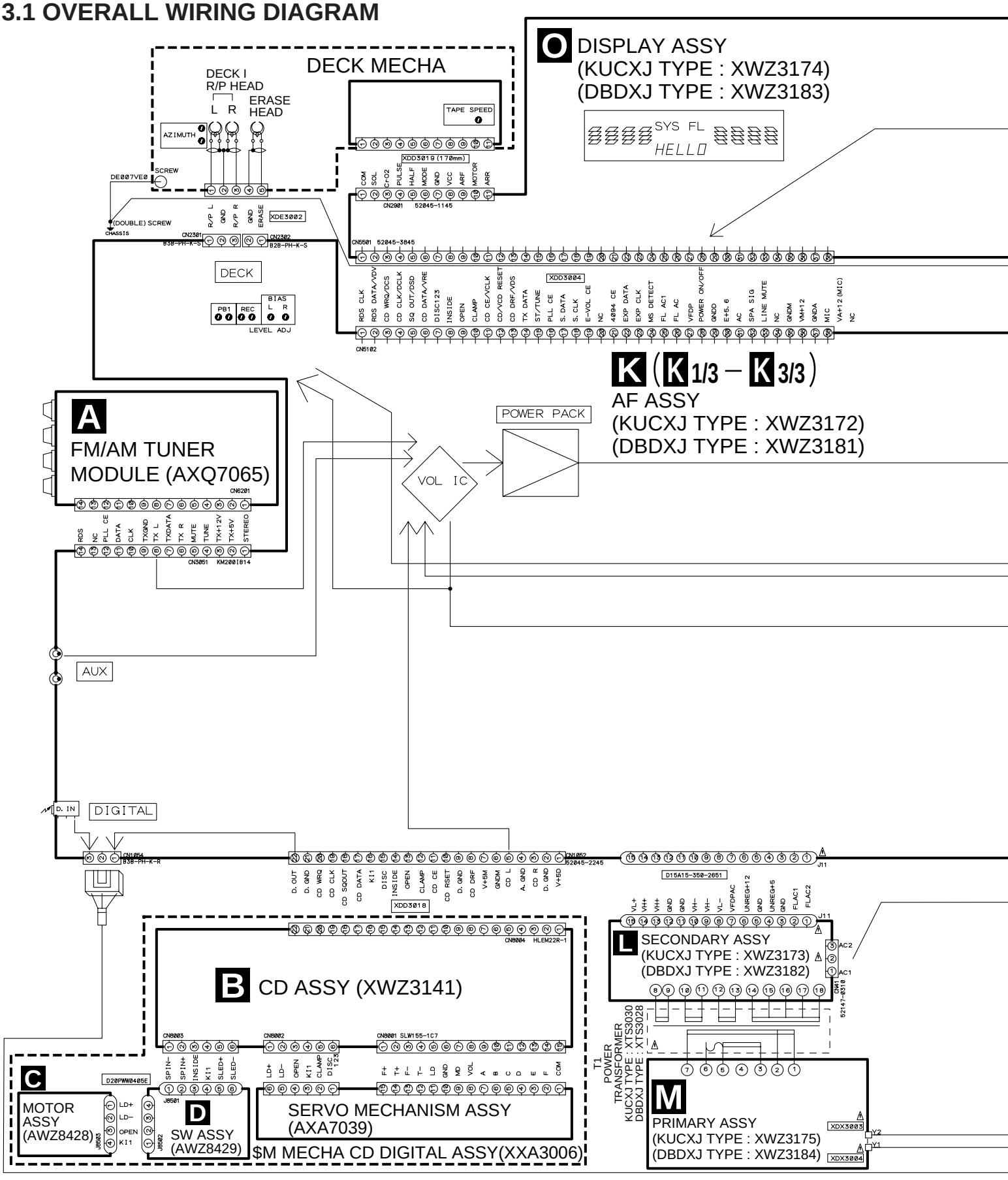


● MECHANISM UNIT PARTS LIST

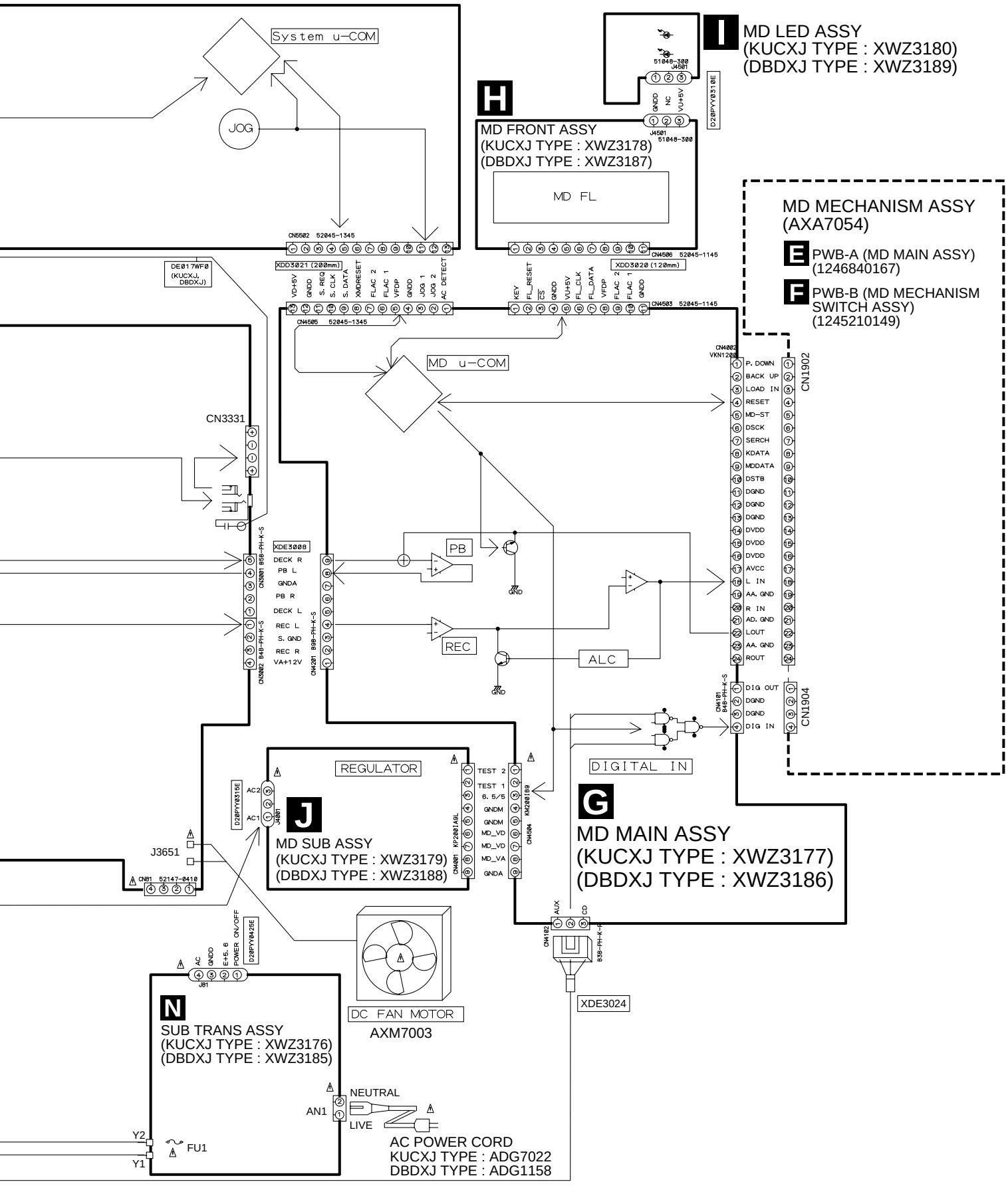
Mark	No.	Description	Part No.
	1	Plate HD BLK	F513-811
	1	Plate HD BLK	F513-825
	2	Motor Main BLK	F525-324
	3	• • • • •	
	4	• • • • •	
	5	Clutch Assy BLK	F522-037
	6	Main Belt	FF17G-31
	7	• • • • •	
	8	Clutch Assy BLK	F522-045
	9	Roller Pinch BLK R	F514-129
	10	Roller Pinch BLK L	F514-130
	11	F/R Belt	FF18W-12
	12	Plate Base BLK	F512-127
	13	Plate Base BLK	F512-128

3. SCHEMATIC DIAGRAM

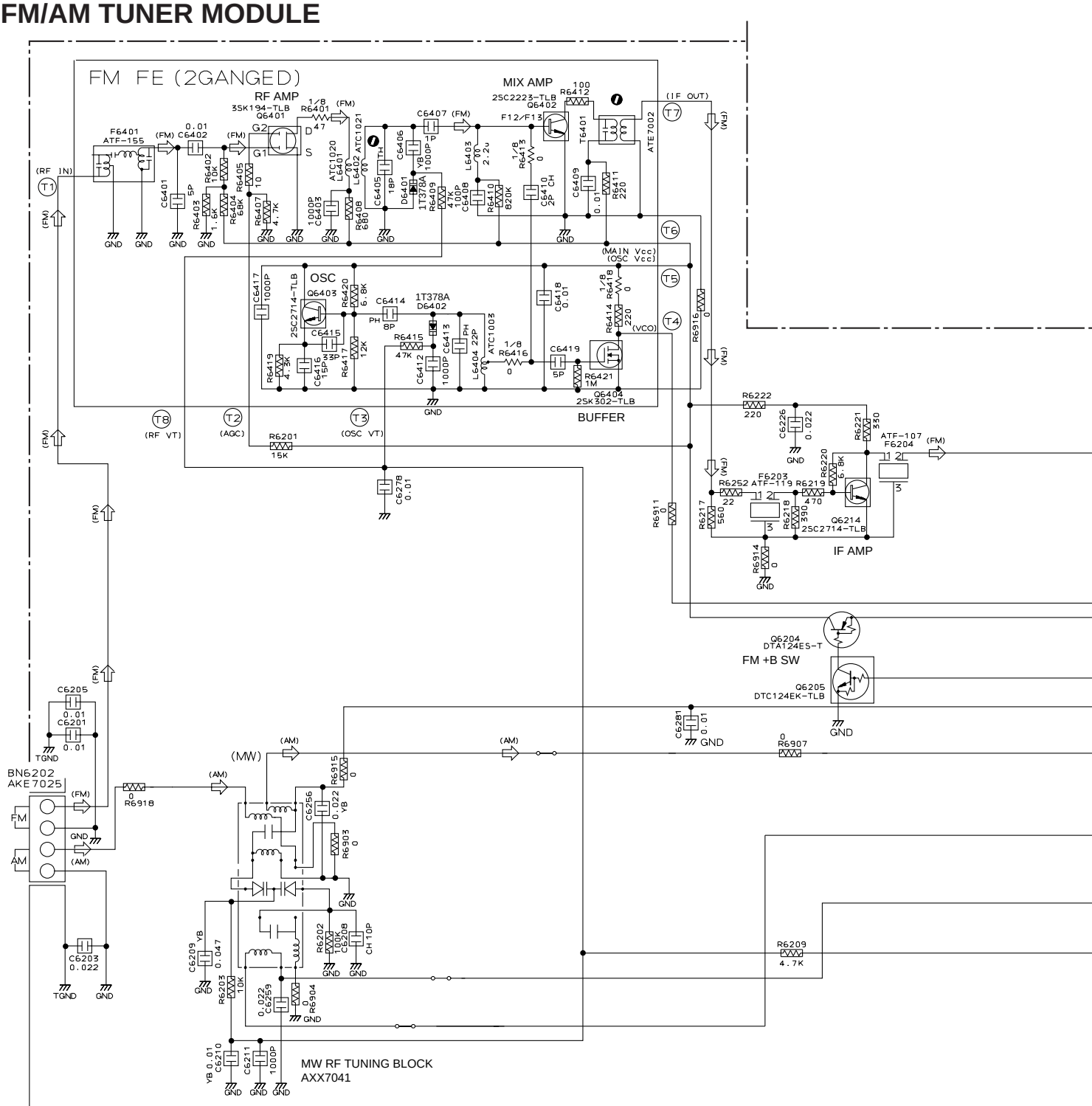
3.1 OVERALL WIRING DIAGRAM



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



3.2 FM/AM TUNER MODULE



A FM/AM TUNER MODULE
(AXQ7065)

SIGNAL ROUTE

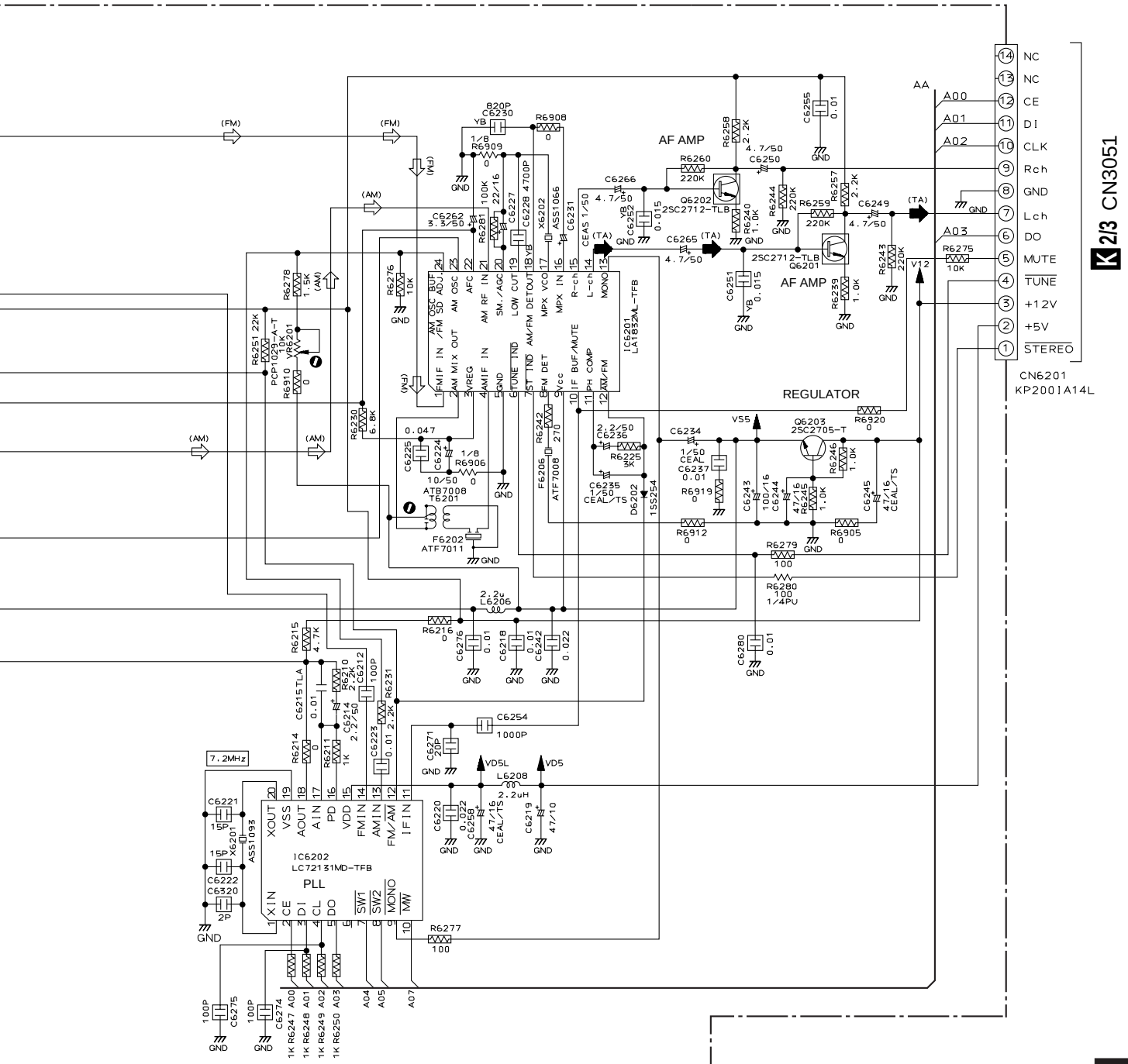
(AM) : AM SIGNAL ROUTE

(FM) : FM SIGNAL ROUTE

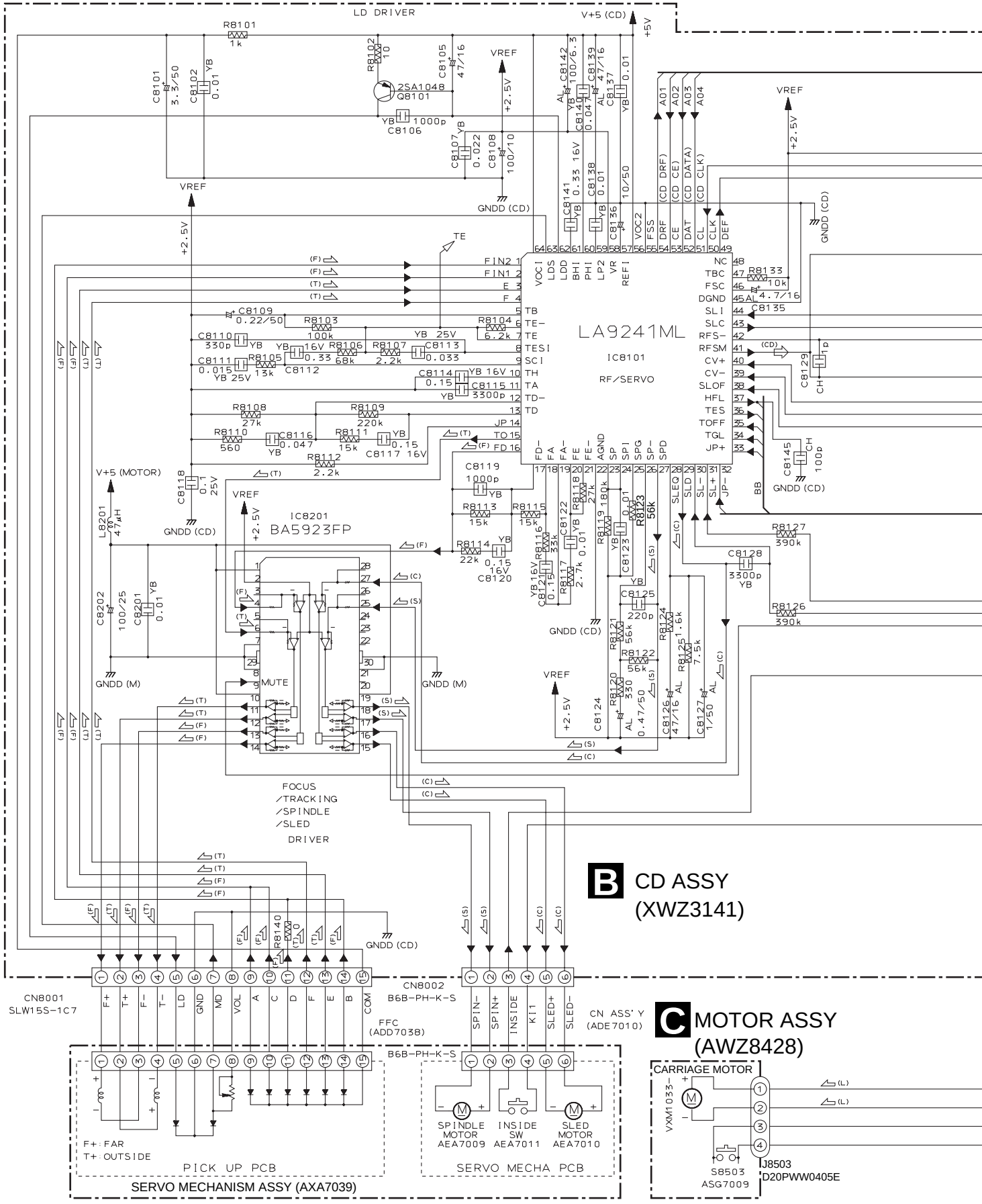
(TA) : TUNER AUDIO SIGNAL ROUTE

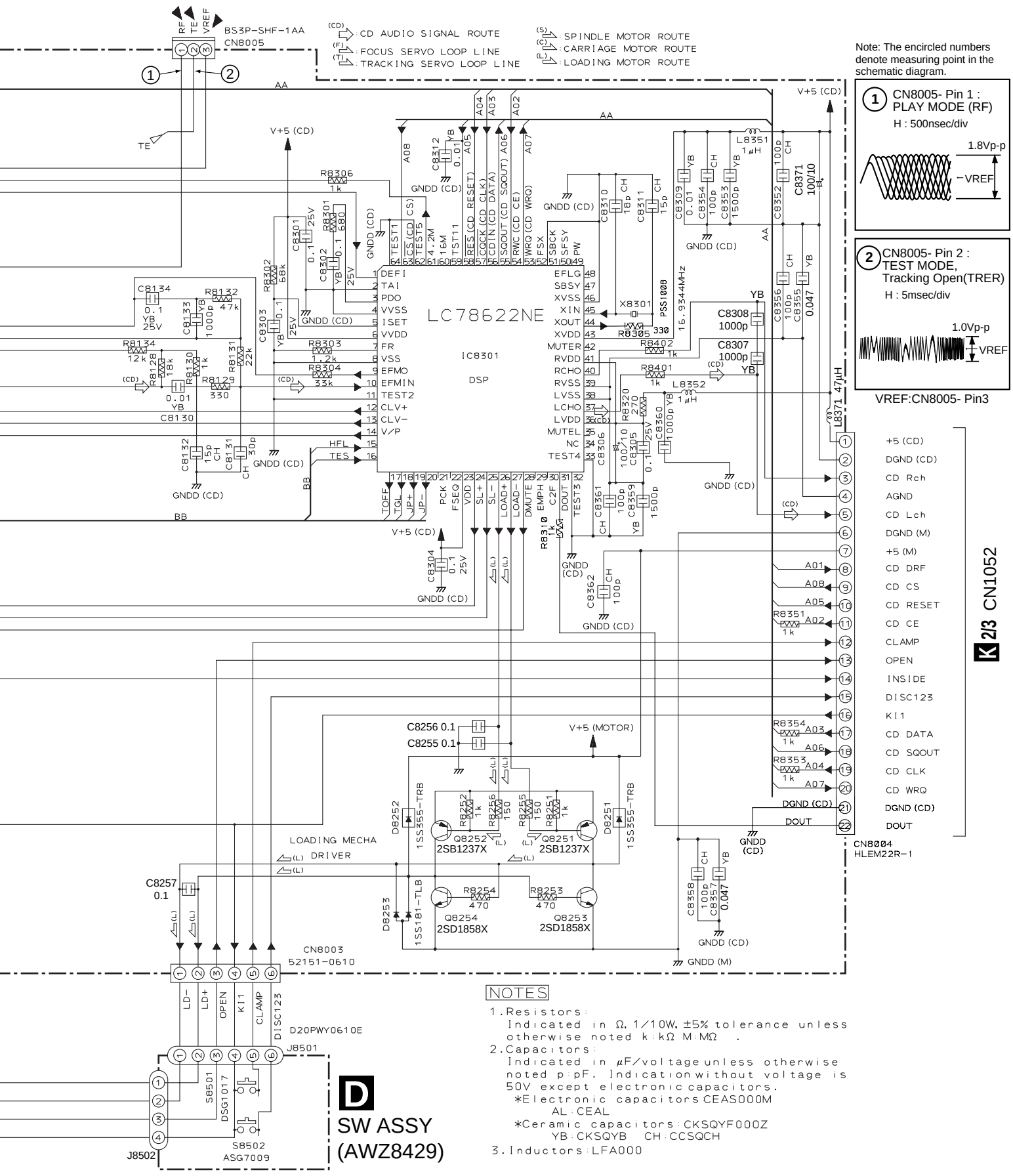
Notes

1. RESISTORS
   Indicated in Ω, 1/10W±5% Tolerance unless otherwise noted K:KΩ, M:MΩ.
2. CAPACITORS
   Indicated in Capacity(μF)/VOLTAGE(V) unless otherwise noted P:PF.
3. DIODES
   No mark diode is 1SS254.



3.3 CD, MOTOR and SW ASSEMBLIES





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

1 CN8005- Pin 1 : PLAY MODE (RF)
H : 500nsec/div

2 CN8005- Pin 2 : TEST MODE, Tracking Open(TRER)
H : 5msec/div

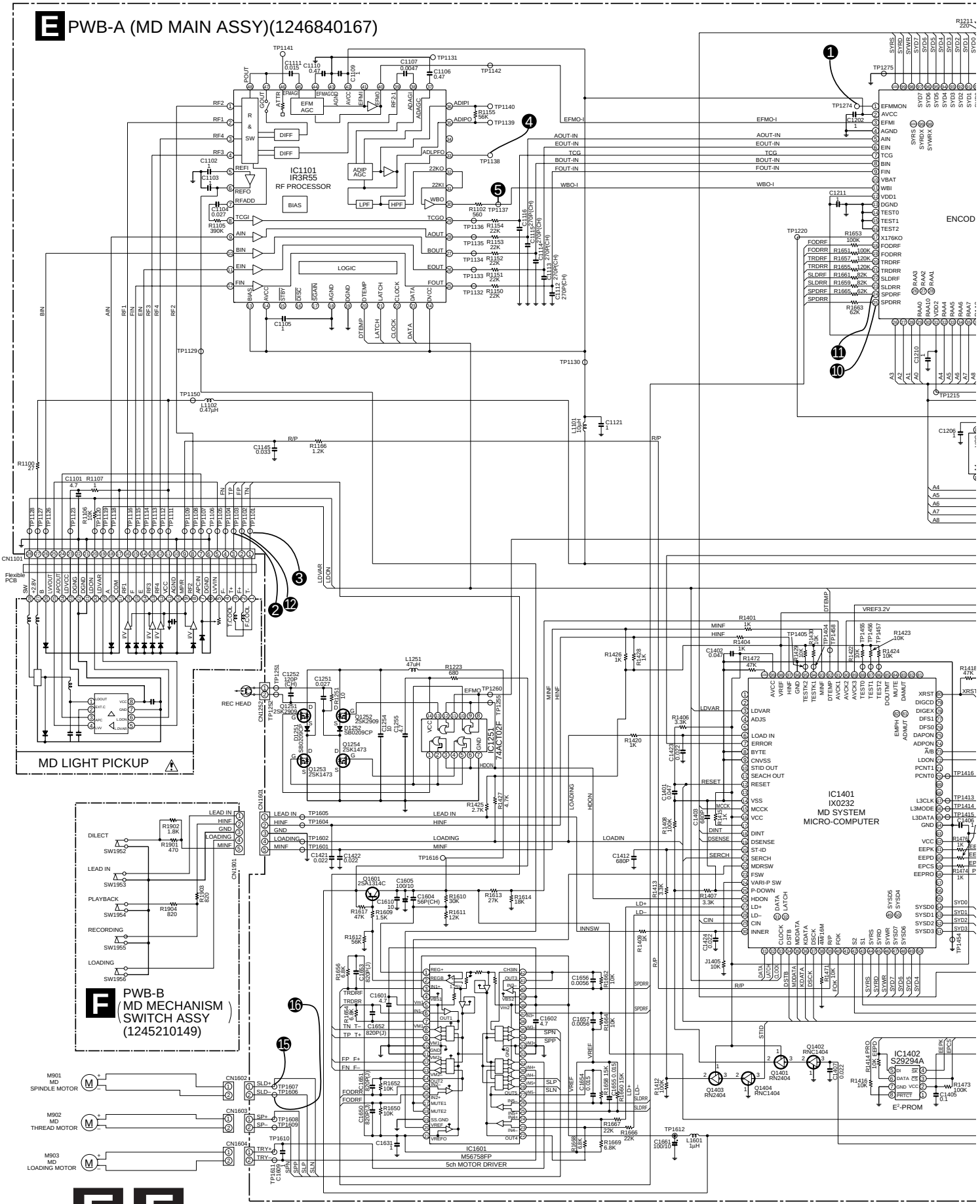
VREF:CN8005- Pin3

NOTES

1. Resistors:
   Indicated in Ω, 1/10W, ±5% tolerance unless otherwise noted k:kΩ M:MΩ .
2. Capacitors:
   Indicated in μF/voltage unless otherwise noted p:pF. Indication without voltage is 50V except electronic capacitors.
   *Electronic capacitors CEAS000M
   AL:CEAL
   *Ceramic capacitors:CKSQYF000Z
   YB:CKSQYB CH:CCSQCH
3. Inductors:LFA000

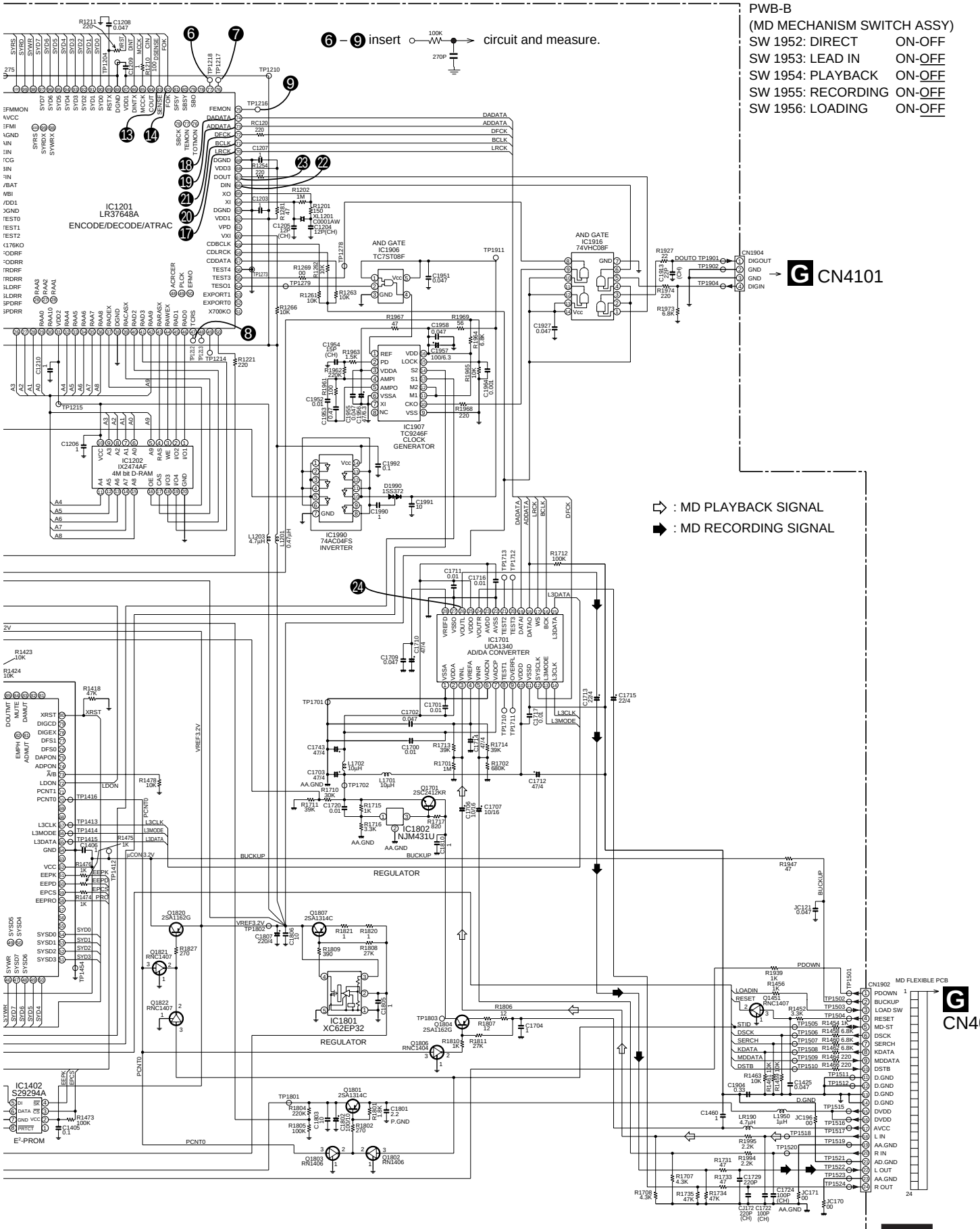
D SW ASSY (AWZ8429)

3.4 PWB-A (MD MAIN ASSY) and PWB-B (MD MECHANISM SWITCH ASSY)



● For details regarding schematic diagram caution items, refer to page 24.

PWB-B
(MD MECHANISM SWITCH ASSY)
SW 1952: DIRECT ON-OFF
SW 1953: LEAD IN ON-OFF
SW 1954: PLAYBACK ON-OFF
SW 1955: RECORDING ON-OFF
SW 1956: LOADING ON-OFF



● ❶ –㉔ are waveform Nos. on page 25 and 26.

■ Voltages of PWB-A (MD MAIN ASSY)

Q1801	
PIN NO.	VOLTAGE
E	5V
C	5V
B	43V

Q1802	
PIN NO.	VOLTAGE
E	0V
C	0V
B	0.15V

Q1803	
PIN NO.	VOLTAGE
E	0V
C	0V
B	3.1V

Q1807	
PIN NO.	VOLTAGE
E	3.95V
C	3.2V
B	3.3V

Q1820	
PIN NO.	VOLTAGE
E	3.2V
C	3.18V
B	2.4V

Q1821	
PIN NO.	VOLTAGE
E	0V
C	0V
B	3.08V

Q1822	
PIN NO.	VOLTAGE
E	0V
C	0V
B	0.1V

Q1451	
PIN NO.	VOLTAGE
E	0V
C	3.18V
B	0.1V

Q1401	
PIN NO.	VOLTAGE
E	3.2V
C	3.2V
B	0V

Q1402	
PIN NO.	VOLTAGE
E	0V
C	0V
B	2.3V

Q1403	
PIN NO.	VOLTAGE
E	3.18V
C	0V
B	3.15V

IC1907	
PIN NO.	VOLTAGE
1	2.8V
2	2.6V
3	4.9V
4	2.6V
5	1.6V
6	0V
7	0V
8	4.9V
9	0V
10	2.2V
11	5V
12	5V
13	0V
14	3.2V
15	3.1V
16	5V

IC1990	
PIN NO.	VOLTAGE
1	1.45V
2	1.7V
3	1.45V
4	1.7V
5	1.45V
6	1.7V
7	0V
8	1.7V
9	1.45V
10	1.37V
11	1.7V
12	1.37V
13	1.7V
14	3.17V

IC1202	
PIN NO.	VOLTAGE
1	1.1V
2	1.1V
3	3V
4	2V
5	1.5V
6	1.8V
7	0.8V
8	2.4V
9	1.2V
10	3.2V
11	1.2V
12	2.5V
13	1.3V
14	1.7V
15	1.3V
16	2.2V
17	2.4V
18	1.2V
19	1.1V
20	0V

IC1101	
PIN NO.	VOLTAGE
1	0.7V
2	0.7V
3	0.7V
4	0.7V
5	1.6V
6	1.6V
7	0.7V
8	1.6V
9	1.6V
10	1.6V
11	1.6V
12	1.6V
13	3.2V
14	3.2V
15	0V
16	Groove:3.2V Pit:0V
17	Low-reflectance: 0V High-reflectance: 3.2V
18	0V
19	0V
20	1.45V
21	3.2V
22	0V
23	0V
24	3.2V
25	1.78V
26	1.78V
27	1.35V
28	1.36V
29	1.6V
30	1.6V
31	1.6V
32	1.6V
33	1.6V
34	0V
35	1.6V
36	1.6V
37	0.3V
38	1.6V
39	1.6V
40	1.6V
41	1.6V
42	3.2V
43	0V
44	1V
45	1.6V
46	1.6V
47	0.7V
48	0.7V

Q1404	
PIN NO.	VOLTAGE
E	0V
C	3.15V
B	2.1V

Q1601	
PIN NO.	VOLTAGE
E	5.45V
C	4.4V
B	4.8V

IC1201			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	1.48V	51	58V
2	0V	52	0V
3	1.6V	53	0V
4	0V	54	58V
5	1.36V	55	0V
6	1.77V	56	0V
7	1.6V	57	3.2V
8	1.36V	58	3.2V
9	1.77V	59	3.2V
10	1.25V	60	3.17V
11	1.6V	61	0V
12	3.17V	62	3.17V
13	0V	63	0V
14	0V	64	1.3V
15	0V	65	1.3V
16	0V	66	DIC input:1.58V Other:0V
17	1.45V		
18	1.56V	67	1.58V
19	1.62V	68	3.17V
20	1.7V	69	0V
21	1.5V	70	1.5V
22	1.63V	71	1.55V
23	1.53V	72	1.5V
24	1.8V	73	0V
25	1.4V	74	1V
26	1.2V	75	1.55V
27	2.5V	76	1.8V
28	0.8V	77	1.56V
29	1.8V	78	0V
30	1.4V	79	0V
31	3.2V	80	3.16V
32	1.2V	81	0V
33	2.5V	82	0V
34	1.3V	83	0V
35	1.7V	84	1.5V
36	1.3V	85	1.5V
37	2.2V	86	3.1V
38	0V	87	3.17V
39	2.4V	88	0V
40	1.2V	89	3.17V
41	1.1V	90	0.5V
42	1.5V	91	0.6V
43	2V	92	0.4V
44	3V	93	0.4V
45	1.1V	94	0.4V
46	1.1V	95	0.9V
47	0V	96	0.7V
48	3V	97	0.8V
49	1.56V	98	3.16V
50	PLAY:0V REC:1.5V	99	3.15V
		100	0V

IC1801	
PIN NO.	VOLTAGE
1	0V
2	44V
3	3.2V
4	3.1V
5	0V

IC1901	
PIN NO.	VOLTAGE
1	5.5V
2	1.6V
3	0V
4	2.8V
5	5.5V

IC1401			
PIN NO.	VOLTAGE	PIN NO.	VOLTAGE
1	0V	51	0V
2	0V	52	0V
3	0.2V	53	0V
4	3.2V	54	0V
5	0V	55	0V
6	0V	56	0V
7	3.1V	57	0V
8	0V	58	0V
9	0V	59	3.2V
10	0V	60	0V
11	0V	61	3.2V
12	3.18V	62	3.2V
13	144V	63	0V
14	0V	64	0V
15	1.5V	65	3.2V
16	3.2V	66	3.2V
17	3.2V	67	3.2V
18	3.1V	68	0V
19	0V	69	0V
20	0V	70	3.1V
21	0V	71	0V
22	3.15V	72	3.1V
23	3.2V	73	97A:0V 97B:3.2V
24	0V		
25	3.2V	74	0V
26	3.2V	75	3.2V
27	0V	76	3.2V
28	0V	77	0V
29	2V	78	0V
30	3.2V	79	0V
31	0V	80	3.15V
32	3.2V	81	0V
33	0V	82	0V
34	0.8V	83	3.2V
35	2.2V	84	3.2V
36	0.2V	85	3.2V
37	2.3V	86	3.2V
38	0V	87	3.2V
39	PLAY:3.15V REC:0V	88	3.2V
		89	1.7V
40	0V	90	1.8V
41	0V	91	1.8V
42	0V	92	1.4V
43	3.2V	93	Low-reflectance: 2.2V High-reflectance: 0.1V
44	0V		
45	0V		
46	3.15V		
47	0V	94	3.2V
48	0V	95	3.2V
49	0V	96	0V
50	0V	97	2V
		98	3.2V
		99	3.2V
		100	0V

IC1601	
PIN NO.	VOLTAGE
1	1.25V
2	4V
3	1.5V
4	5.5V
5	5.5V
6	1.5V
7	5V
8	2.7V
9	2.8V
10	0V
11	0V
12	2.7V
13	2.76V
14	1.6V
15	1.6V
16	1.6V
17	3.15V
18	3.15V
19	0V
20	1.6V
21	1.6V
22	1.6V
23	1.23V
24	1.23V
25	1.6V
26	1.6V
27	1.62V
28	2.7V
29	2.8V
30	2.7V
31	2.7V
32	0V
33	0V
34	3.0V
35	2.4V
36	0V
37	1.64V
38	5.5V
39	5.5V
40	1.64V
41	1.68V
42	1.68V

IC1251	
PIN NO.	VOLTAGE
1	2.6V
2	2.6V
3	0.1V
4	2.6V
5	2.6V
6	0.1V
7	0V
8	1.56V
9	0.1V
10	2.6V
11	1.56V
12	0.1V
13	2.6V
14	5.2V

Q1251	
PIN NO.	VOLTAGE
D	4.4V
S	1.4V
G	2.6V

Q1252	
PIN NO.	VOLTAGE
D	4.4V
S	1.4V
G	2.6V

Q1253	
PIN NO.	VOLTAGE
D	15V
S	0V
G	2.6V

Q1254	
PIN NO.	VOLTAGE
D	15V
S	0V
G	2.6V

IC1701	
PIN NO.	VOLTAGE
1	0V
2	3.2V
3	1.4V
4	1.5V
5	1.4V
6	0V
7	3.2V
8	0V
9	0V
10	3.2V
11	0V
12	1.5V
13	3.17V
14	3.17V
15	3.17V
16	1.55V
17	3.17V
18	0V
19	1V
20	0V
21	0V
22	0V
23	3.2V
24	1.57V
25	3.2V
26	1.57V
27	0V
28	1.6V

IC1916	
PIN NO.	VOLTAGE
1	1.58V
2	3.2V
3	1.58V
4	3.2V
5	DIG input:2.2V Other:0V
6	DIG input:1.58V Other:0V
7	1.55V
8	2.2V
9	3.2V
10	3.2V
11	97A:3.2V 97B:1V
12	97A:3.2V 97A:0.9V

Q1804	
PIN NO.	VOLTAGE
E	5.4V
C	5.4V
B	4.8V

Q1805	
PIN NO.	VOLTAGE
E	0V
C	0.7V
B	3.1V

Q1701	
PIN NO.	VOLTAGE
E	3.2V
C	5.4V
B	3.85V

IC1802	
PIN NO.	VOLTAGE
1	2.46V
2	0V
3	3.85V

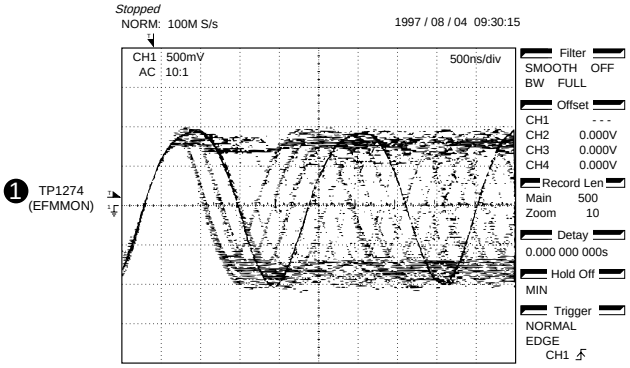
IC1402	
PIN NO.	VOLTAGE
1	0V
2	3.2V
3	3.2V
4	3.2V
5	0V
6	0V
7	0V
8	0V

■ NOTES FOR SCHEMATIC DIAGRAMS

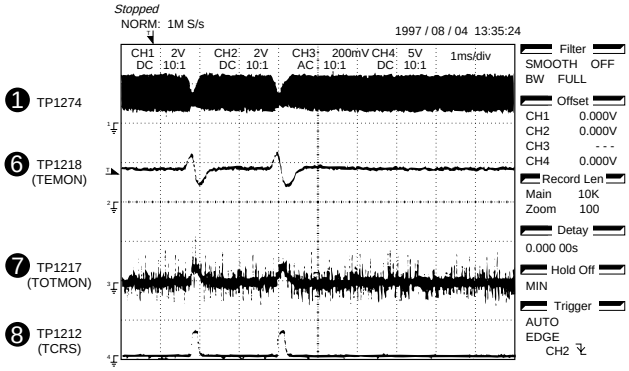
- Resistance values unless otherwise specified are in Ω. "K" means 1000Ω, and "M" means 1000kΩ.
- Capacitors unless otherwise specified are in μF. "P" is an abbreviation for pF.
- Capacitors indicated as (CH), (RH), (TH), (UJ), (CK), etc. are ceramic tempetature compensation types. Capacitors indicated as (ML) are Mylar type.
- For electrolytic capacitors, indication is in the order of capacity and voltage resistance.
- Parts indicated with the ⚠ mark (⚠ mark) are important for safety reasons. Be sure to use the designated parts for replacement in order to ensure safety and performance.
- Voltage value indicated in each part is without signal, as measured with a digital multimeter.
- The schematic and PCB diagrams are subject to change for improved performance. Thus, they may be slightly different, depending on the set.

WAVEFORMS

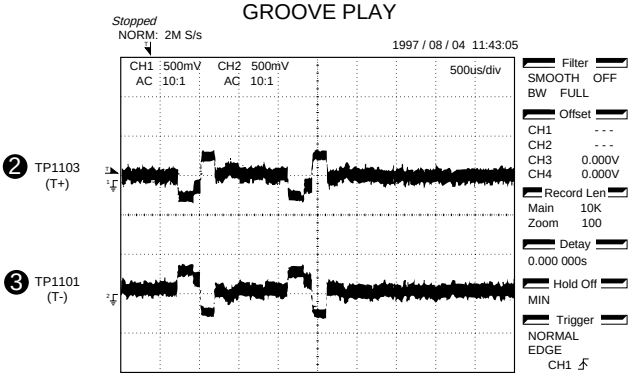
PLAY STATUS



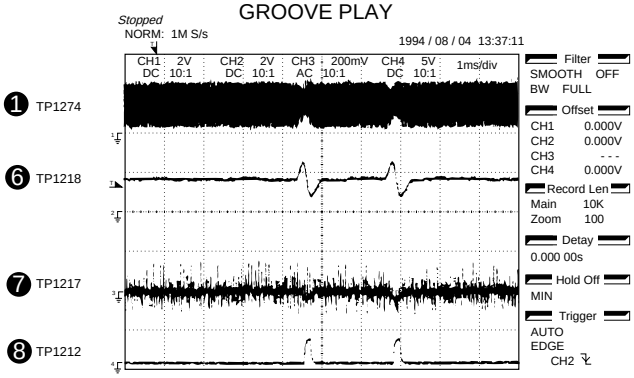
PIT PLAY



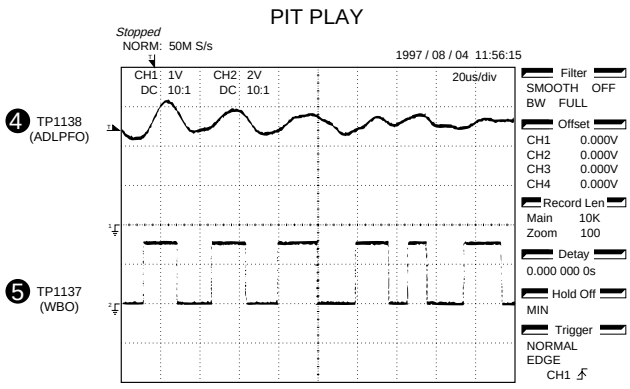
GROOVE PLAY



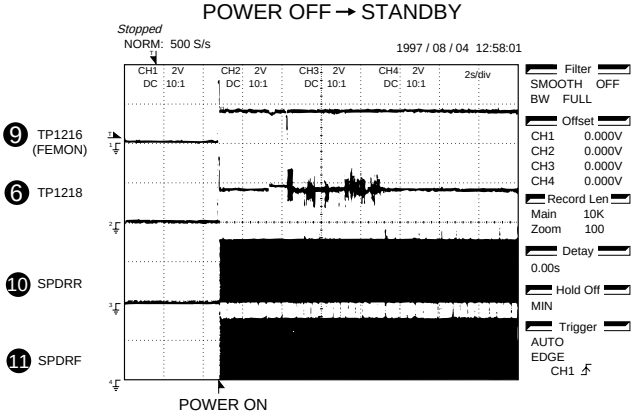
GROOVE PLAY



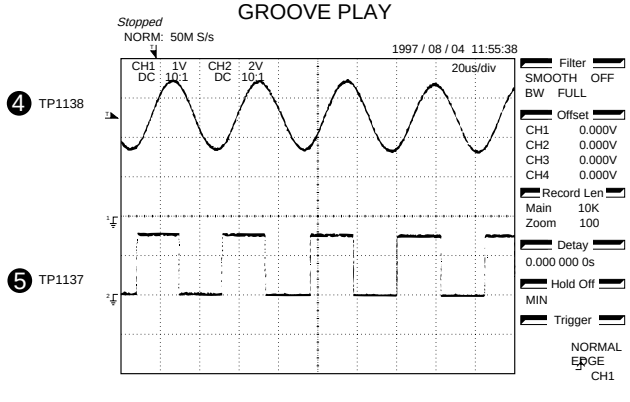
PIT PLAY



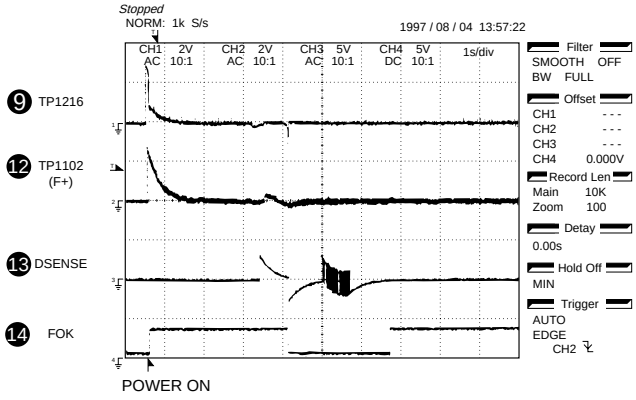
POWER OFF → STANDBY

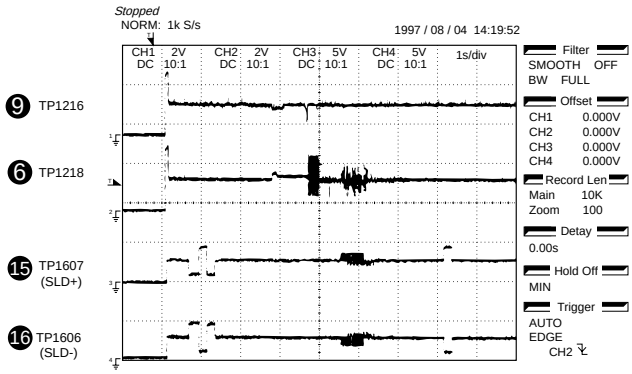


GROOVE PLAY

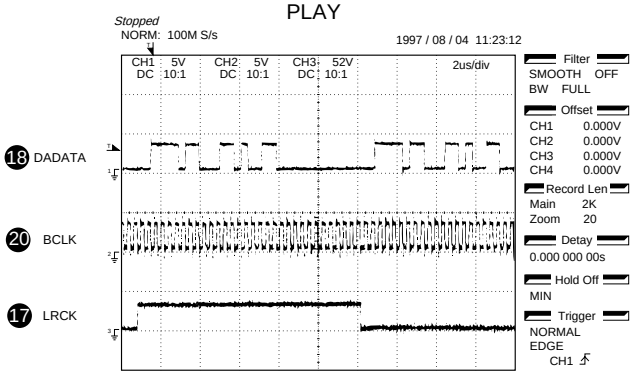


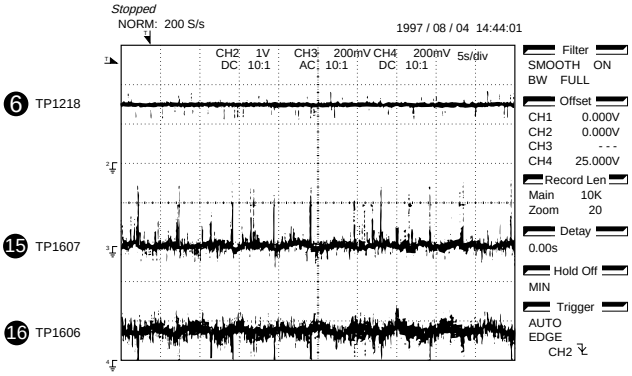
POWER OFF → STANDBY



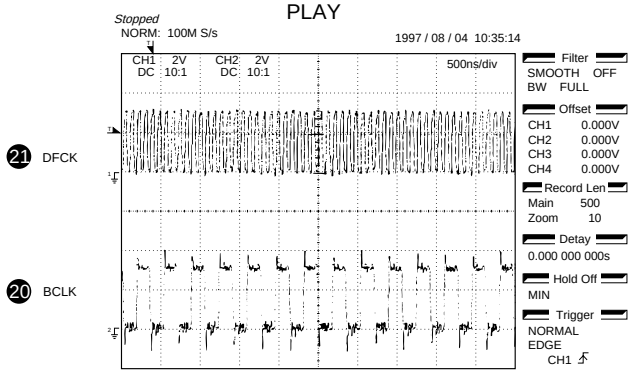


PLAY

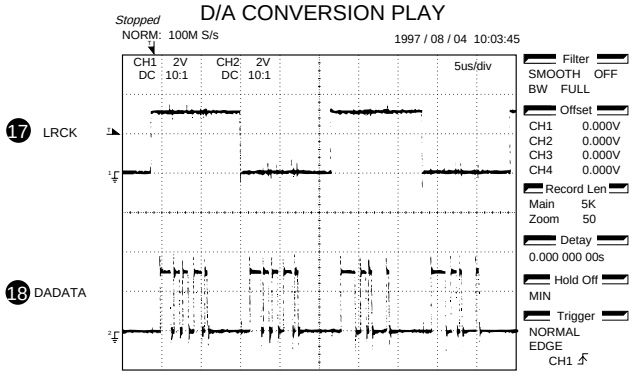




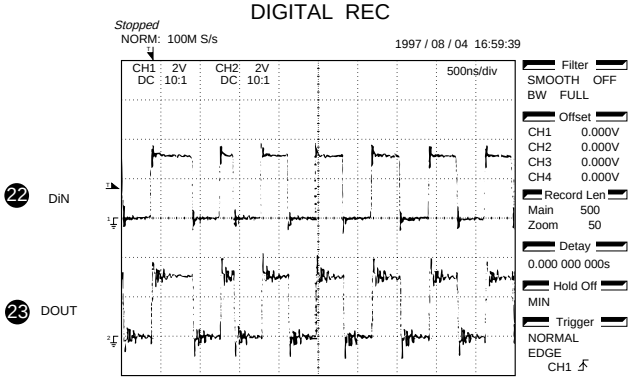
PLAY



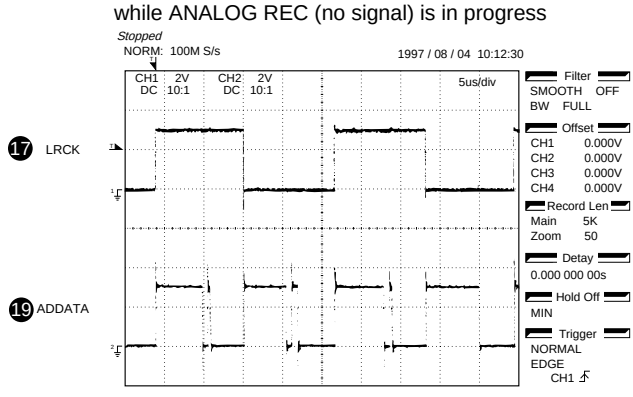
D/A CONVERSION PLAY



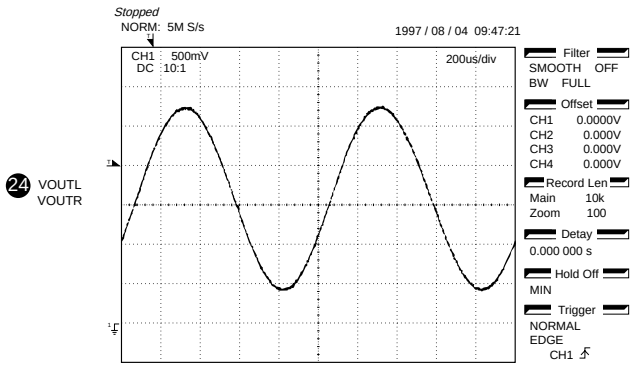
DIGITAL REC



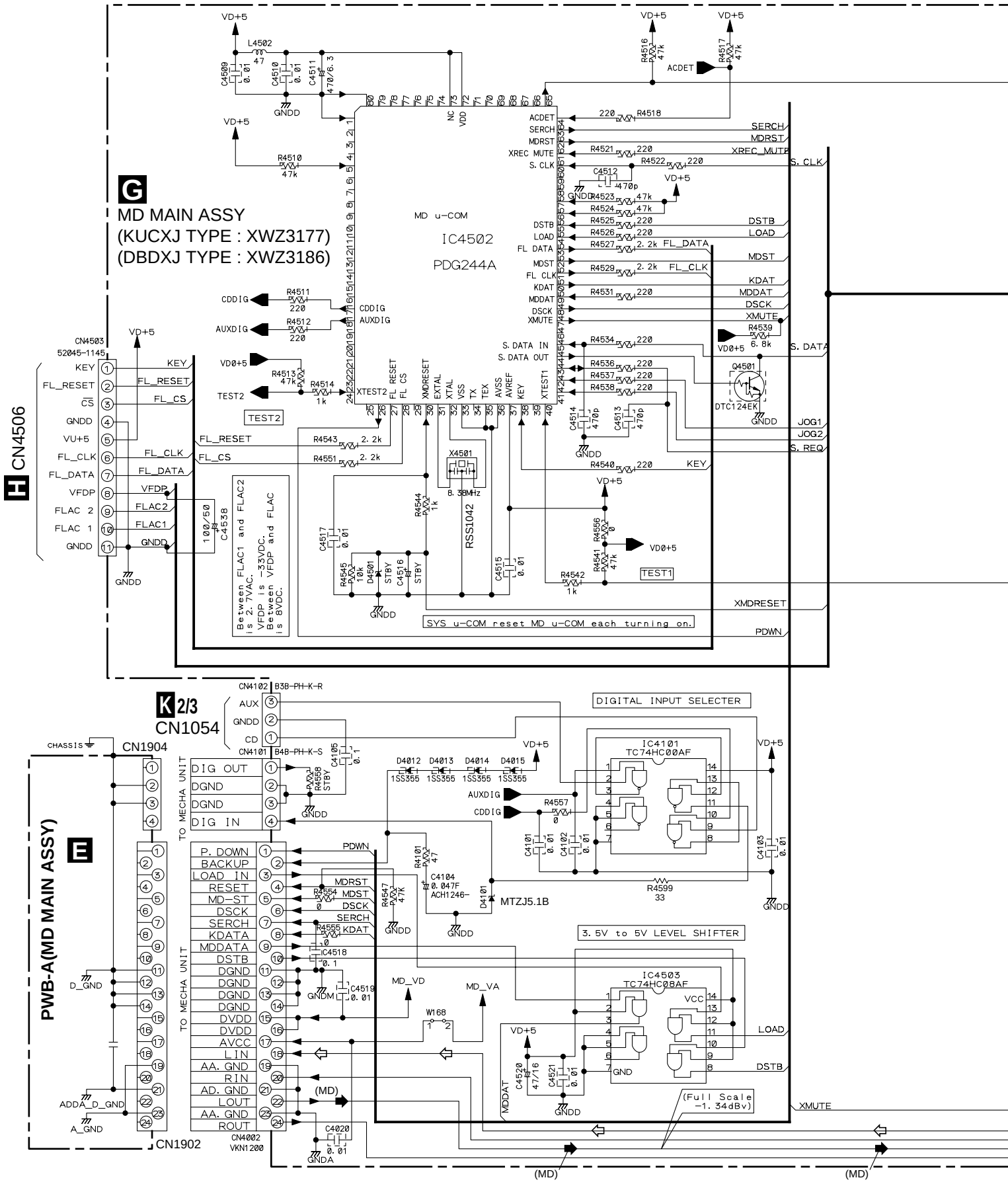
A/D CONVERSION
while ANALOG REC (no signal) is in progress

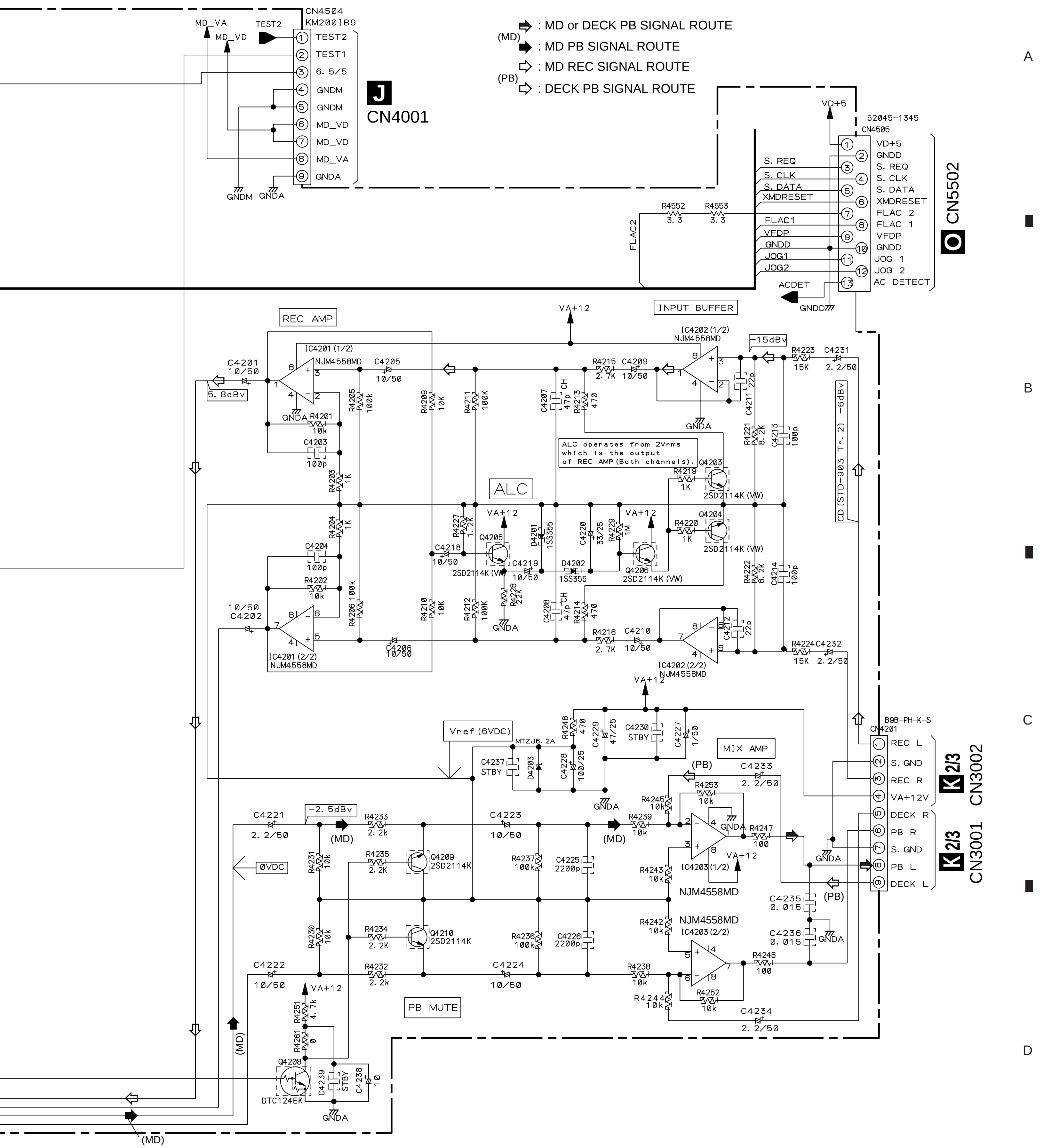


1 kHz 0dB Sine Wave PLAY

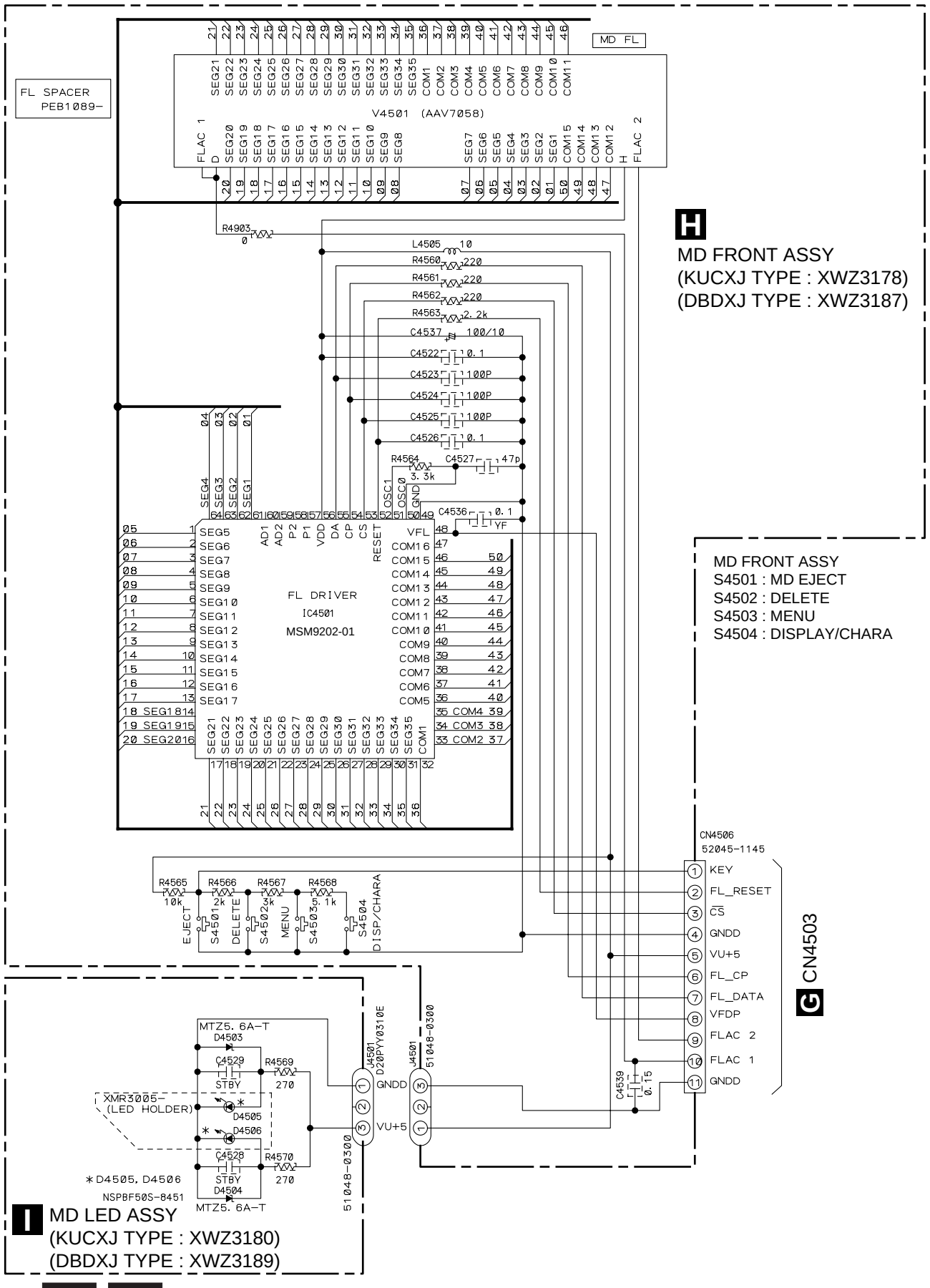


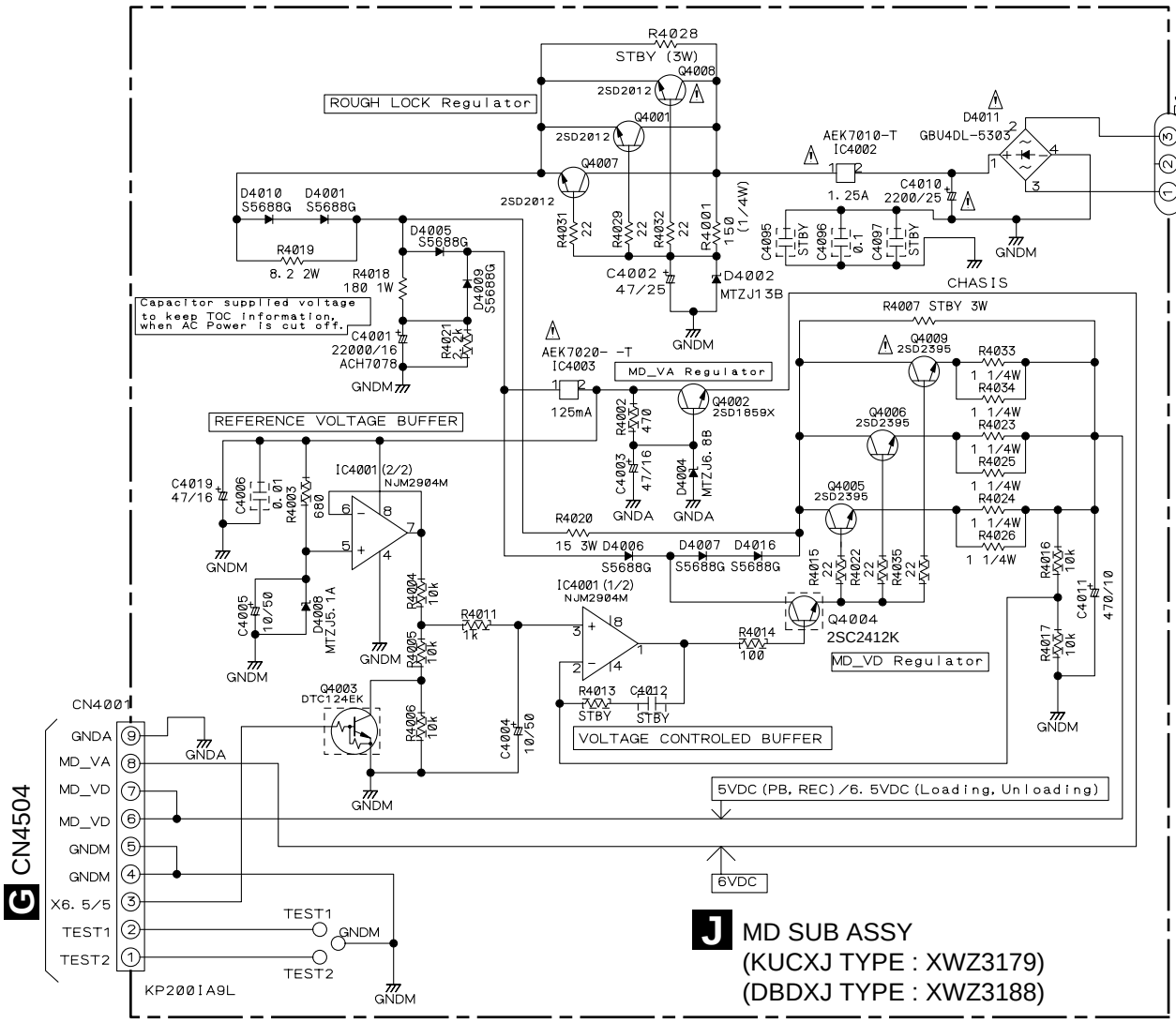
3.5 MD MAIN ASSY




: MD or DECK PB SIGNAL ROUTE
(MD) : MD PB SIGNAL ROUTE
: MD REC SIGNAL ROUTE
(PB) : DECK PB SIGNAL ROUTE
CN4504
KM200IB9
TEST2
TEST1
6. 5/5
GNDM
MD_VD
MD_VA
GNDA
J
CN4001
52045-1345
CN4505
VD+5
GNDD
S. REQ
S. CLK
S. DATA
XMDRESET
FLAC 2
FLAC 1
VFDP
JOG 1
JOG 2
AC DETECT
ACDET
O
CN5502
REC AMP
INPUT BUFFER
IC4201(1/2)
NJM4558MD
IC4202(1/2)
NJM4558MD
5. 8dBv
-15dBv
CD(STD-903 Tr. 2) -6dBv
ALC operates from 2Vrms which is the output of REC AMP(Both channels).
ALC
Q4203
2SD2114K(VW)
Q4204
2SD2114K(VW)
Q4205
Q4206
2SD2114K(VW)
IC4201(2/2)
NJM4558MD
IC4202(2/2)
NJM4558MD
Vref(6VDC)
MTZJ6. 2A
MIX AMP
B9B-PH-K-S
CN4201
REC L
S. GND
REC R
VA+12V
DECK R
PB R
S. GND
PB L
DECK L
K 2/3
CN3002
K 2/3
CN3001
-2. 5dBv
0VDC
Q4209
2SD2114K
Q4210
2SD2114K
IC4203(1/2)
NJM4558MD
NJM4558MD
IC4203(2/2)
PB MUTE
Q4208
DTC124EK
GNDA

3.6 MD FRONT, MD LED and MD SUB ASSEMBLIES





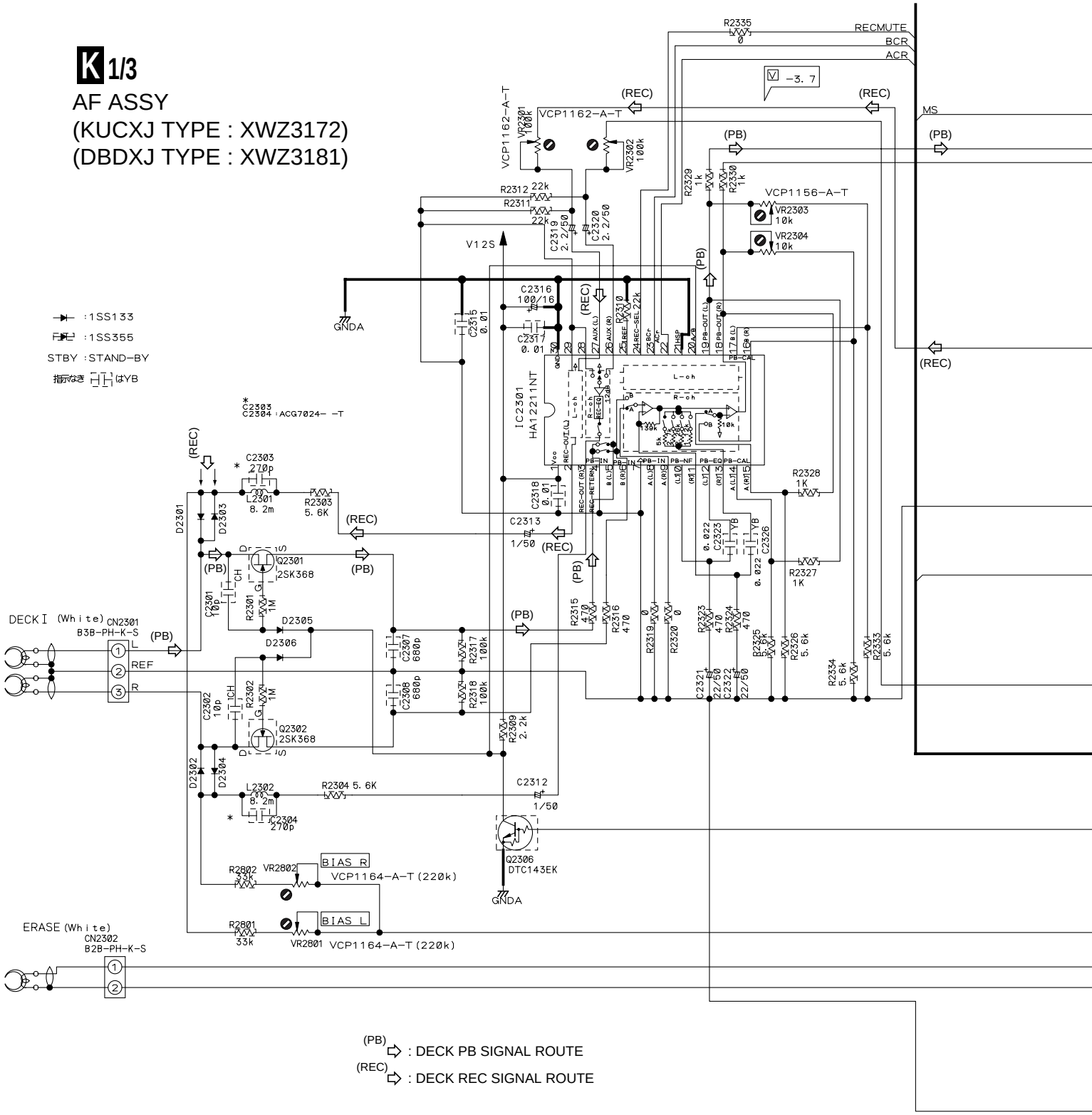
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4911.25 MFD, BY LITTELFUSE INK. FOR IC4002 (AEK7010).

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491.125 MFD, BY LITTELFUSE INK. FOR IC4003 (AEK7020).

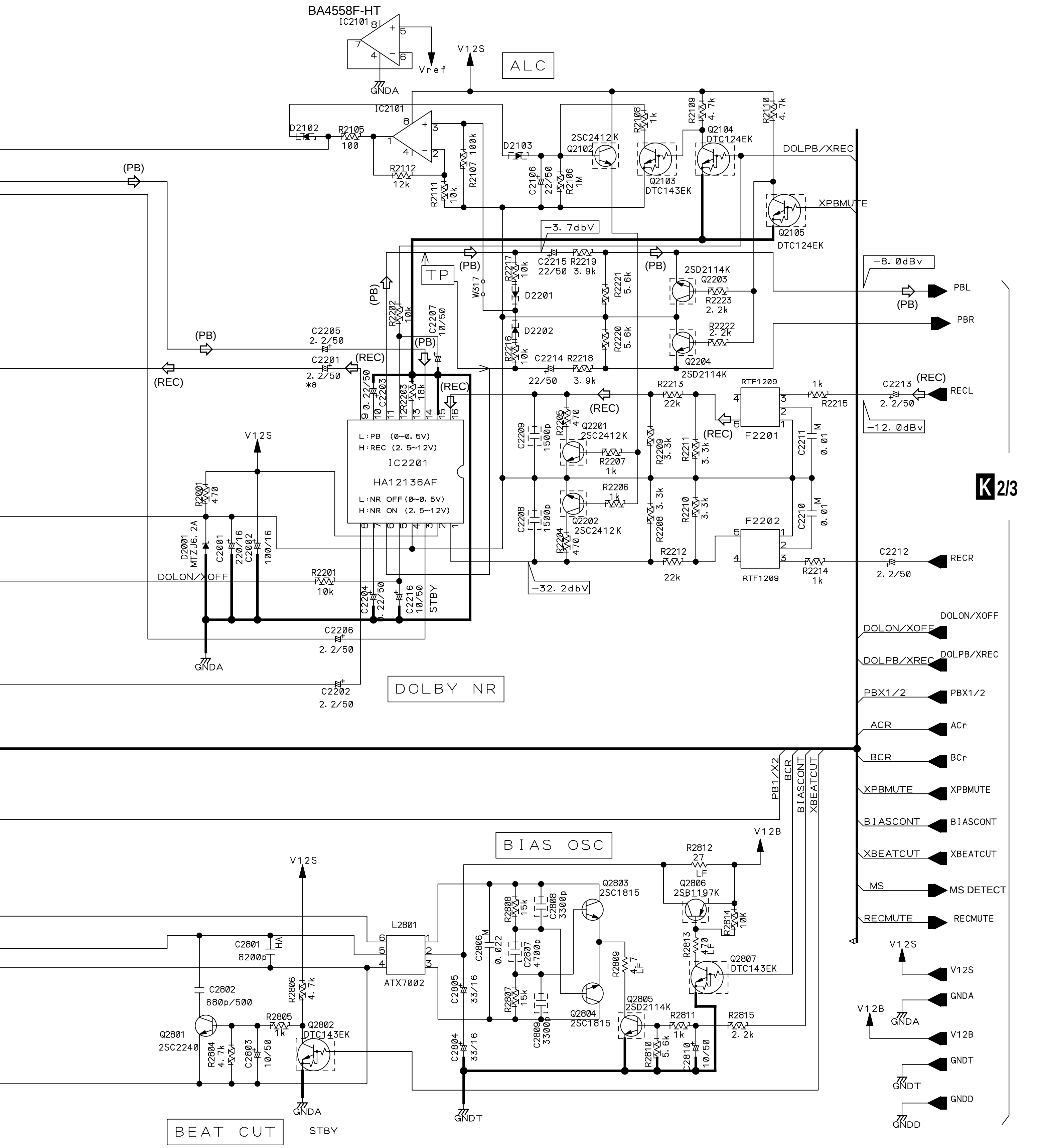
3.7 AF ASSY (1/3)

K 1/3

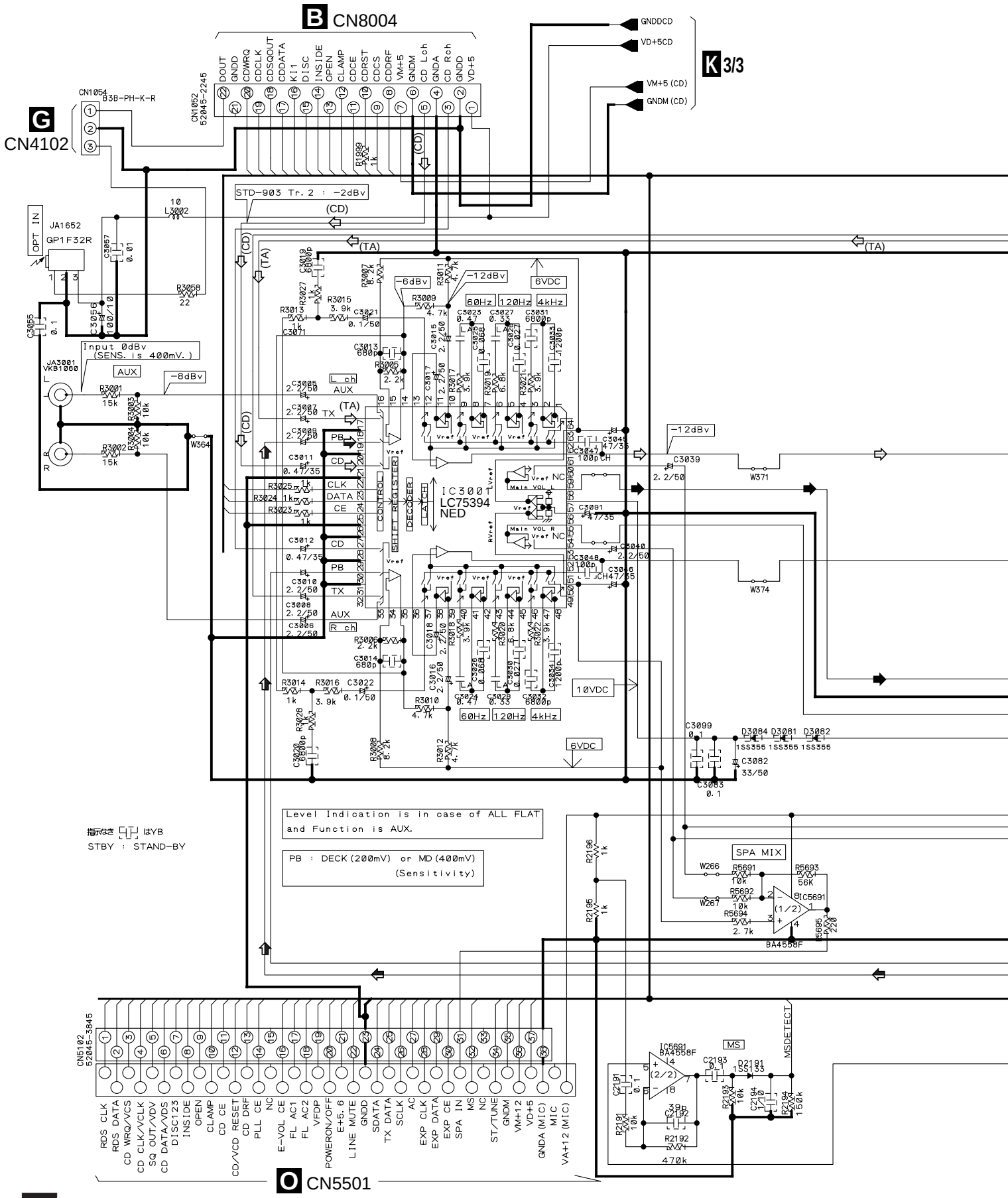
AF ASSY
(KUCXJ TYPE : XWZ3172)
(DBDXJ TYPE : XWZ3181)

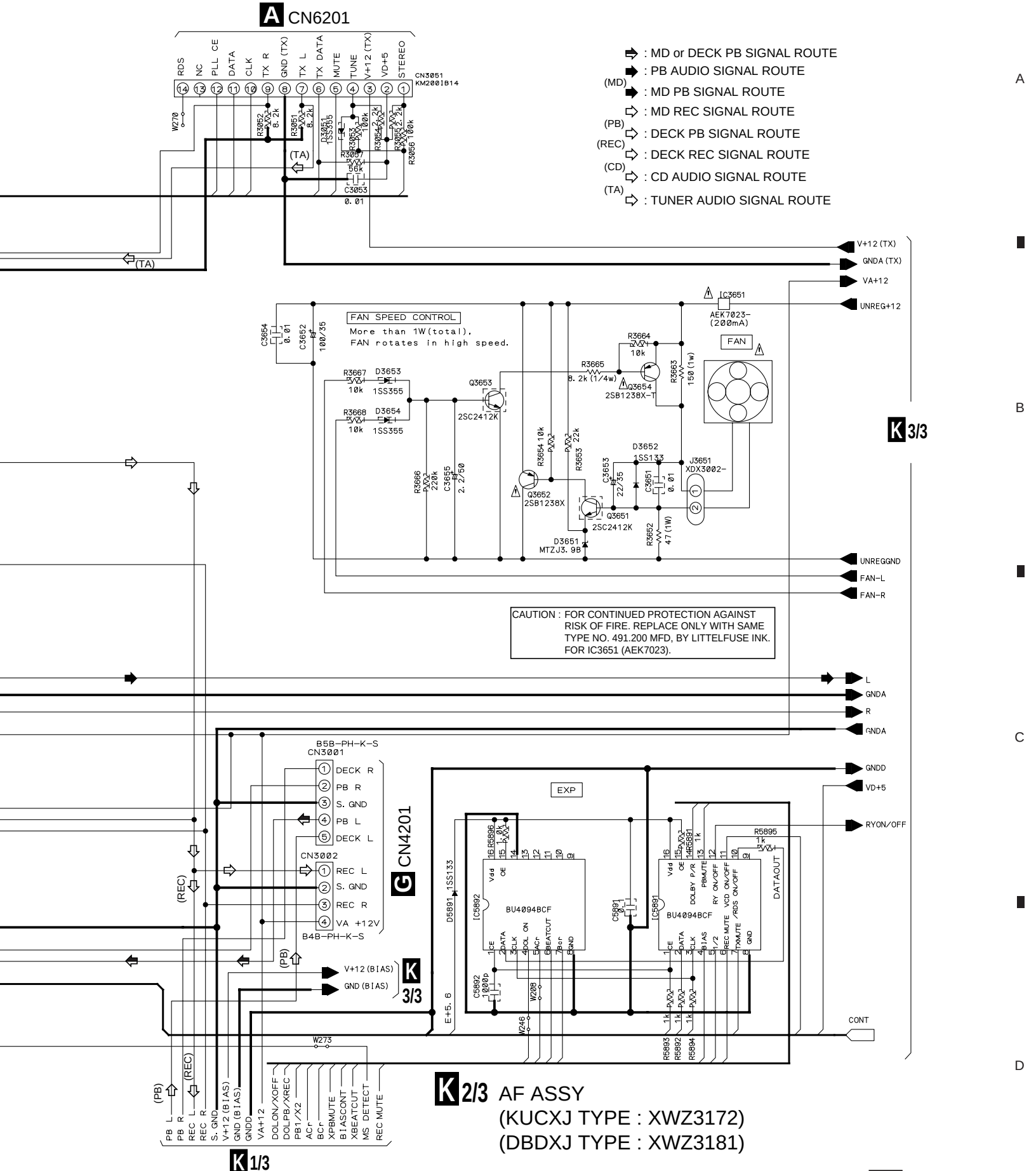


(PB) ⇨ : DECK PB SIGNAL ROUTE
(REC) ⇨ : DECK REC SIGNAL ROUTE


BA4558F-HT
IC2101
Vref
V12S
ALC
GNDA
D2102
R2105
100
R2112
12k
R2111
10k
R2107 100k
D2103
C2106
22/50
R2106
1M
2SC2412K
Q2102
R2108
1k
Q2103
DTC143EK
R2109
4.7k
Q2104
DTC124EK
R2110
4.7k
DOLPB/XREC
XPBMUTE
Q2105
DTC124EK
(PB)
(REC)
−3. 7dbV
C2215
22/50
R2219
3.9k
TP
W317
R2217
10k
D2201
D2202
R2216
10k
R2221
5.6k
R2220
5.6k
2SD2114K
Q2203
R2223
2.2k
R2222
2.2k
Q2204
2SD2114K
−8. 0dBv
PBL
PBR
C2205
2.2/50
C2201
2.2/50
*8
R2202
10k
C2207
10/50
C2214
22/50
R2218
3.9k
R2213
22k
RTF1209
F2201
1k
R2215
C2213
2.2/50
RECL
−12. 0dBv
R2203
18k
C2203
0.22/50
R2205
470
Q2201
2SC2412K
R2207
1k
C2209
1500p
R2209
3.3k
R2211
3.3k
C2211
0.01
L:PB (0~0.5V)
H:REC (2.5~12V)
IC2201
HA12136AF
L:NR OFF(0~0.5V)
H:NR ON (2.5~12V)
V12S
R2001
470
D2001
MTZJ6.2A
C2001
220/16
C2002
100/16
R2206
1k
Q2202
2SC2412K
C2208
1500p
R2204
470
R2208
3.3k
R2210
3.3k
F2202
C2210
0.01
R2212
22k
RTF1209
R2214
1k
C2212
2.2/50
RECR
DOLON/XOFF
R2201
10k
C2204
0.22/50
C2216
10/50
STBY
−32. 2dbV
C2206
2.2/50
GNDA
C2202
2.2/50
DOLBY NR
K 2/3
DOLON/XOFF
DOLPB/XREC
PBX1/2
ACR
ACr
BCR
BCr
XPBMUTE
BIASCONT
XBEATCUT
MS
MS DETECT
RECMUTE
PB1/X2
BCR
BIASCONT
XBEATCUT
BIAS OSC
V12B
R2812
27
LF
Q2806
2SB1197K
R2814
10K
R2813
470
Q2807
DTC143EK
Q2803
2SC1815
R2808
15k
C2808
3300p
C2807
4700p
C2806
0.022
L2801
ATX7002
C2801
8200p
HA
C2802
680p/500
R2806
4.7k
R2805
1k
Q2802
DTC143EK
Q2801
2SC2240
R2804
4.7k
C2803
10/50
C2805
33/16
R2807
15k
C2809
3300p
Q2804
2SC1815
R2809
4.7
LF
Q2805
2SD2114K
R2811
1k
R2815
2.2k
R2810
5.6k
C2810
10/50
C2804
33/16
GNDT
BEAT CUT
STBY
V12S
V12B
GNDA
GNDT
GNDD
A
B
C
D

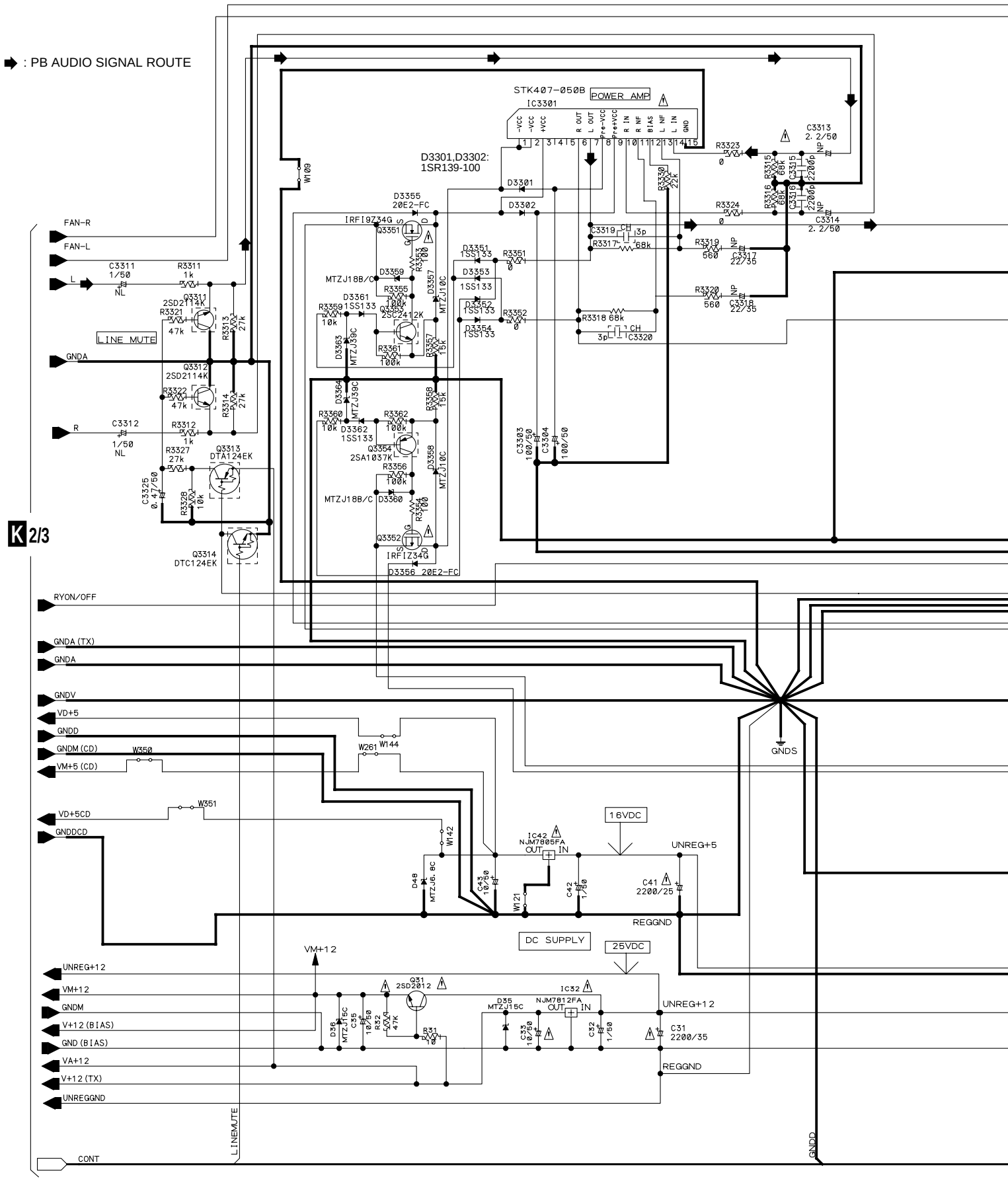
3.8 AF ASSY (2/3)


B CN8004
DOUT GNDD CDWRQ CDCLK CDSQOUT CDDATA KI1 DISC INSIDE OPEN CLAMP CDCE CDRST CDCS CDDRF VM+5 GNDM CD Loh GNDA CD Rch GNDD VD+5
GNDDCD
VD+5CD
VM+5 (CD)
GNDM (CD)
K 3/3
CN1052 52045-2245
CN1054 B3B-PH-K-R
G CN4102
R1999 1k
(CD)
STD-903 Tr. 2 : −2dBv
L3002 10
OPT IN
JA1652
GP1F32R
C3057 0.01
C3056 100/10
C3055 0.1
R3058 22
Input 0dBv (SENS. is 400mV.)
JA3001 VKB1060
AUX
−8dBv
R3001 15k
R3003 10k
R3004 10k
R3002 15k
W364
(TA)
−6dBv
−12dBv
6VDC
60Hz 120Hz 4kHz
R3009 4.7k
R3011 4.7k
R3007 0.2k
R3027 1k
R3013 1k
R3015 3.9k
C3021 0.1/50
C3071
C3013 680p
R3005 2.2k
C3019 6800p
C3023 0.47
C3027 0.33
C3031 6800p
C3015 2.2/50
C3017 2.2/50
R3017 3.9k
R3019 6.8k
R3021 6.8k
R3023 3.9k
C3033 1200p
L ch AUX
C3005 2.2/50
C3007 2.2/50 TX
C3009 2.2/50 PB
C3011 0.47/35 CD
R3025 1k CLK
R3024 1k DATA
R3023 1k CE
CONTROL
SHIFT REGISTER
DECODER
LATCH
IC3001 LC75394 NED
Vref
Main VOL
Main VOL R
NC
C3045 47/35
C3047 100pCH
C3039 2.2/50
W371
C3091 47/35
C3040 2.2/50
C3048 100p
C3046 CH47/35
W374
C3012 0.47/35 CD
C3010 2.2/50 PB
C3008 2.2/50 TX
C3006 2.2/50 AUX
R ch
R3000 2.2k
C3014 680p
R3014 1k
R3016 3.9k
C3022 0.1/50
R3010 4.7k
C3024 0.47
C3029 0.33
C3032 6800p
60Hz 120Hz 4kHz
R3028 6.8k
C3020 6800p
R3008 2.2k
R3012 4.7k
10VDC
6VDC
C3099 0.1
D3084 D3081 D3082 1SS355 1SS355 1SS355
C3082 33/50
C3083 0.1
Level Indication is in case of ALL FLAT and Function is AUX.
PB : DECK (200mV) or MD (400mV) (Sensitivity)
指示なき [ ] はYB
STBY : STAND-BY
R2196 1k
R2195 1k
SPA MIX
W266
W267
R5691 10k
R5693 56K
R5692 10k
R5694 2.7k
IC5691 (1/2)
BA4558F
C5695 220
CN5102 52045-3845
RDS CLK
RDS DATA
CD WRQ/VCS
CD CLK/VCLK
SQ OUT/VDV
CD DATA/VDS
DISC123
INSIDE
OPEN
CLAMP
CD CE
CD/VCD RESET
CD DRF
PLL CE
NC
E−VOL CE
FL AC1
FL AC2
VFDP
POWERON/OFF
E+5.6
LINE MUTE
GNDD
SDATA
TX DATA
SCLK
AC
EXP CLK
EXP DATA
EXP CE
SPA IN
MS
NC
ST/TUNE
GNDM
VM+12
VD+5
GNDA (MIC)
MIC
VA+12 (MIC)
O CN5501
IC5691 BA4558F (2/2)
MS
C2193 0.1
D2191 1SS133
MSDETECT
C2191 0.1
R2191 10k
C2192 39p
R2192 470k
R2193 10k
C2194 10p
R2194 150k



K 2/3 AF ASSY
(KUCXJ TYPE : XWZ3172)
(DBDXJ TYPE : XWZ3181)

3.9 AF (3/3) and SECONDARY ASSEMBLIES



K 3/3

AF ASSY
(KUCXJ TYPE : XWZ3172)
(DBDXJ TYPE : XWZ3181)

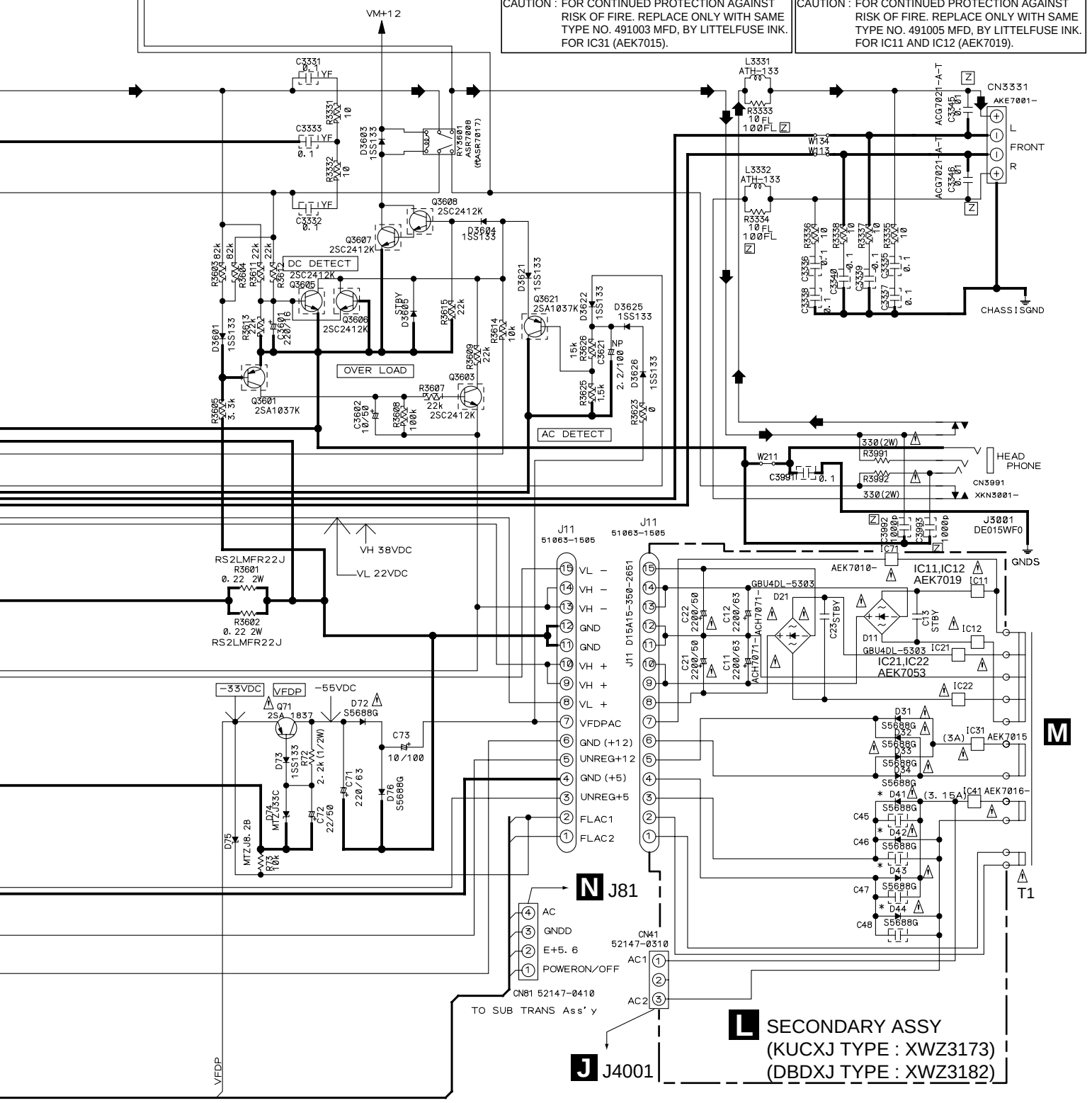
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4913.15 MFD, BY LITTELFUSE INK. FOR IC41 (AEK7016).

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 4911.25 MFD, BY LITTELFUSE INK. FOR IC71 (AEK7010).

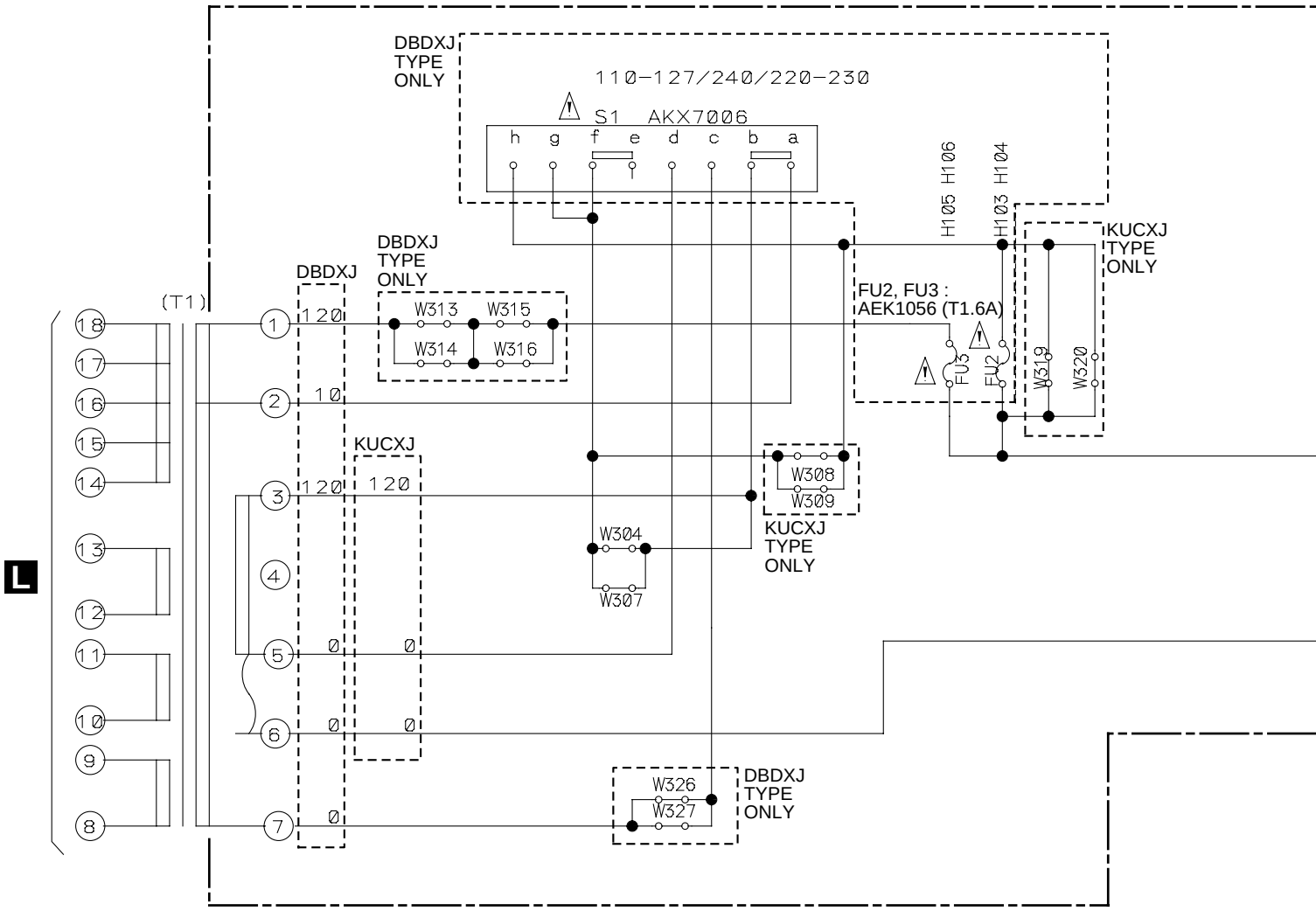
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491004 MFD, BY LITTELFUSE INK. FOR IC21 AND IC22 (AEK7053).

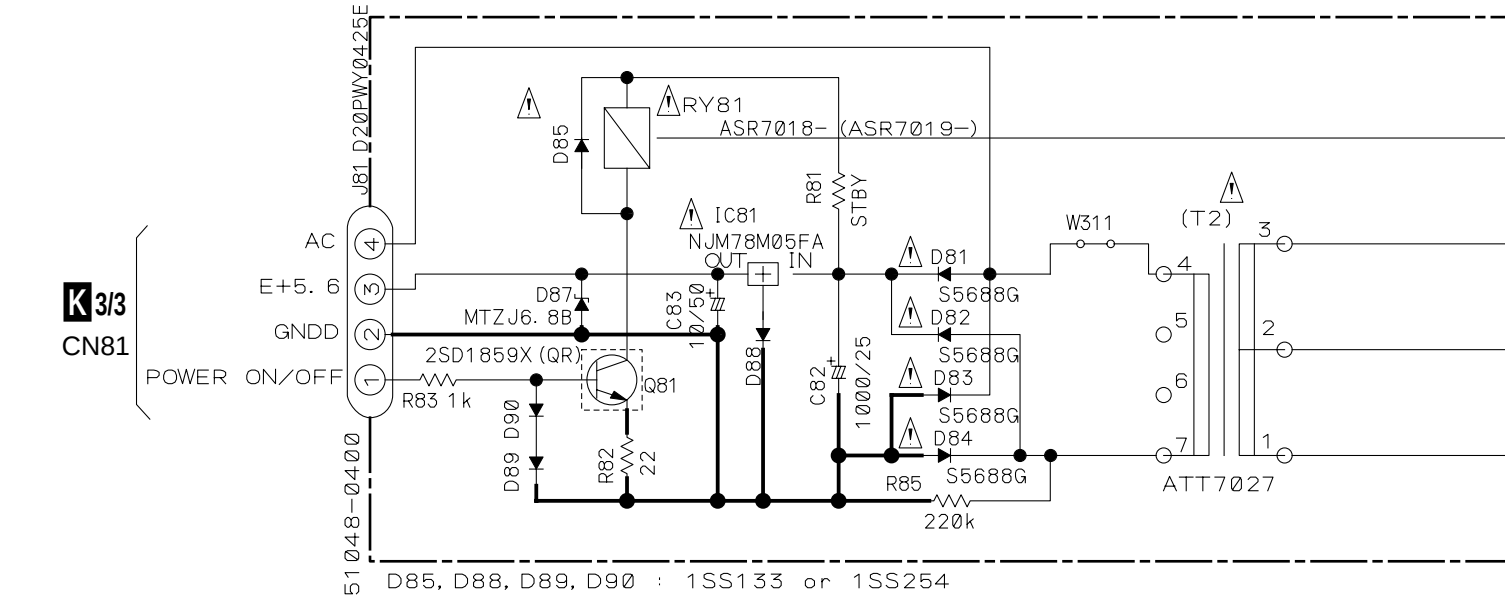
CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491003 MFD, BY LITTELFUSE INK. FOR IC31 (AEK7015).

CAUTION : FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE ONLY WITH SAME TYPE NO. 491005 MFD, BY LITTELFUSE INK. FOR IC11 AND IC12 (AEK7019).

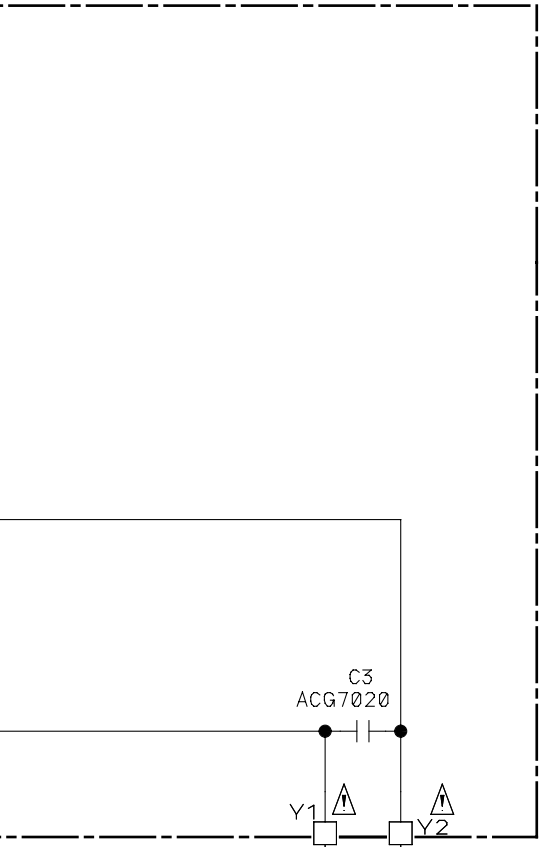


3.10 PRIMARY and SUB TRANS ASSEMBLIES





M PRIMARY ASSY
(KUCXJ TYPE : XWZ3175)
(DBDXJ TYPE : XWZ3184)



Y2 XDX3003 (GRAY)

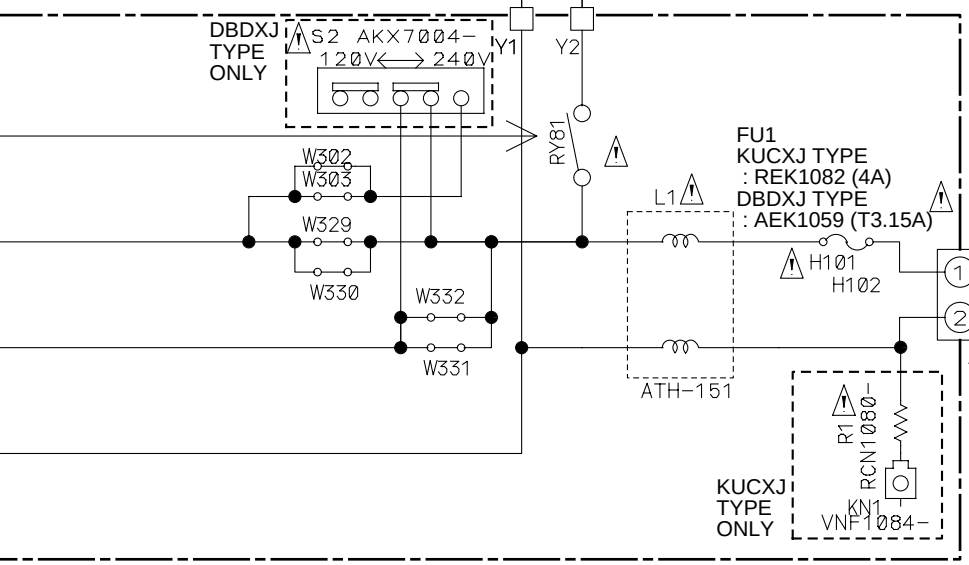
Y1 XDX3004 (BLACK)

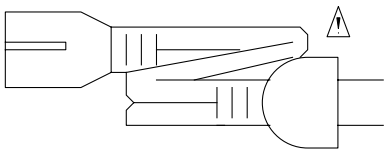
• NOTE FOR FUSE REPLACEMENT

CAUTION - FOR CONTINUED PROTECTION AGAINST RISK OF FIRE. REPLACE WITH SAME TYPE AND RATINGS ONLY.

S2 : VOLTAGE SELECTOR (DBDXJ TYPE ONLY)
120V - 240V

N SUB TRANS ASSY
(KUCXJ TYPE : XWZ3176)
(DBDXJ TYPE : XWZ3185)



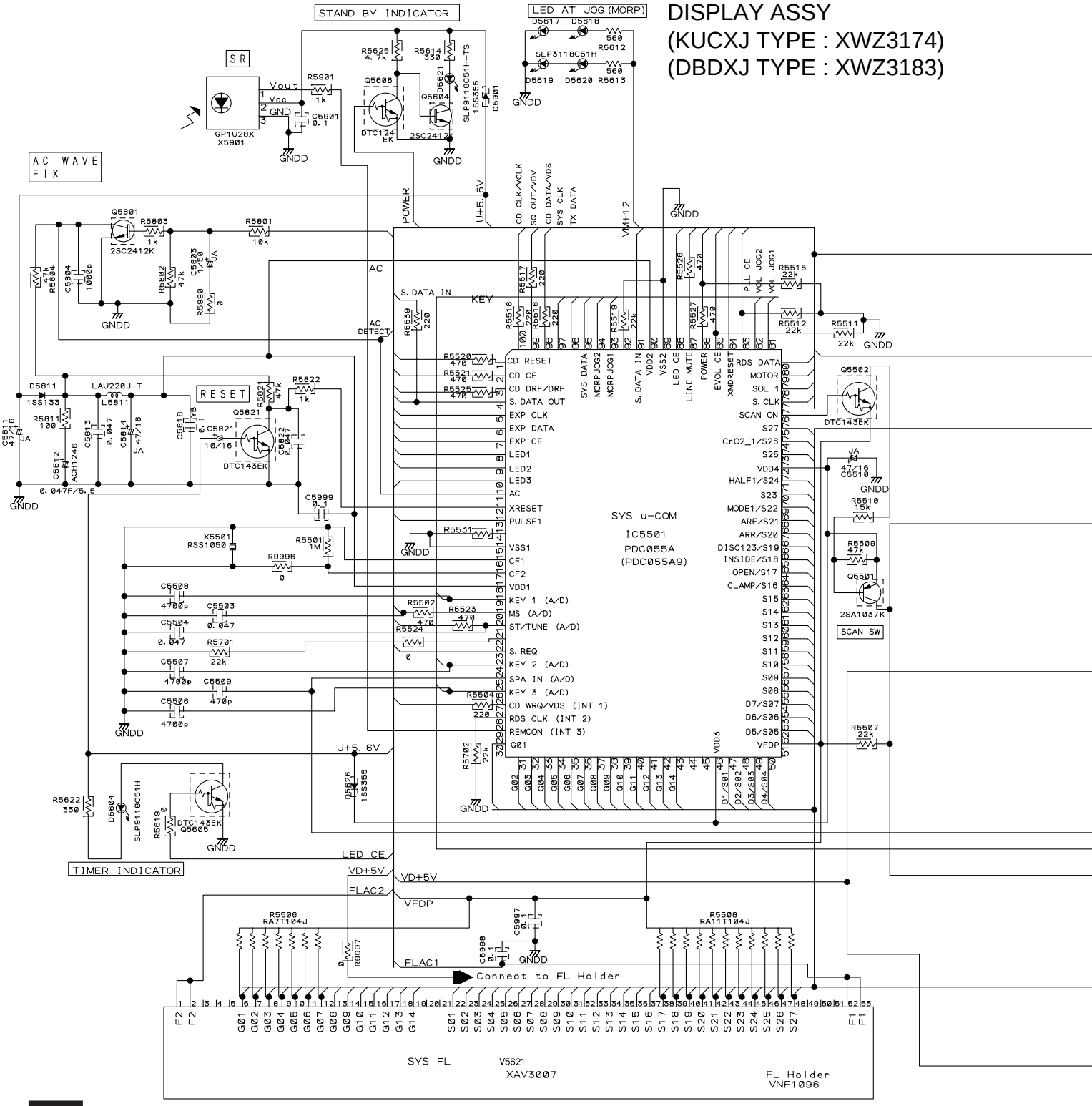


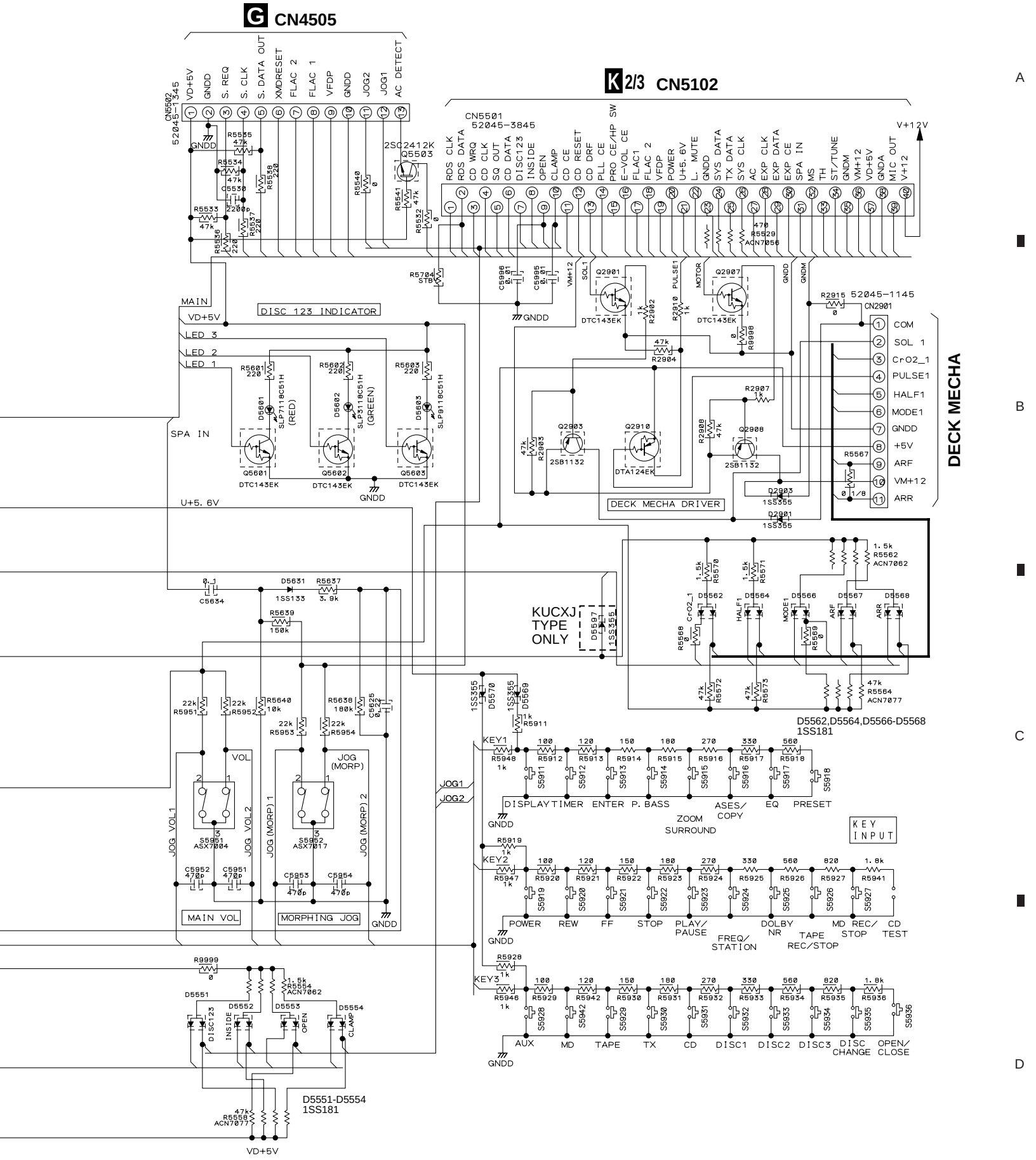
AC POWER CORD
KUCXJ TYPE : ADG7022
DBDXJ TYPE : ADG1158

3.11 DISPLAY ASSY

S5911 : DISPLAY
S5912 : TIMER
S5913 : ENTER
S5914 : P. BASS
S5915 : ZOOM SURROUND
S5916 : ASES
S5917 : EQUALIZER
S5918 : PRESET
S5919 : STANDBY/ON (⏻)
S5920 : TUNING – I◀◀ (◀◀)
S5921 : TUNING + ▶▶I (▶▶)
S5922 : STOP (■)
S5923 : PLAY/PAUSE (◀ ►)
S5924 : FREQ/STATION
S5925 : NR ON/OFF
S5926 : TAPE REC/STOP
S5927 : MD REC/STOP
S5928 : AUX
S5929 : TAPE
S5930 : TUNER/BAND
S5931 : CD
S5932 : DISC-1
S5933 : DISC-2
S5934 : DISC-3
S5935 : DISC CHANGE
S5936 : OPEN/CLOSE
S5942 : MD
S5951 : VOLUME
S5952 : SOUND MORPHING JOG

DISPLAY ASSY
(KUCXJ TYPE : XWZ3174)
(DBDXJ TYPE : XWZ3183)




G CN4505
K 2/3 CN5102
CN5502
52045-1345
VD+5V
GNDD
S. REQ
S. CLK
S. DATA OUT
XMDRESET
FLAC 2
FLAC 1
VFDP
GNDD
JOG2
JOG1
AC DETECT
CN5501
52045-3845
RDS CLK
RDS DATA
CD WRQ
CD CLK
SQ OUT
CD DATA
DISC123
INSIDE
OPEN
CLAMP
CD CE
CD RESET
CD DRF
PLL CE
PRO CE/HP SW
E-VOL CE
FLAC1
FLAC 2
VFDP
POWER
U+5. 6V
L. MUTE
GNDD
SYS DATA
TX DATA
SYS CLK
AC
EXP CLK
EXP DATA
EXP CE
SPA IN
MS
TH
ST/TUNE
GNDM
VM+12
VD+5V
GNDA
MIC OUT
V+12
V+12V
2SC2412K
Q5503
R5535 47k
R5534 47k
C5530 2200p
R5533 47k
R5536 220
R5537 220
R5538 220
R5540 0
R5541 47k
R5532 0
R5704 STB
C5986 0.01
C5985 0.01
VM+12
SOL1
Q2901
DTC143EK
R2902 1k
PULSE1
R2910 1k
MOTOR
Q2907
DTC143EK
R9998 0
GNDD
GNDM
R2915 0
52045-1145
CN2901
COM
SOL 1
CrO2_1
PULSE1
HALF1
MODE1
GNDD
+5V
ARF
VM+12
ARR
DECK MECHA
MAIN
VD+5V
LED 3
LED 2
LED 1
DISC 123 INDICATOR
R5601 220
R5602 220
R5603 220
D5601 SLP7118C51H (RED)
D5602 SLP3118C51H (GREEN)
D5603 SLP9118C51H
SPA IN
Q5601 DTC143EK
Q5602 DTC143EK
Q5603 DTC143EK
GNDD
U+5. 6V
R2904 47k
R2907 1k
R2908 47k
R2903 47k
Q2903 2SB1132
Q2910 DTA124EK
Q2908 2SB1132
DECK MECHA DRIVER
D2903 1SS355
D2901 1SS355
R5567
1/8
C5634 0.1
D5631 1SS133
R5637 3.9k
R5639 150k
KUCXJ TYPE ONLY
D5597 1SS355
R5562 1.5k ACN7062
R5570 1.5k
R5571 1.5k
D5562 CrO2_1
D5564 HALF1
D5566 MODE1
D5567 ARF
D5568 ARR
R5568 0
R5569 0
R5572 47k
R5573 47k
R5564 47k ACN7077
D5562,D5564,D5566-D5568
1SS181
D5570 1SS355
D5569 1SS355
R5911 1k
R5951 22k
R5952 22k
R5640 10k
R5638 180k
C5625 0.22
R5953 22k
R5954 22k
VOL
JOG (MORP)
JOG VOL1
JOG VOL2
JOG (MORP) 1
JOG (MORP) 2
S5951 ASX7004
S5952 ASX7017
C5952 470p
C5951 470p
C5953 470p
C5954 470p
MAIN VOL
MORPHING JOG
GNDD
JOG1
JOG2
KEY1
R5948 1k
100 R5912
120 R5913
150 R5914
180 R5915
270 R5916
330 R5917
560 R5918
S5911 S5912 S5913 S5914 S5915 S5916 S5917 S5918
DISPLAY
TIMER
ENTER
P. BASS
ZOOM SURROUND
ASES/ COPY
EQ
PRESET
KEY INPUT
R5919 1k
KEY2
R5947 1k
100 R5920
120 R5921
150 R5922
180 R5923
270 R5924
330 R5925
560 R5926
820 R5927
1.8k R5941
S5919 S5920 S5921 S5922 S5923 S5924 S5925 S5926 S5927
POWER
REW
FF
STOP
PLAY/ PAUSE
FREQ/ STATION
DOLBY NR
TAPE REC/STOP
MD REC/ STOP
CD TEST
R5928 1k
KEY3
R5946 1k
100 R5929
120 R5942
150 R5930
180 R5931
270 R5932
330 R5933
560 R5934
820 R5935
1.8k R5936
S5928 S5942 S5929 S5930 S5931 S5932 S5933 S5934 S5935 S5936
AUX
MD
TAPE
TX
CD
DISC1
DISC2
DISC3
DISC CHANGE
OPEN/ CLOSE
R9999 0
1.5k R5554 ACN7062
D5551
D5552
D5553
D5554
DISC123
INSIDE
OPEN
CLAMP
D5551-D5554
1SS181
47k R5555 ACN7077
VD+5V

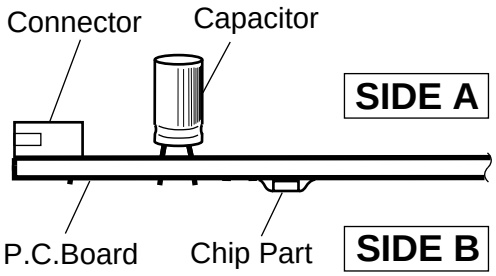
4. PCB CONNECTION DIAGRAM

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.

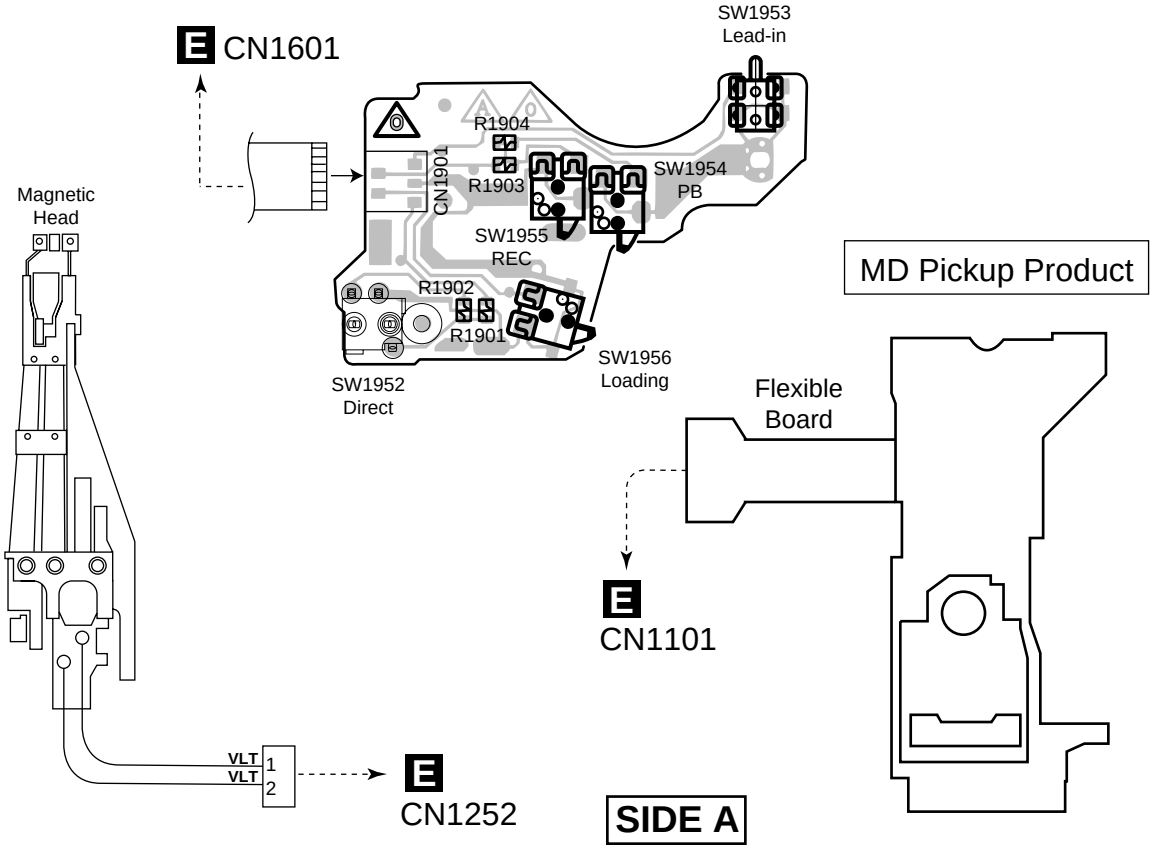
Symbol In PCB Diagrams	Symbol In Schematic Diagrams	Part Name
B C E	B C E B C E	Transistor
B C E	B C E B C E	Transistor with resistor
D G S	D G S D G S	Field effect transistor
		Resistor array
		3-terminal regulator

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 PWB-B (MD MECHANISM SWITCH ASSY)

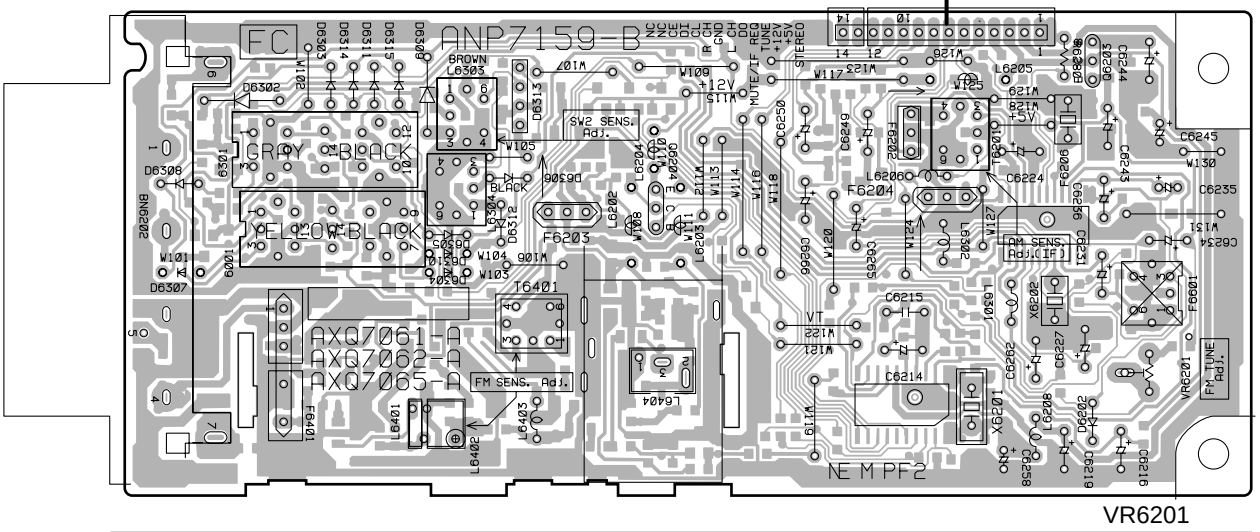
F PWB-B (MD MECHANISM SWITCH ASSY)



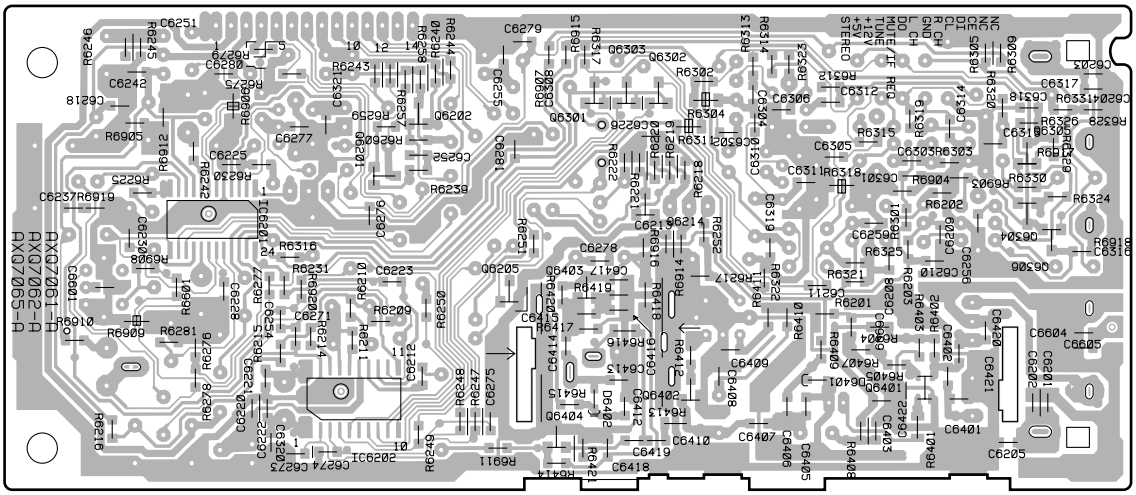
4.2 FM/AM TUNER MODULE

K CN3051

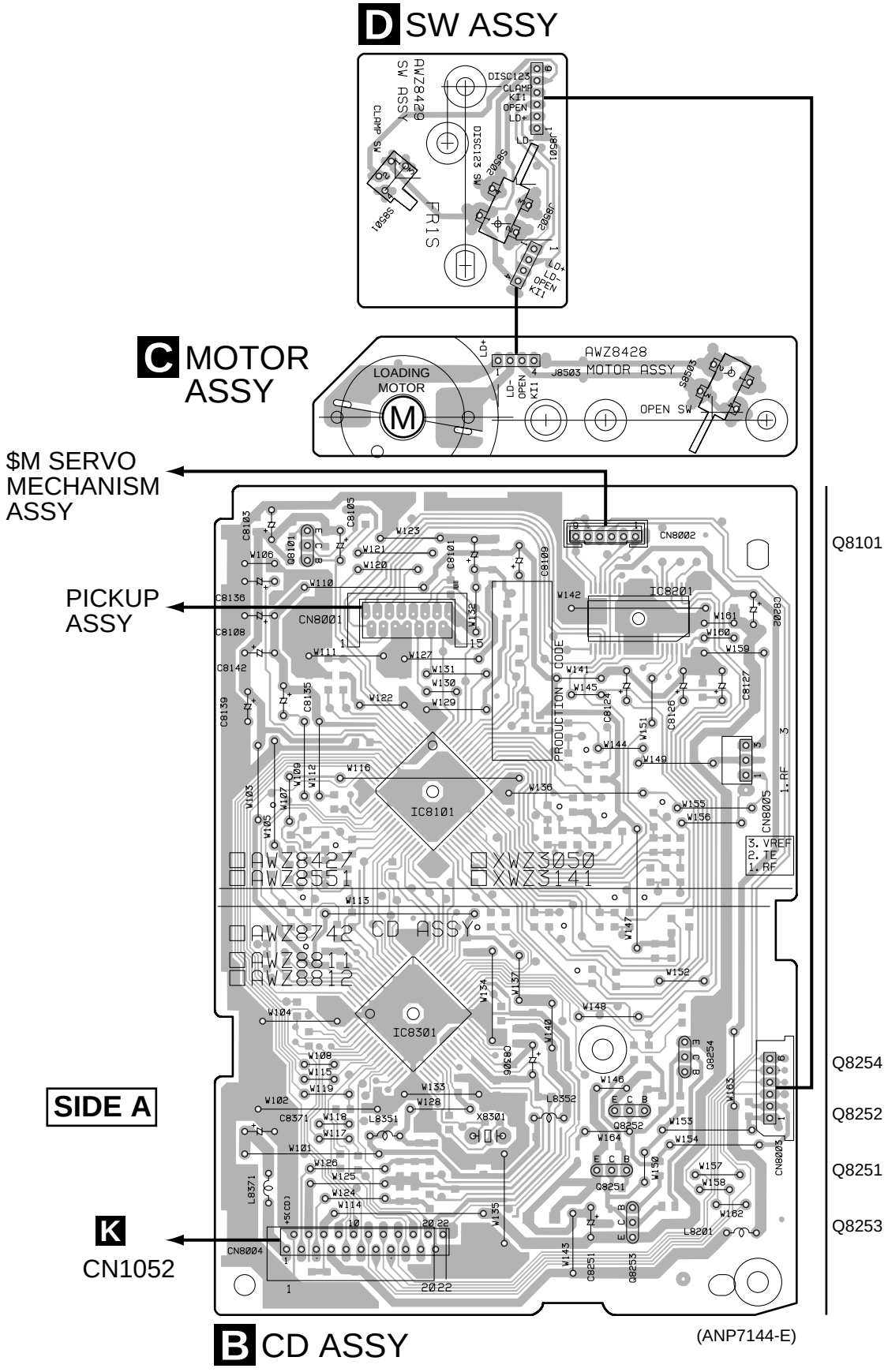
A FM/AM TUNER MODULE



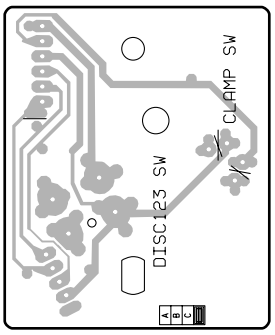
A FM/AM TUNER MODULE



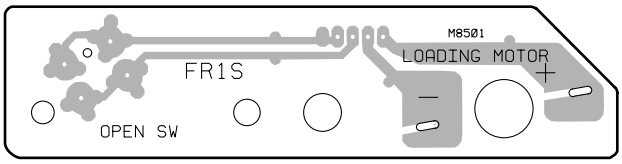
4.3 CD, MOTOR and SW ASSEMBLIES

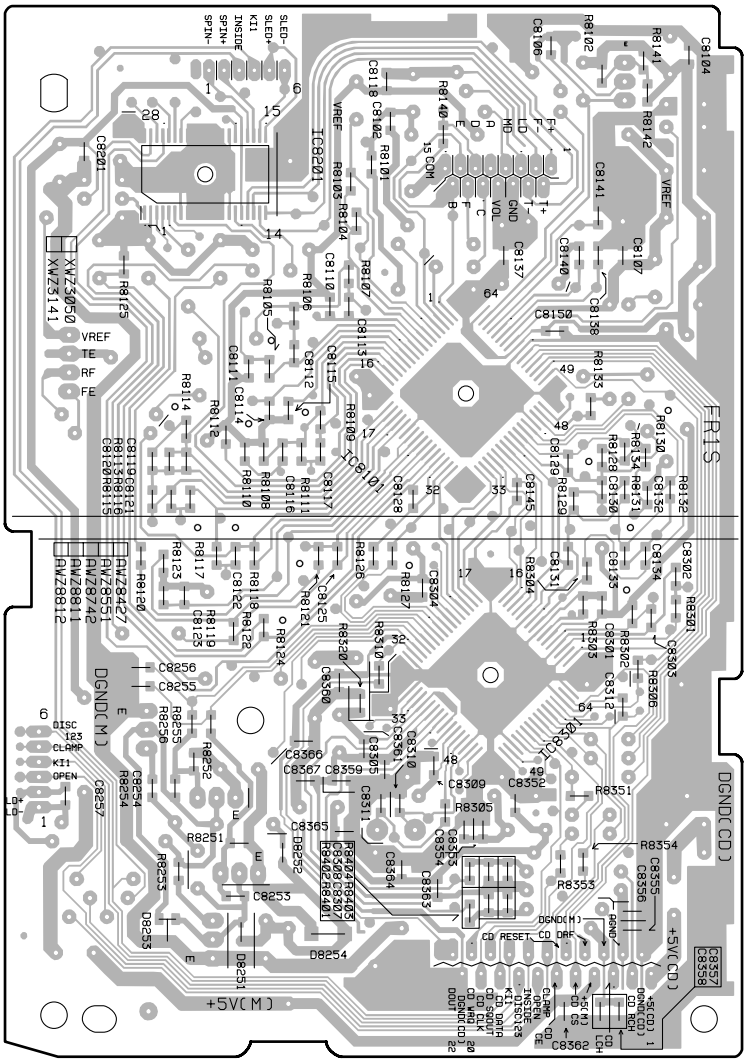


D SW ASSY



C MOTOR ASSY



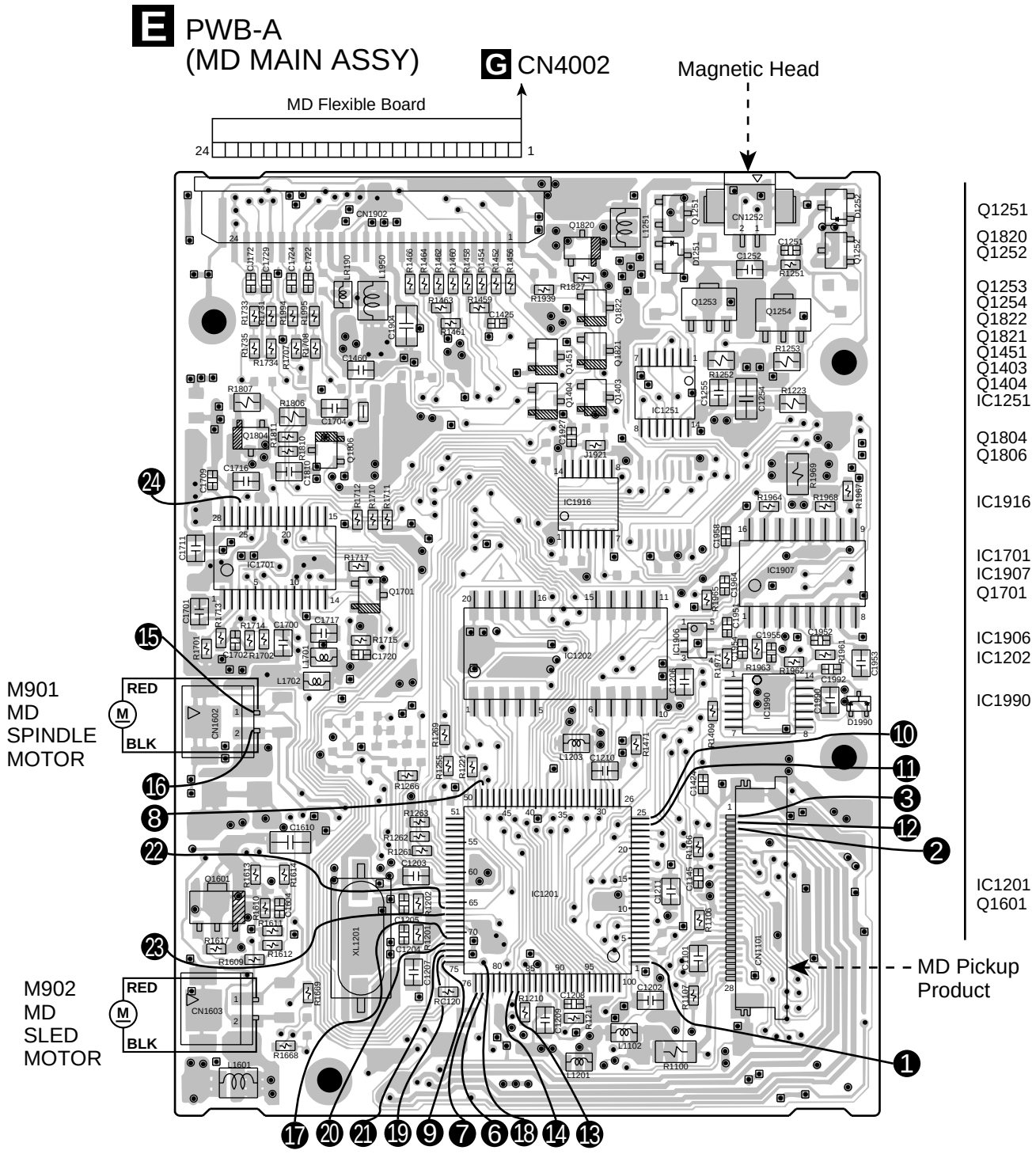


(ANP7144-E)

B CD ASSY

SIDE B

4.4 PWB-A

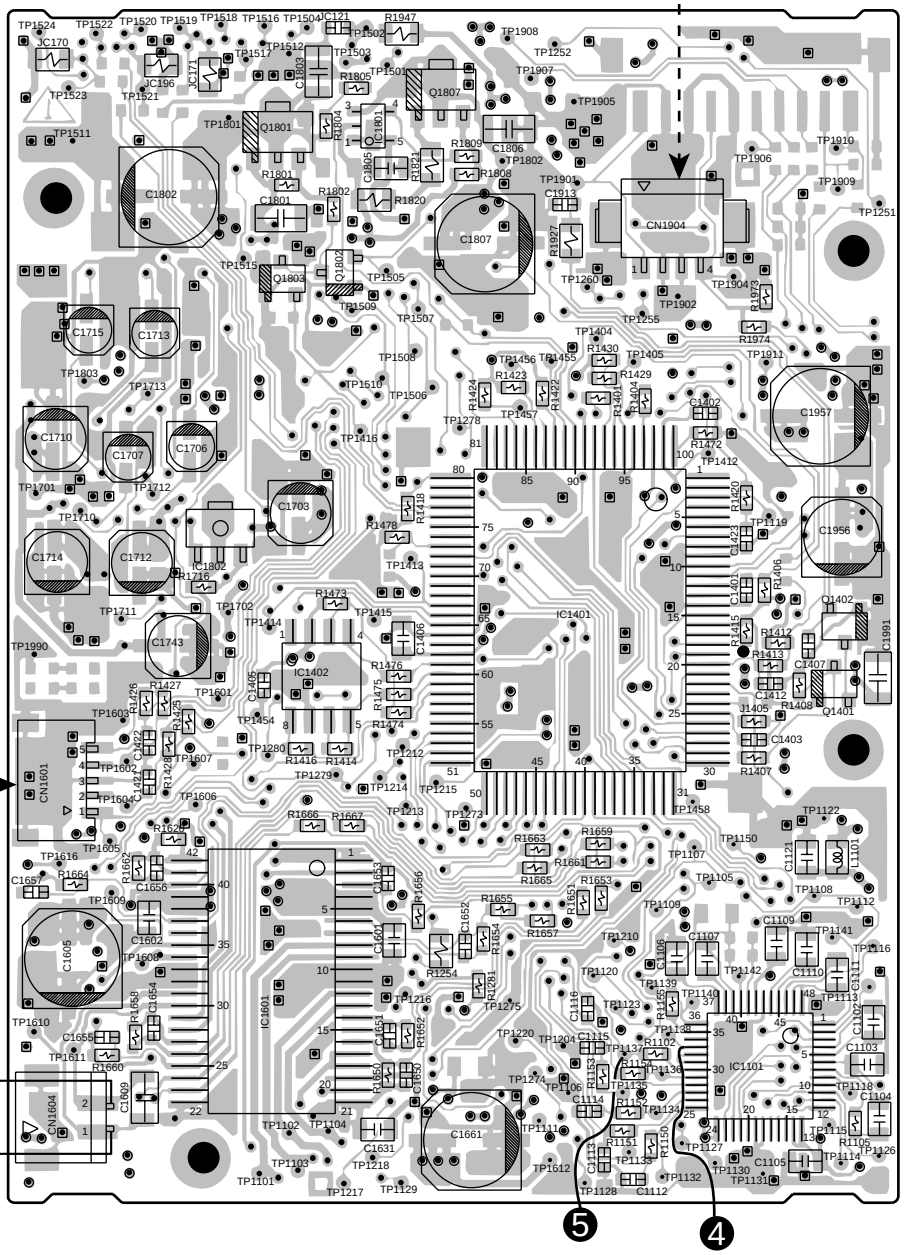


1 – 24 are waveform Nos. on pages 25 and 26.

SIDE A

E PWB-A
(MD MAIN ASSY)

G CN4101



F CN1901- →

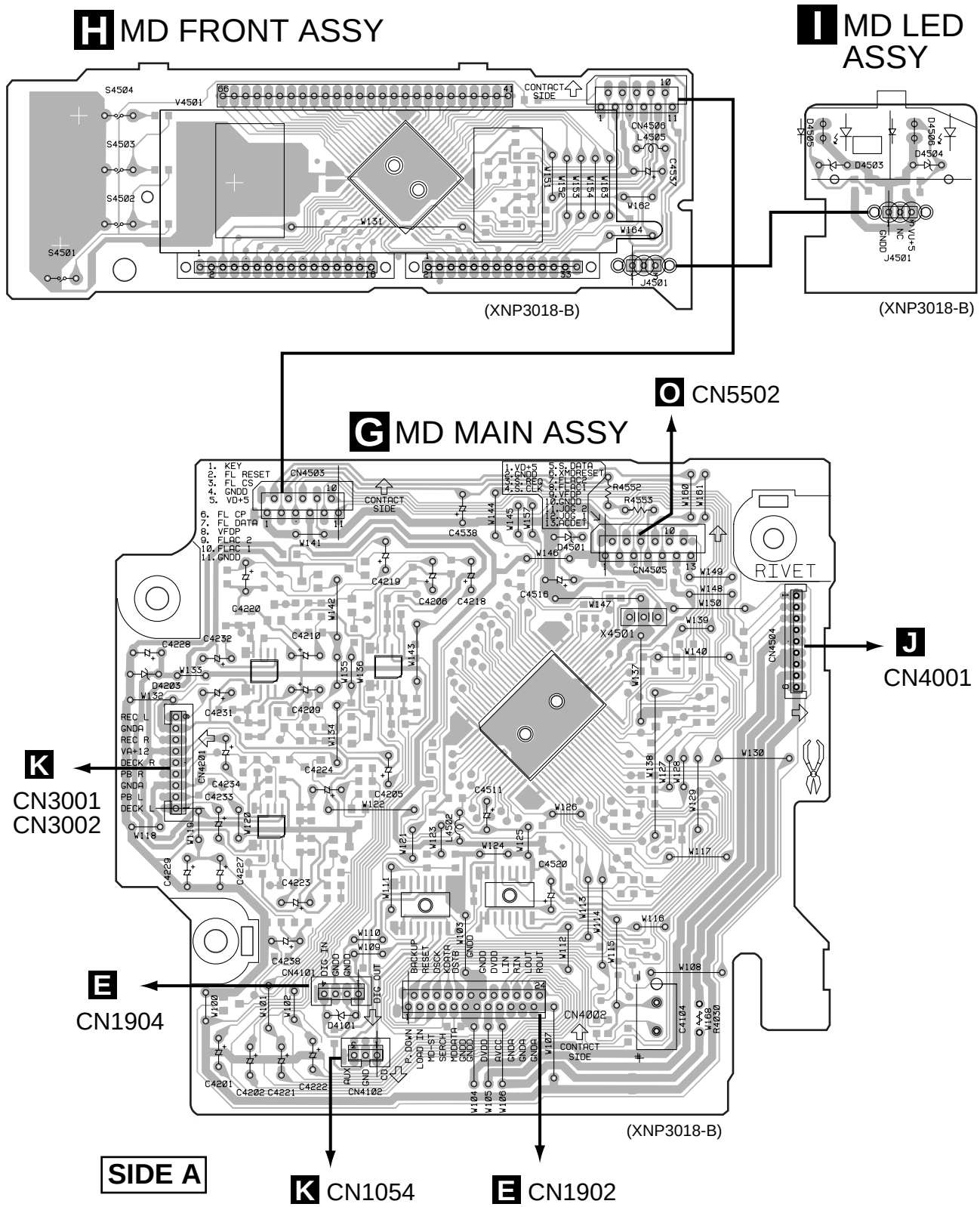
M903
MD
LOADING
MOTOR

BLK
RED

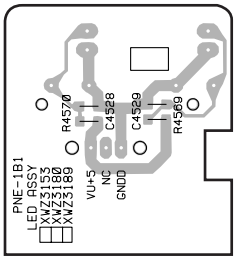
SIDE B

❶ – ㉔ are waveform Nos. on pages 25 and 26.

4.5 MD MAIN, MD FRONT and MD LED ASSEMBLIES

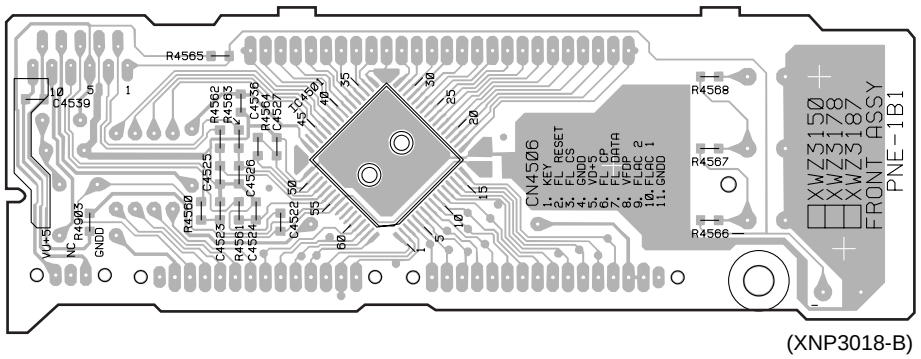


I MD LED ASSY



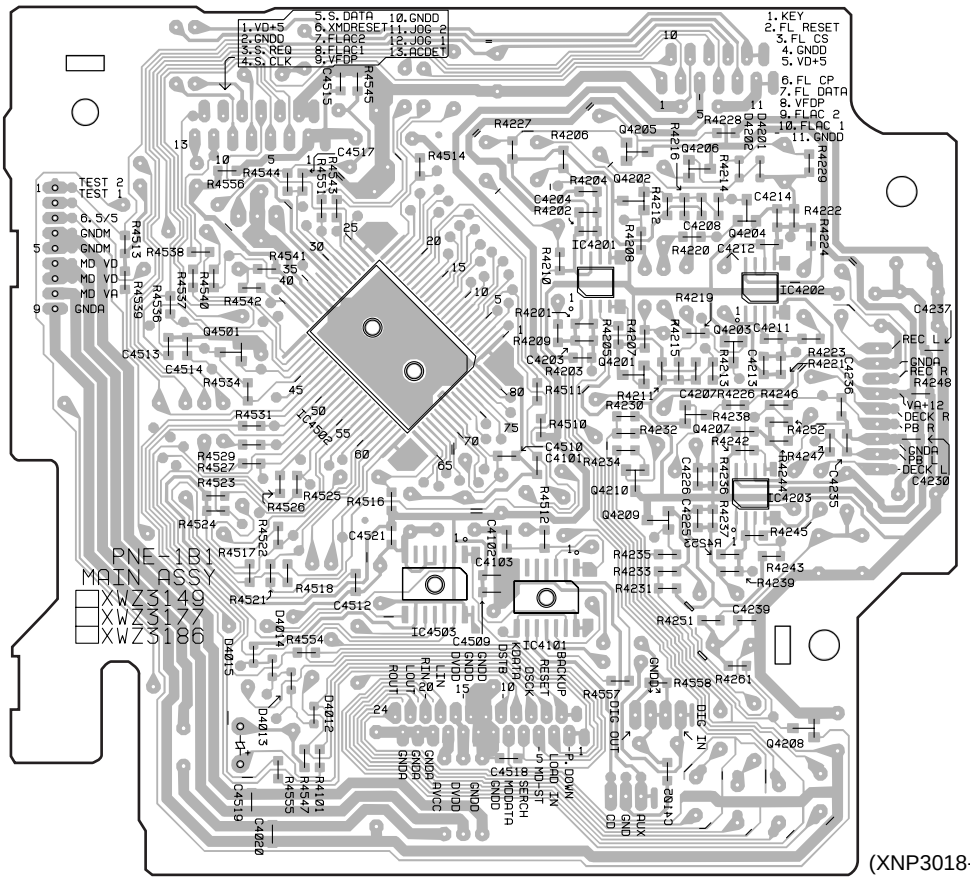
(XNP3018-B)

H MD FRONT ASSY



(XNP3018-B)

G MD MAIN ASSY



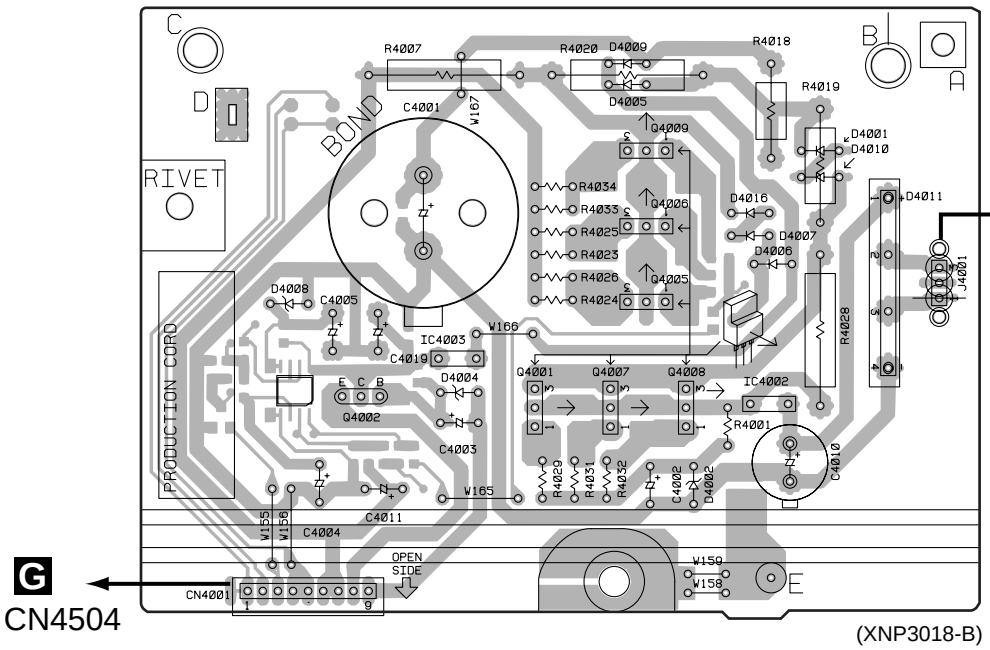
(XNP3018-B)

Q4205 Q4206
Q4202 Q4204
Q4501 IC4502 IC4201 IC4202
Q4201 Q4203
IC4503 IC4101 Q4207
Q4210 IC4203
Q4209 Q4208

SIDE B

4.6 MD SUB ASSY

J MD SUB ASSY



L CN41

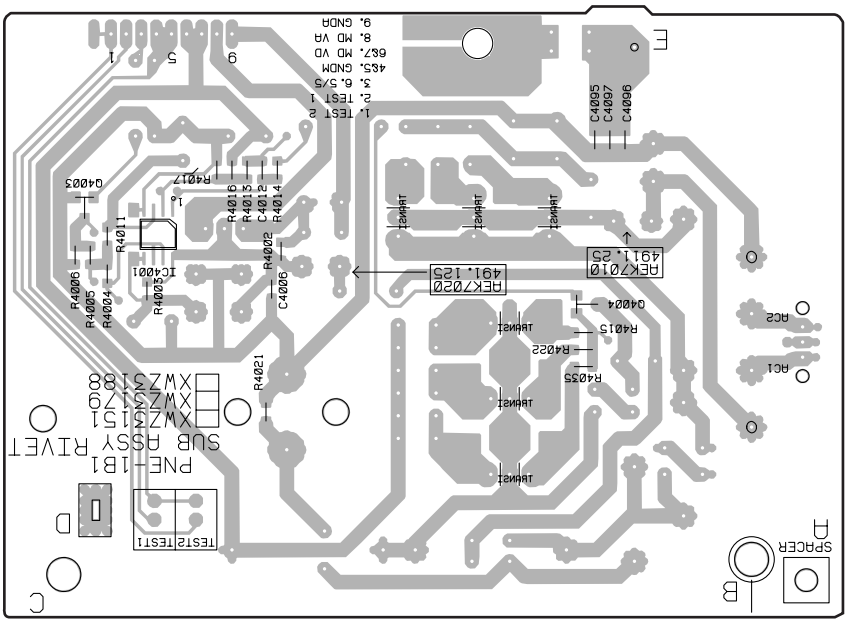
SIDE A

G CN4504

(XNP3018-B)

Q4002 IC4003 Q4001 IC4002
Q4005 – Q4009

J MD SUB ASSY



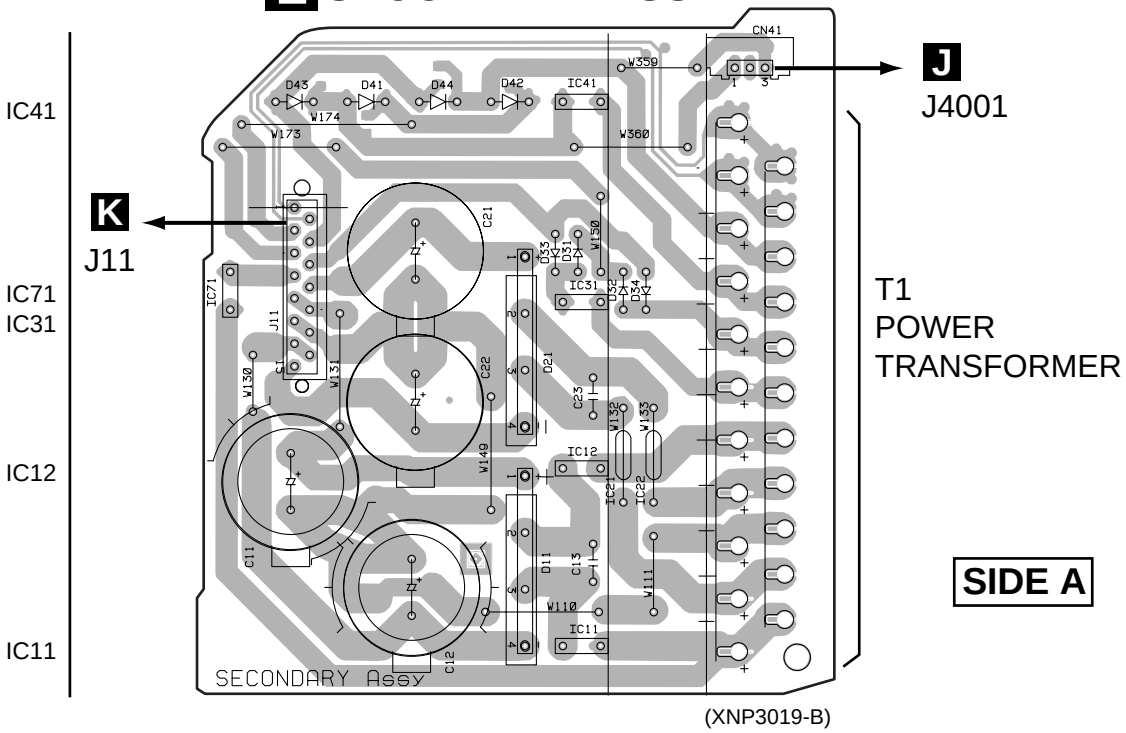
SIDE B

(XNP3018-B)

Q4003 IC4001 Q4004

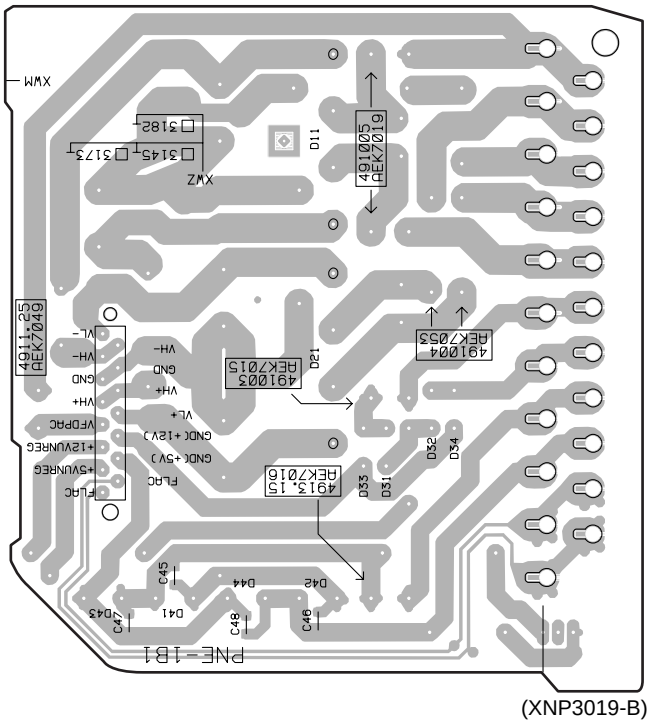
4.7 SECONDARY ASSY

L SECONDARY ASSY



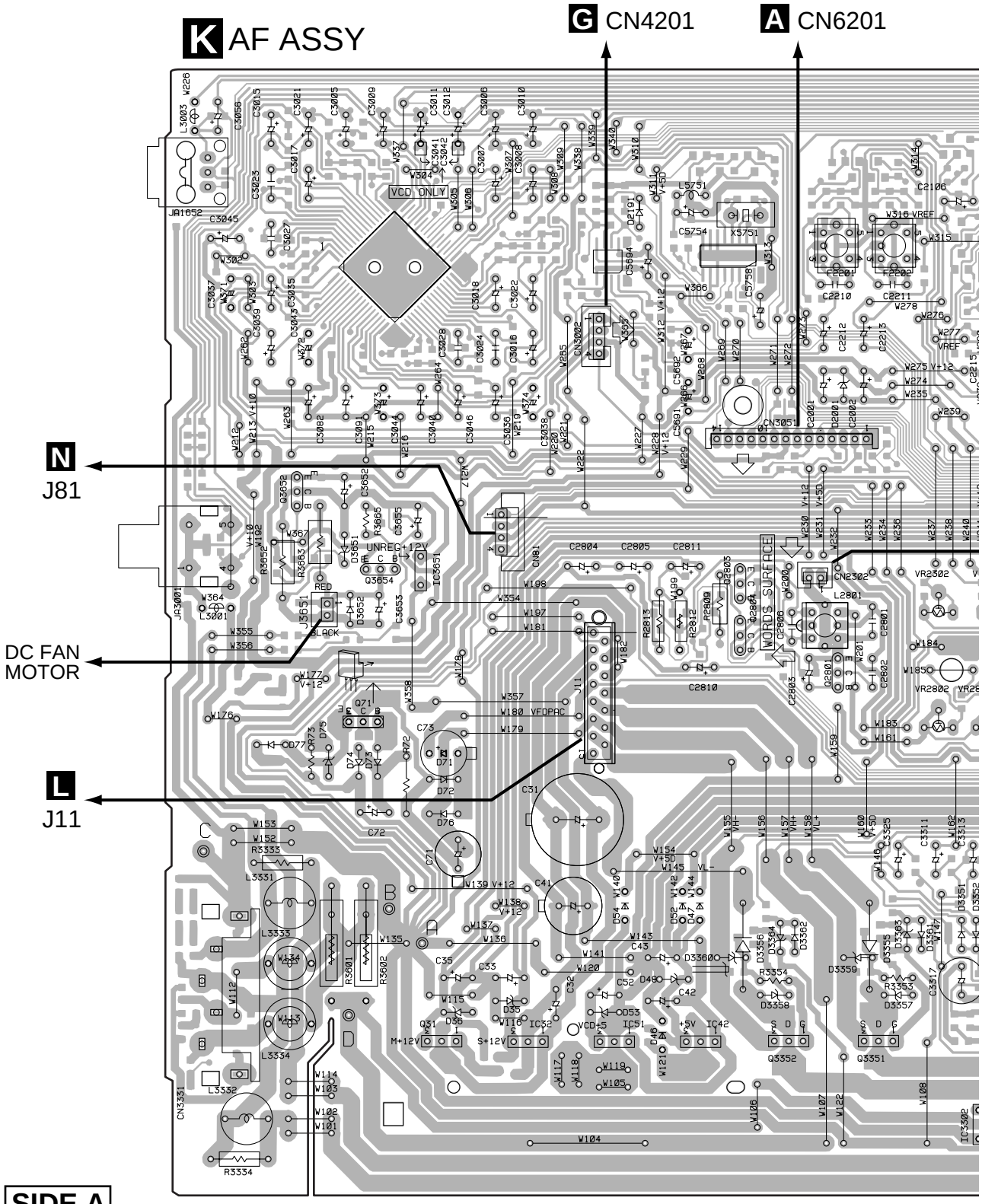
(XNP3019-B)

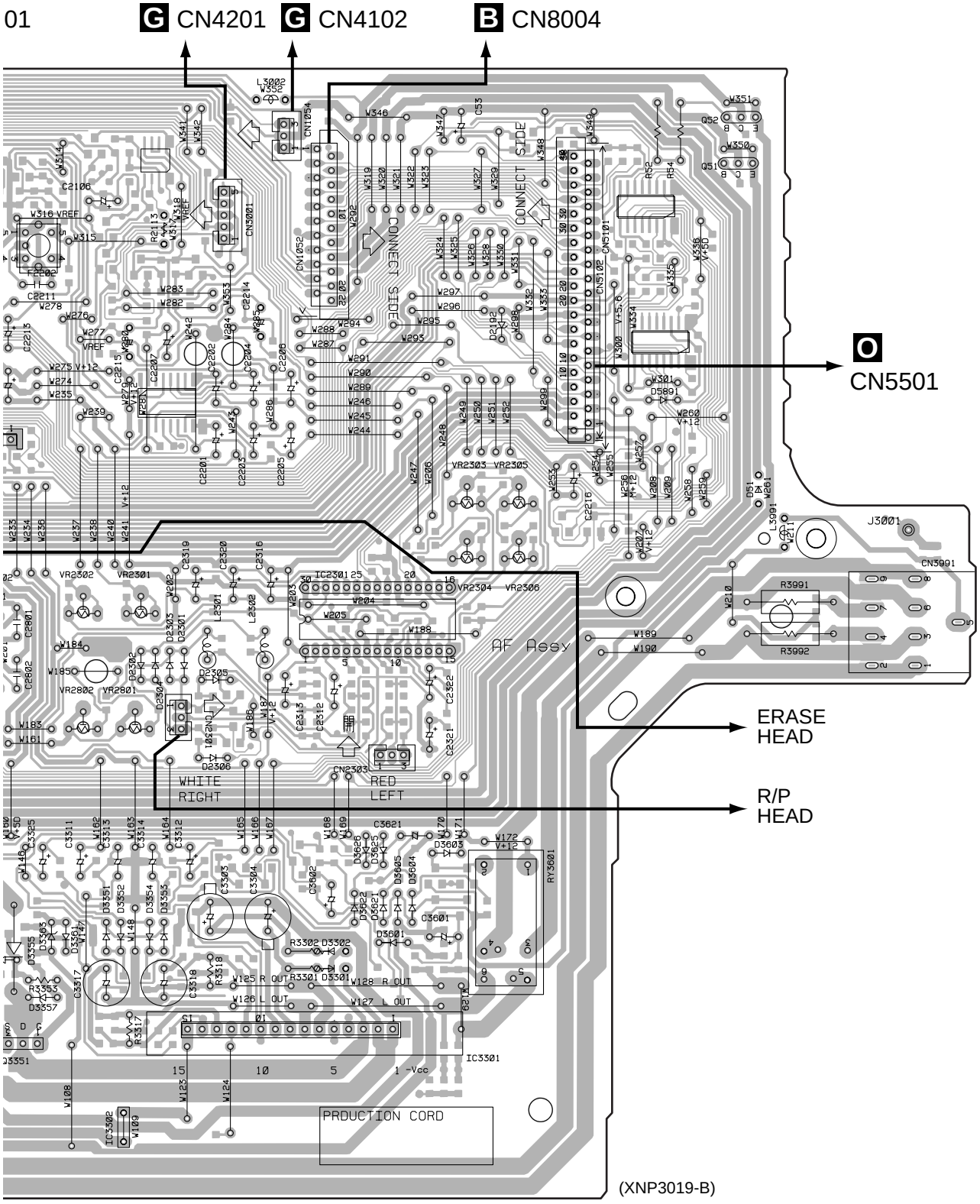
L SECONDARY ASSY



(XNP3019-B)

4.8 AF ASSY

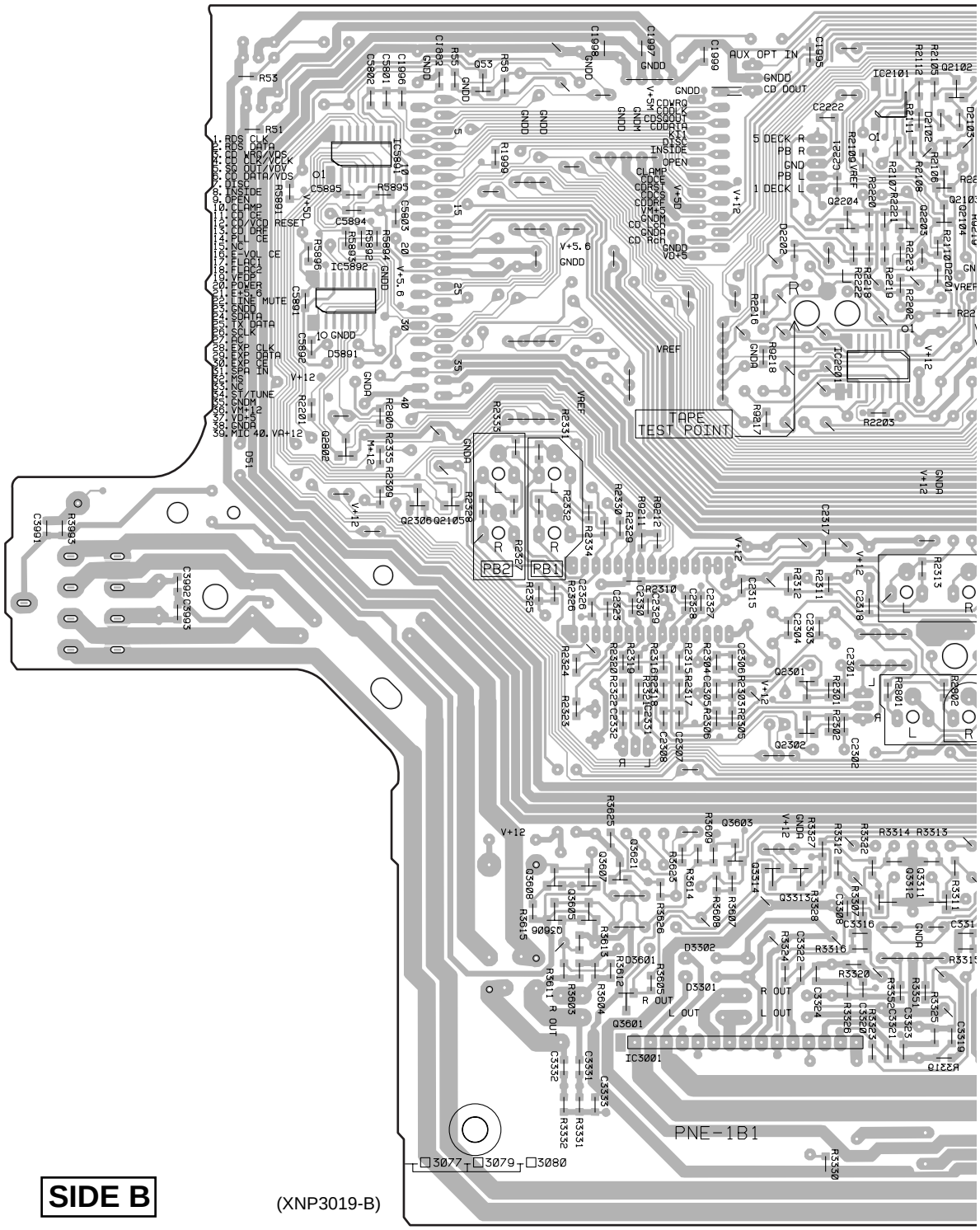

K AF ASSY
G CN4201
A CN6201
N
J81
DC FAN MOTOR
L
J11
SIDE A
VCD ONLY
UNREG +12V
WORDS SURFACE
VFDPRC
VREF
VR2302
VR2802
Q3652
Q3654
IC3651
Q71
Q2803
Q2804
Q2801
Q31
IC32
IC51
IC42
Q3352
Q3351
IC3



VR2302 VR2301 VR2303 VR2305
VR2802 VR2801 VR2304 VR2306

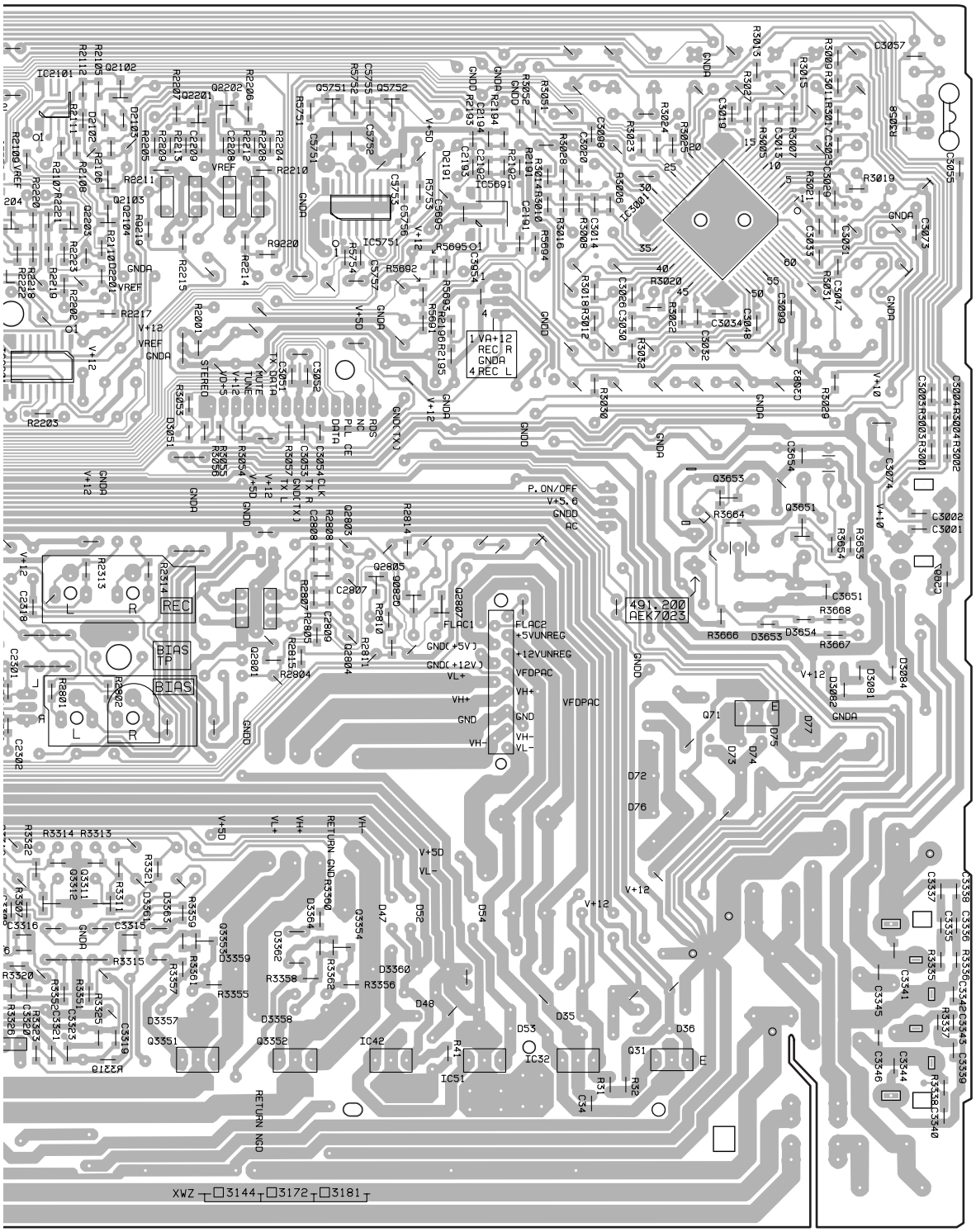
IC2301 Q52
01 IC3301 Q51
Q3351 IC3302

K AF ASSY



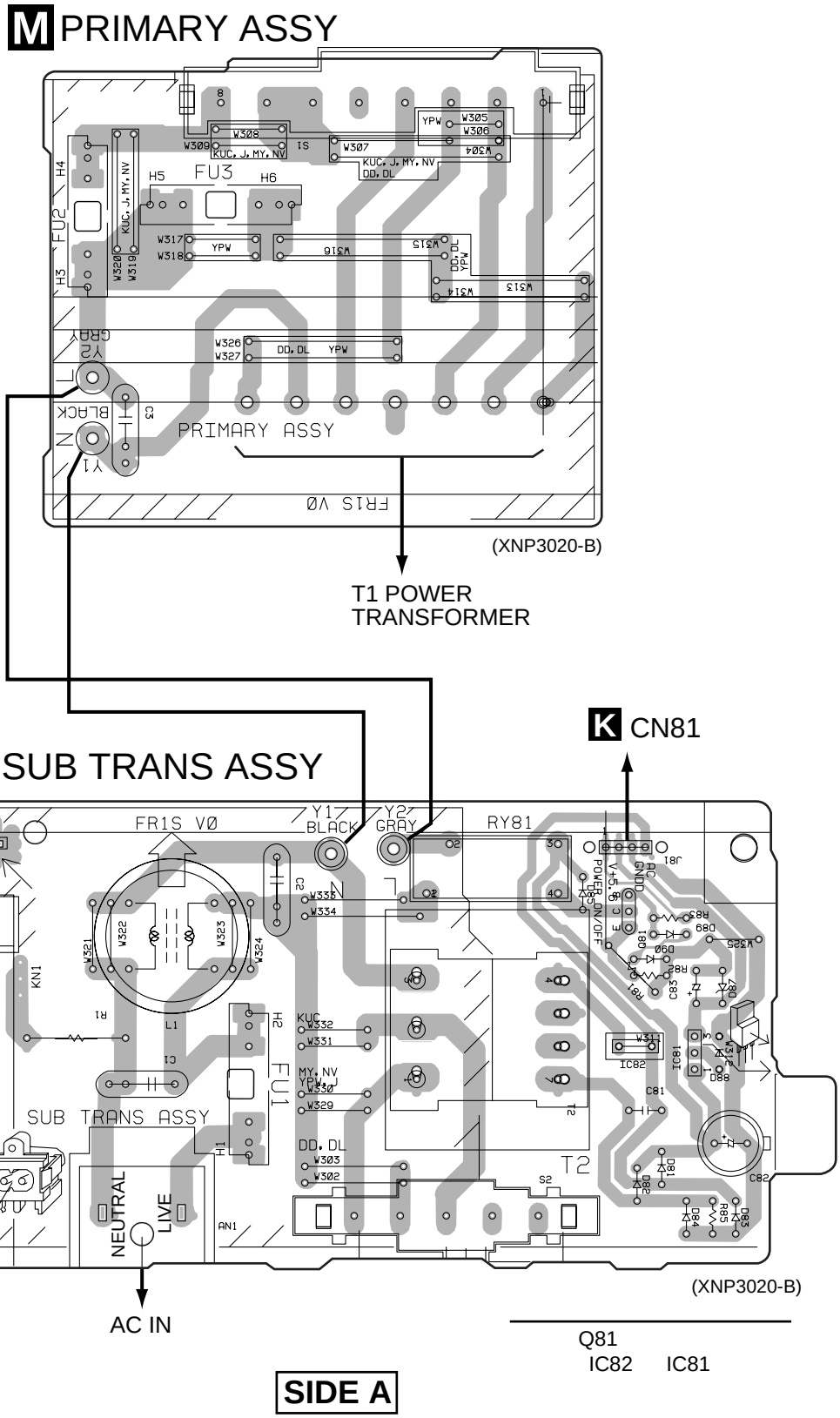
SIDE B

(XNP3019-B)



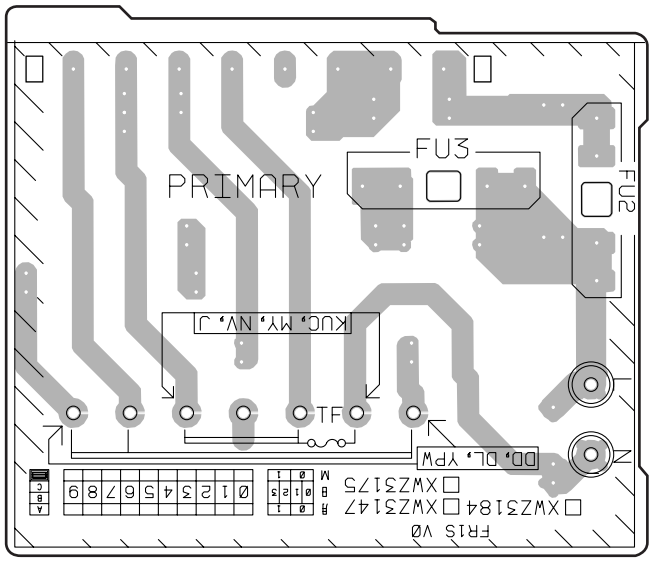
IC2101 Q2102 Q2201 Q2202 Q5751 Q5752
Q2103
IC5751 IC5691 IC3001
Q2204 Q2203 Q2104
Q2805 – Q2807 Q3653 Q3651
IC2201
Q71
Q3312 Q3311 Q3353 Q3354
Q3351 Q3352 IC42 IC51 IC32 Q31

4.9 PRIMARY and SUB TRANS ASSEMBLIES



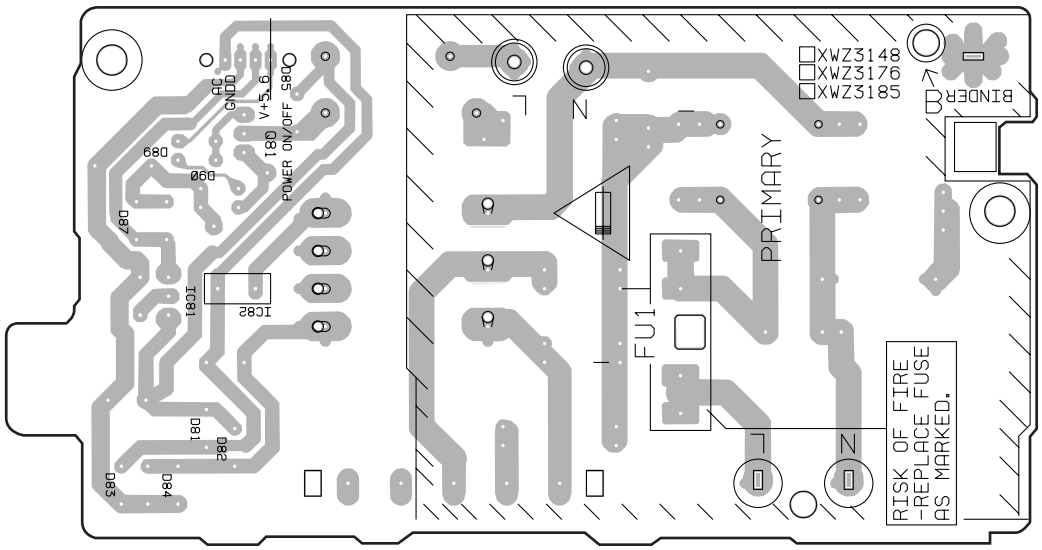
SIDE A

M PRIMARY ASSY



(XNP3020-B)

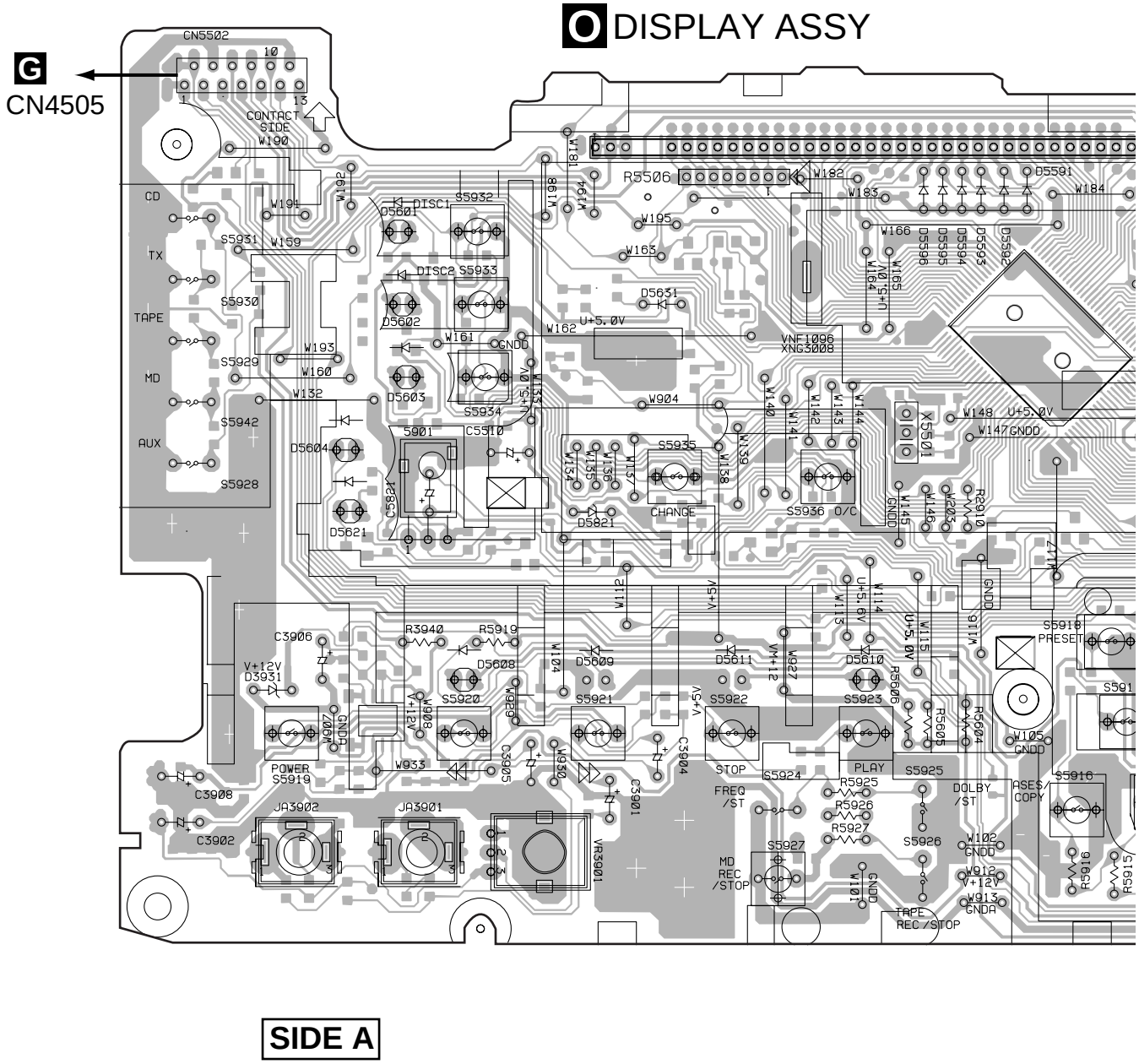
N SUB TRANS ASSY



(XNP3020-B)

SIDE B

4.10 DISPLAY ASSY

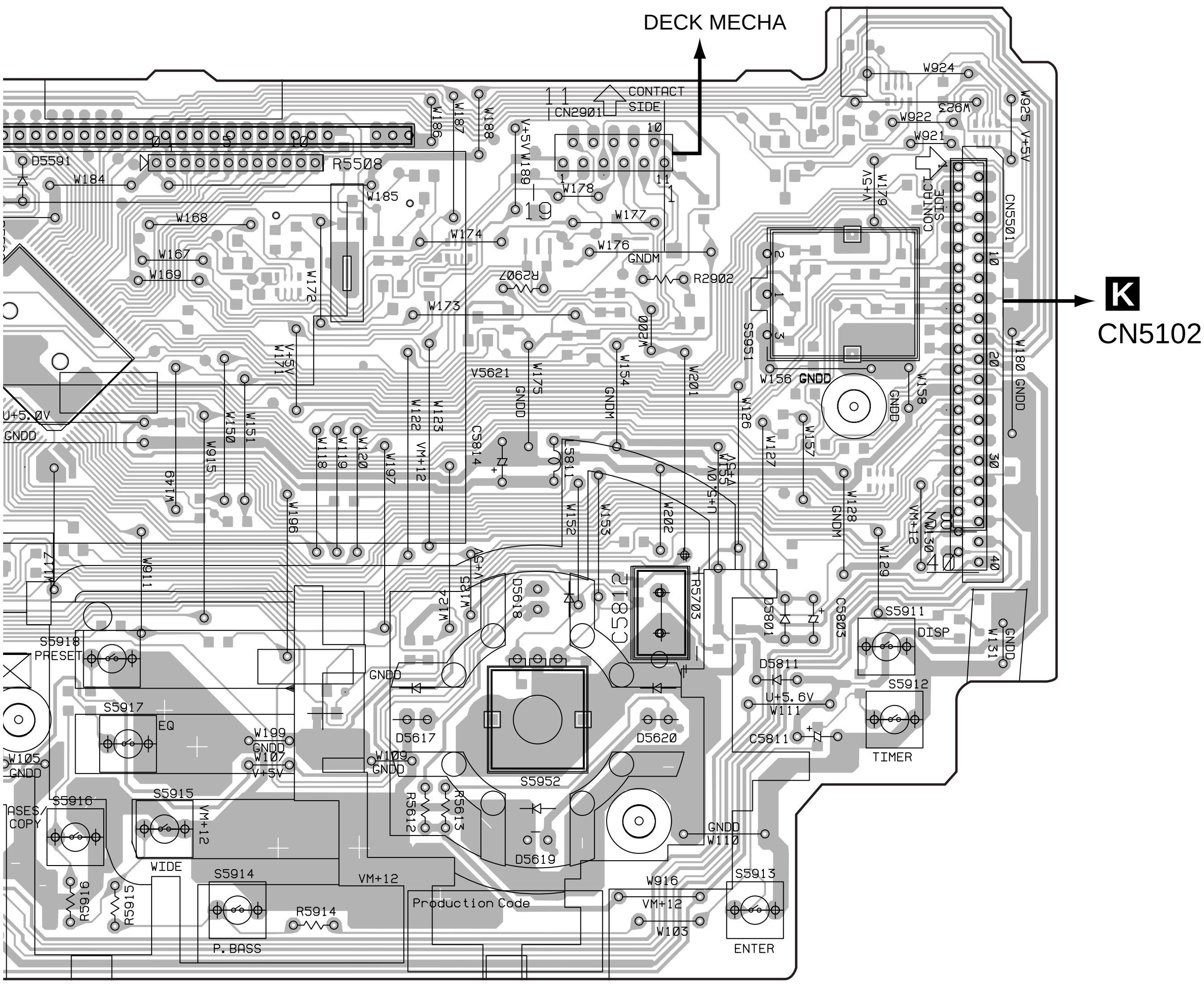


A

B

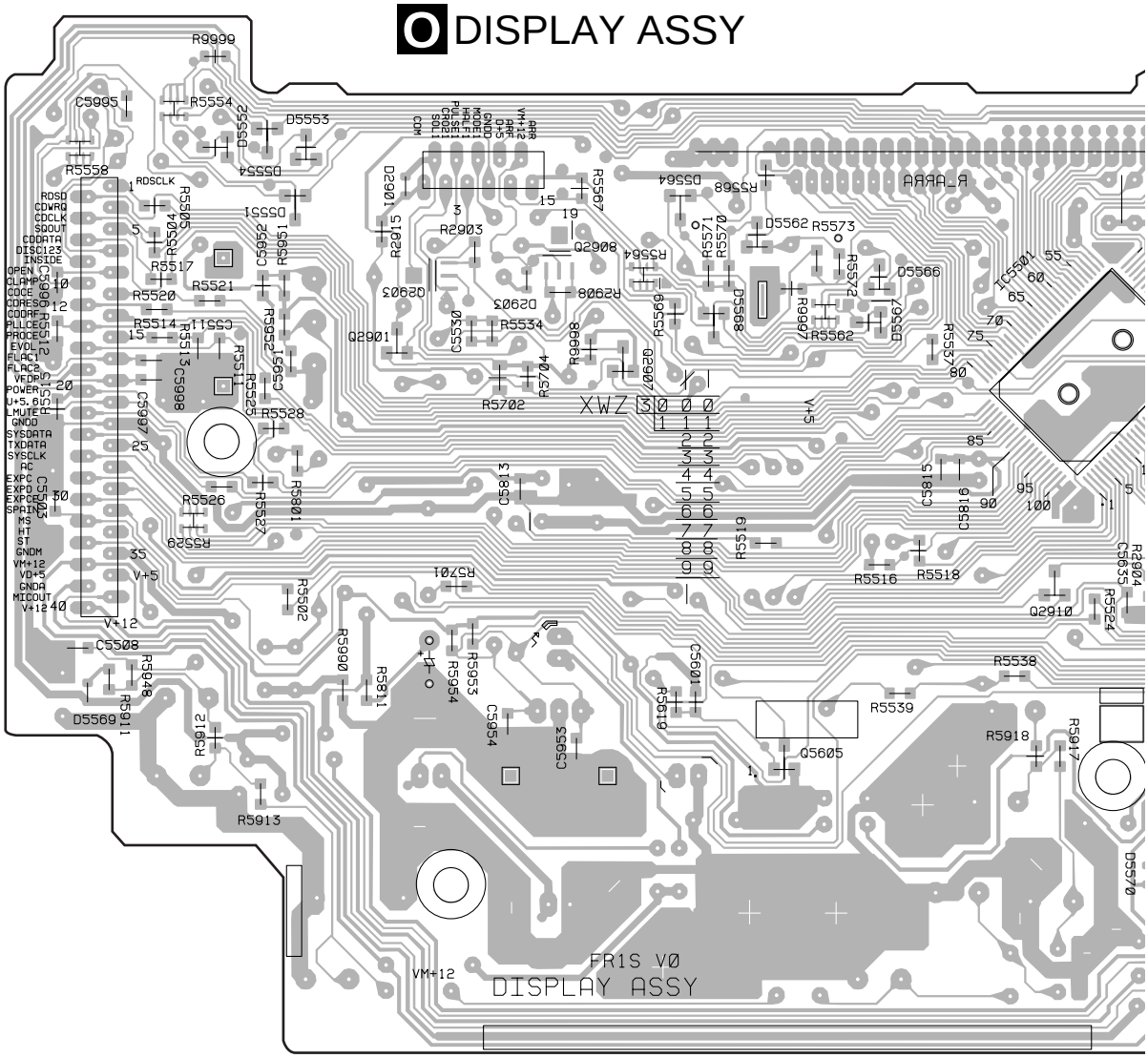
C

D



(XNP3020-B)

DISPLAY ASSY



Q2903 Q2908 IC5501
Q2901 Q2907 Q5605 Q2910

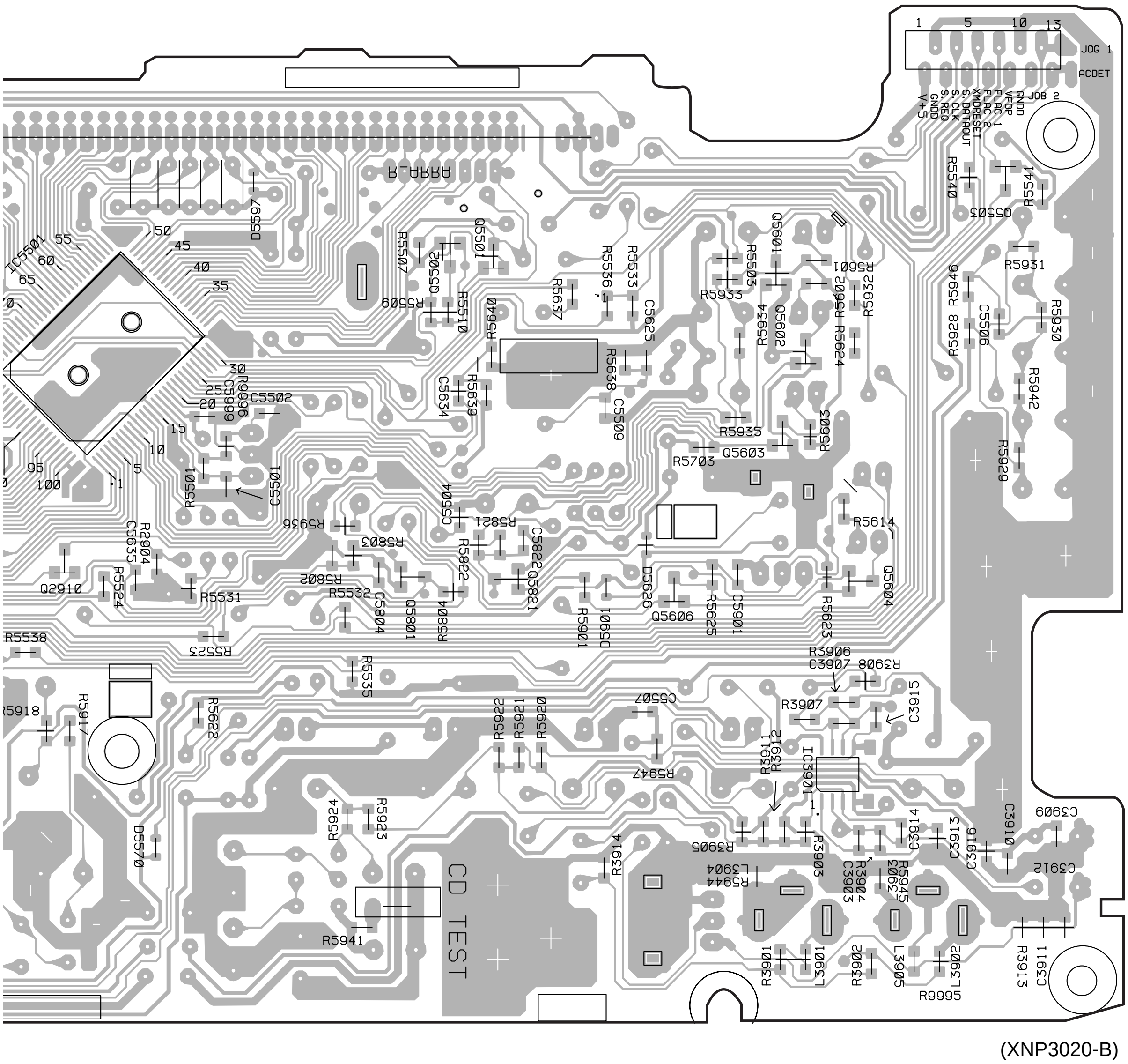
SIDE B

A

B

C

D



IC5501		Q5502 Q5501		Q5601 – Q5604	Q5503
Q2910	Q5801	Q5821	Q5606	IC3901	

5. PCB PARTS LIST

NOTES: ●**Parts marked by "NSP" and ⊗ can not be supplied.**

- *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.*
- *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	→	*56 × 10¹*	→	*561*	*RD1/4PU [5][6][1] J*
47k Ω	→	*47 × 10³*	→	*473*	*RD1/4PU [4][7][3] J*
0.5 Ω	→	*R50*			*RN2H [R][5][0] K*
1 Ω	→	*1R0*			*RS1P [1][R][0] K*

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

5.62k Ω	→	*562 × 10¹*	→	*5621*	*RN1/4PC [5][6][2][1] F*

■ LIST OF WHOLE PCB ASSEMBLIES

Mark	PCB Assemblies	Part No. XR-A550MD KUCXJ Type	Part No. XR-A550MD DBDXJ Type	Remarks
	FM/AM TUNER MODULE	AXQ7065	AXQ7065	
NSP	$M MECHA CD DIGITAL ASSY	XXA3006	XXA3006	
NSP	└$M SERVO MECHANISM ASSY	XWX3005	XWX3005	
⊗	├ CD ASSY	XWZ3141	XWZ3141	
NSP	├ SW ASSY	AWZ8429	AWZ8429	
⊗	└ MOTOR ASSY	AWZ8428	AWZ8428	
	MD MECHANISM ASSY	AXA7054	AXA7054	
	├ PWB-A (MD MAIN ASSY)	1246840167	1246840167	
	└ PWB-B (MD MECHANISM SWITCH ASSY)	1245210149	1245210149	
NSP	MD ASSY	XWM3075	XWM3076	
⊗	├ MD MAIN ASSY	XWZ3177	XWZ3186	
⊗	├ MD FRONT ASSY	XWZ3178	XWZ3187	
⊗	├ MD LED ASSY	XWZ3180	XWZ3189	
⊗	└ MD SUB ASSY	XWZ3179	XWZ3188	
NSP	MAIN ASSY	XWM3079	XWM3080	
⊗	├ AF ASSY	XWZ3172	XWZ3181	
⊗	└ SECONDARY ASSY	XWZ3173	XWZ3182	
NSP	COMPLEX ASSY	XWM3083	XWM3084	
⊗	├ PRIMARY ASSY	XWZ3175	XWZ3184	
⊗	├ SUB TRANS ASSY	XWZ3176	XWZ3185	
⊗	└ DISPLAY ASSY	XWZ3174	XWZ3183	

Mark	No.	Description	Part No.

A FM/AM TUNER MODULE

SEMICONDUCTORS

	IC6201	LA1832ML
	IC6202	LC72131MD
	Q6402	2SC2223
	Q6203	2SC2705
	Q6201,Q6202	2SC2712
	Q6214,Q6403	2SC2714
	Q6404	2SK302
	Q6401	3SK194
	Q6204	DTA124ES
	Q6205	DTC124EK
	D6202	1SS254
	D6401,D6402	1T378A

COILS AND FILTERS

	L6404	ATC1003
	L6401	ATC1020
	L6402	ATC1021
	F6204	ATF-107
	F6203	ATF-119
	F6401	ATF-155
	F6206	ATF7008
	F6202	ATF7011
	L6206,L6208,L6403	LAU2R2J

TRANSFORMERS

	T6201	ATB7008
	T6401	ATE7002

Mark	No.	Description	Part No.
CAPACITORS			
	C6208		CCSQCH100D50
	C6212,C6274,C6275,C6408		CCSQCH101J50
	C6412		CCSQCH102J50
	C6221,C6222,C6416		CCSQCH150J50
	C6271		CCSQCH200J50
	C6415		CCSQCH330J50
	C6406		CCSQCH331J50
	C6401,C6419		CCSQCH5R0C50
	C6407		CCSQCK1R0C50
	C6410		CCSQCK2R0C50
	C6413		CCSQRH180J50
	C6414		CCSQRH8R0D50
	C6405		CCSQTH150J50
	C6234,C6235		CEAL1R0M50
	C6245		CEAL470M16
	C6224		CEAT100M50
	C6243		CEAT101M16
	C6231		CEAT1R0M50
	C6227		CEAT220M25
	C6214,C6236		CEAT2R2M50
	C6262		CEAT3R3M50
	C6219		CEAT470M10
	C6244		CEAT470M16
	C6249,C6250,C6265,C6266		CEAT4R7M50
	C6258		CEJA470M16
	C6215		CFTLA103J50
	C6211,C6254,C6403,C6417		CKSQYB102K50
	C6201,C6205,C6210,C6237,C6276		CKSQYB103K50
	C6278,C6280,C6281,C6402,C6409		CKSQYB103K50
	C6418		CKSQYB103K50
	C6251,C6252		CKSQYB153K50
	C6203,C6259		CKSQYB223K50
	C6228		CKSQYB472K50
	C6209		CKSQYB473K50
	C6230		CKSQYB821K50
	C6218,C6223,C6255		CKSQYF103Z50
	C6220,C6226,C6242,C6256		CKSQYF223Z50
	C6225		CKSQYF473Z50
RESISTORS			
	R6280		RD1/4PU101J
	R6413,R6416,R6418,R6906,R6909		RS1/8S0R0J
	R6401		RS1/8S470J
	VR6201 (10kΩ)		PCP1029
	Other Resistors		RS1/10S□□□J
OTHERS			
	BN6202	TERMINAL 4P	AKE7025
	X6202	CERAMIC RESONATOR (456kHz)	ASS1066
	X6201	CRYSTAL RESONATOR (7.2MHz)	ASS1093
	CN6201	14P SOCKET	KP200IA14L
		AM RF TUNIG BLOCK	AXX7041

Mark	No.	Description	Part No.
B CD ASSY			
SEMICONDUCTORS			
	IC8201		BA5923FP
	IC8101		LA9241ML
	IC8301		LC78622NE
	Q8101		2SA1048
	Q8251,Q8252		2SB1237X
	Q8253,Q8254		2SD1858X
	D8253		1SS181
	D8251,D8252		1SS355
COILS			
	L8351,L8352		LFA1R0K
	L8201,L8371		LFA470J
CAPACITORS			
	C8145,C8352,C8354,C8356,C8358		CCSQCH101J50
	C8361,C8362		CCSQCH101J50
	C8132,C8311		CCSQCH150J50
	C8310		CCSQCH180J50
	C8131		CCSQCH300J50
	C8129		CCSQCK1R0C50
	C8142		CEAL101M6R3
	C8127		CEAL1R0M50
	C8126,C8139		CEAL470M16
	C8135		CEAL4R7M16
	C8124		CEALR47M50
	C8136		CEAT100M50
	C8108,C8306,C8371		CEAT101M10
	C8202		CEAT101M25
	C8101		CEAT3R3M50
	C8105		CEAT470M16
	C8109		CEATR22M50
	C8106,C8119,C8133,C8307,C8308		CKSQYB102K50
	C8360		CKSQYB102K50
	C8102,C8122,C8123,C8130		CKSQYB103K50
	C8137,C8138,C8201,C8309,C8312		CKSQYB103K50
	C8134,C8302,C8303		CKSQYB104K25
	C8353,C8359		CKSQYB152K50
	C8111		CKSQYB153K25
	C8114,C8117,C8120,C8121		CKSQYB154K16
	C8125		CKSQYB221K50
	C8107		CKSQYB223K50
	C8110		CKSQYB331K50
	C8115,C8128		CKSQYB332K50
	C8113		CKSQYB333K25
	C8112,C8141		CKSQYB334K16
	C8116,C8140,C8355,C8357		CKSQYB473K50
	C8118,C8255-C8257,C8301		CKSQYF104Z25
	C8304,C8305		CKSQYF104Z25
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	X8301	CRYSTAL RESONATOR (16.9344MHz)	PSS1008
	CN8003	6P JUMPER CONNECTOR	52151-0610
	CN8002	KR CONNECTOR	B6B-PH-K-S
	CN8005	3P SIDE POST	BS3P-SHF-1AA
	CN8004	FFC CONNECTOR 22P	HLEM22R-1
	CN8001	FFC CONNECTOR	SLW15S-1C7

Mark	No.	Description	Part No.
C		**MOTOR ASSY**	
		SWITCH	
	S8503		ASG7009
		OTHERS	
	J8502	JUMPER WIRE 4P	D20PWW0405E
		MOTOR PULLEY	PNW1634
		CARRIAGE MOTOR	VXM1033
D		**SW ASSY**	
		SWITCHES	
	S8502		ASG7009
	S8501		DSG1017
		OTHERS	
	J8501	JUMPER WIRE 6P	D20PWY0610E
E		**PWB-A (MD MAIN ASSY)**	
		SEMICONDUCTORS	
	IC1251 (74ACT02F)		1245730043
	IC1990 (74AC04FS)		1245730044
	IC1906 (TC7ST08F)		1245730152
	IC1907 (TC9246F)		1245730153
	IC1202 (RH-IX2474AFZZ)		1245730207
	IC1402 (S29294A)		1245730301
	IC1101 (IR3R55)		1245730345
	IC1601 (M56758FP)		1245730354
	IC1802 (NJM431U)		1245730356
	IC1701 (UDA1340)		1245730357
	IC1801 (XC62EP32)		1245730367
	IC1916 (74VHC08FT)		1245730368
	IC1201 (LR376481)		1245730418
	IC1401 (IX0261)		1245730480
	Q1701 (2SC2412KR)		1115760132
	Q1601,Q1801,Q1807 (2SA1314C)		1245760001
	Q1253,Q1254 (2SK1473)		1245760016
	Q1451,Q1821,Q1822		1245760031
	Q1401,Q1403 (RN2404)		1245760032
	Q1251,Q1252 (2SK2909)		1245760042
	Q1802,Q1803 (RN1406)		1245760047
	Q1402,Q1404,Q1806 (RNC1404)		1305760402
	Q1804,Q1820 (2SA1162G)		1305760552
	D1251,D1252 (SB0209CP-1)		1245700005
	D1990 (1SS372)		1245700008
		COILS	
	L1251 (47µH)		1245850002
	L1101,L1701,L1702 (10µH)		1245850024
	L1203,L190 (4.7µH)		1245850025
	L1102,L1201 (0.47µH)		1245850026
	L1601,L1950 (1µH)		1246140023
		CAPACITORS	
	C1112,C1113,C1114,C1115,C1116		1185930004
	C172,C1729		1185930010
	C1957		1185940013
	C1956		1185940016
	C1654 ,C1655		1185950005
	C1254,C1610,C1803,C1806,C1991		1245900038
	C1101,C1255,C1601,C1602		1245900039
	C1605,C1661,C1802		1245940005
	C1715		1245940006
	C1106,C1110,C1953		1245950016
	C1102,C1105,C1109,C1990		1245950017
	C1807		1265940014
	C1801		1275950006
	C1722,C1724		1305930530
	C1954		1305930557
	C1913		1305930558
	C1204,C1205		1305930581
	C1604		1305930592
	C1107		1305950192
	C1609		1305950261
	C1700,C1701,C1711,C1716,C1717		1305950271
	C1111		1305950274
	C1403,C1412		1305950311
	C1720,C1952		1305950316
	C1656,C1657		1305950331
	C1964		1305950338
	C1103,C1121,C1202,C1203,C1206		1305950342
	C1207,C1209,C1210,C1211,C1406		1305950342
	C1460,C1631,C1704,C1805,C1810		1305950342
	C1251		1305950360
	C1407,C1421,C1422,C1423,C1424		1305950393
	C1145		1305950396
	C1208,C121,C1401,C1402,C1425		1305950397
	C1702,C1709,C1927,C1951,C1955		1305950397
	C1958		1305950397
	C1706,C1707		1425900305
	C1252		1425930040
	C1119		1425930083
	C1650,C1651,C1652,C1653		1425930084
	C1703,C1710,C1712,C1714,C1743		1425940037
	C1104		1425950018
	C1405,C1992		1425950096
	C1904		1425950126
		RESISTORS	
	R1707,R1708		1185810009
	R1969		1185810011
	R1107		1185810057
	R1804		1245810056
	R1614		1245810060
	R1611		1245810079
	R1716		1245810082
	R1663,R1665		1245810086
	R1805		1245810087
	R1715		1245810105
	R1610		1245810110
	R1927		1305810607
	R1254		1305810608
	R1252,R1253,R170,R171,R196		1305810630
	R1947		1305810671
	R1223		1305810673
	R1210,R1961		1305810907
	R1401,R1404,R1409,R1415,R1420		1305810908
	R1426,R1428,R1454,R1456,R1474		1305810908
	R1475,R1476,R1810,R1939		1305810908

Mark	No.	Description	Part No.
	R1106,R1261,R1262,R1263,R1266		1305810909
	R1405,R1414,R1416,R1422,R1423		1305810909
	R1424,R1429,R1430,R1459,R1461		1305810909
	R1463,R1471,R1478,R1650,R1652		1305810909
	R1662,R1664,R1965		1305810909
	R1408,R1412,R1473,R1651,R1653		1305810910
	R1712		1305810910
	R1655,R1657		1305810912
	R1658,R1660		1305810914
	R120,R1211,R1221,R1464,R1466		1305810918
	R1968,R1974		1305810918
	R1994,R1995		1305810919
	R1962		1305810920
	R1406,R1407,R1413,R1452		1305810922
	R1809		1305810924
	R1105		1305810925
	R1102		1305810927
	R1155,R1612		1305810928
	R1458,R1460,R1462,R1654,R1656		1305810929
	R1668,R1669,R1964,R1973		1305810929
	R1702		1305810930
	R1255,R1269,R1620,R1921		1305810934
	R1801		1305810935
	R1418,R1472,R1617,R1734,R1735		1305810937
	R1202,R1701		1305810944
	R1427		1305810946
	R1609,R1963		1305810948
	R1201		1305810949
	R1150-R1154,R1666,R1667		1305810950
	R1717		1305810952
	R1802,R1827		1305810957
	R1613,R1808,R1811		1305810989
	R1425		1305810990
	R1711,R1713,R1714		1305810992
	R1281,R1731,R1733,R1967		1305810994
	R1251		1305810995
	R1659,R1661		1305811002
	R1710		1305811041
	R1100		1425810093
	R1166		1425810154
	R1820,R1821		1425810157
	R1806,R1807		1425810196
OTHERS			
	CN1101	23P PLUG	1245100161
	CN1601	5P PLUG	1245100162
	CN1602	2P PLUG	1245100163
	CN1604	2P PLUG	1245100164
	CN1902	24P SOCKET	1245100165
	CN1252	2P PLUG	1425100204
	CN1904	4P PLUG	1425100223
	CN1603	2P PLUG	1425100236
	X1201	CRYSTAL RESONATOR (33.8688MHz)	1246160018

Mark	No.	Description	Part No.

F PWB-B (MD MECHANISM SWITCH ASSY)

SWITCHES

	S1954,S1955	1245300026
	S1952	1245300027
	S1956	1305301313
	S1953	1305301315

RESISTORS

	R1902	1305810605
	R1903,R1904	1305810618
	R1901	1305810732

OTHERS

	CN1901	5P SOCKET	1245100160

G MD MAIN ASSY

Although XWZ3177 and XWZ3186 are different in part number, they consit of the same components.

● **PARTS LIST FOR XWZ3177**

SEMICONDUCTORS

	IC4201-IC4203	NJM4558MD
	IC4502	PDG244A
	IC4101	TC74HC00AF
	IC4503	TC74HC08AF
	Q4203-Q4206,Q4209,Q4210	2SD2114K
	Q4208,Q4501	DTC124EK
	D4012-D4015,D4201,D4202	1SS355
	D4101	MTZJ5.1B
	D4203	MTZJ6.2A

COIL

	L4502	LAU470J

CAPACITORS

	C4104 (0.047F)	ACH1246
	C4203,C4204,C4213,C4214	CCSQSL101J50
	C4211,C4212	CCSQSL220J50
	C4207,C4208	CCSQSL470J50
	C4201,C4202,C4205,C4206	CEAT100M50
	C4209,C4210,C4218,C4219	CEAT100M50
	C4221-C4224,C4238	CEAT100M50
	C4228	CEAT101M25
	C4538	CEAT101M50
	C4227	CEAT1R0M50
	C4231-C4234	CEAT2R2M50
	C4220	CEAT330M25
	C4520,C4599	CEAT470M16
	C4229	CEAT470M25
	C4511	CEAT471M6R3
	C4020,C4101-C4103,C4509,C4510	CKSQYB103K50
	C4515,C4517,C4519,C4521	CKSQYB103K50
	C4105,C4518	CKSQYB104K25
	C4235,C4236	CKSQYB153K50
	C4225,C4226	CKSQYB222K50
	C4512-C4514	CKSQYB471K50

Mark	No.	Description	Part No.
RESISTORS			
	R4599		RD1/4PU330J
	R4552,R4553		RD1/4PU3R3J
	Other Resistors		RS1/10S□□□J
OTHERS			
	X4501	CERAMIC RESONATOR (8.38MHz)	RSS1042
	CN4503	11P FFC CONNECTOR	52045-1145
	CN4505	13P FFC CONNECTOR	52045-1345
	CN4102	KR CONNECTOR	B3B-PH-K-R
	CN4101	KR CONNECTOR	B4B-PH-K-S
	CN4504	9P PLUG	KM200IB9
	CN4002	24P FFC CONNECTOR	VKN1200

H MD FRONT ASSY

Although XWZ3178 and XWZ3187 are different in part number, they consit of the same components.

● PARTS LIST FOR XWZ3178

Mark	No.	Description	Part No.
SEMICONDUCTOR			
	IC4501		MSM9202-01
COIL			
	L4505		LAU220J
SWITCHES			
	S4501-S4504		XSG3001
CAPACITORS			
	C4523-C4525		CCSQSL101J50
	C4527		CCSQSL470J50
	C4537		CEJA100M16
	C4522,C4526		CKSQYB104K25
	C4536,C4539		CKSQYB154K16
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
	4501	3P CABLE HOLDER	51048-0300
		16P CABLE HOLDER	51048-1600
	CN4506	11P FFC CONNECTOR	52045-1145
	V4501	FL TUBE	AAV7058

I MD LED ASSY

Although XWZ3180 and XWZ3189 are different in part number, they consit of the same components.

● PARTS LIST FOR XWZ3180

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	D4503,D4504		MTZJ5.6A
	D4505,D4506		NSPBF50S-8451
RESISTORS			
	All Resistors		RS1/10S□□□J
OTHERS			
		3P CABLE HOLDER	51048-0300
	J4501	JUMPER WIRE	D20PYY0310E
		LED HOLDER	XMR3005

Mark	No.	Description	Part No.

J MD SUB ASSY

Although XWZ3179 and XWZ3188 are different in part number, they consit of the same components.

● PARTS LIST FOR XWZ3179

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC4002		AEK7010
⚠	IC4003		AEK7020
	IC4001		NJM2904M
	Q4004		2SC2412K
	Q4002		2SD1859X
	Q4001,Q4007		2SD2012
⚠	Q4008		2SD2012
	Q4005,Q4006		2SD2395
⚠	Q4009		2SD2395
	Q4003		DTC124EK
⚠	D4011		GBU4DL-5303
	D4002		MTZJ13B
	D4008		MTZJ5.1A
	D4004		MTZJ6.8B
	D4001,D4005-D4007,D4009,D4010		S5688G
	D4016		S5688G
CAPACITORS			
	C4001 (22000µF/16V)		ACH7078
	C4004,C4005		CEAT100M50
⚠	C4010		CEAT222M25
	C4003,C4019		CEAT470M16
	C4002		CEAT470M25
	C4011		CEAT471M10
	C4006		CKSQYB103K50
	C4096		CKSQYB104K25
RESISTORS			
	R4001		RD1/4PU151J
	R4023-R4026,R4033,R4034		RD1/4PU1R0J
	R4029,R4031,R4032		RD1/4PU220J
	R4018		RS1LMF181J
	R4019		RS2LMF8R2J
	R4020		RS3LMF150J
	Other Resistors		RS1/10S□□□J
OTHERS			
		3P CABLE HOLDER	51048-0300
	J4001	JUMPER WIRE	D20PYY0320E
	CN4001	9P SOCKET	KP200IA9L

K AF ASSY

Although XWZ3172 and XWZ3181 are different in part number, they consit of the same components.

● PARTS LIST FOR XWZ3172

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC3651		AEK7023
	IC2101,IC5691		BA4558F-HT
	IC5891,IC5892		BU4094BCF
	IC2201		HA12136AF
	IC2301		HA12211NT

Mark	No.	Description	Part No.
	IC3001		LC75394NED
⚠	IC42		NJM7805FA
⚠	IC32		NJM7812FA
⚠	IC3301		STK407-050B
	Q3354,Q3601,Q3621		2SA1037K
⚠	Q71		2SA1837
	Q2806		2SB1197K
⚠	Q3652,Q3654		2SB1238X
	Q2803,Q2804		2SC1815
	Q2801		2SC2240
	Q2102,Q2201,Q2202,Q3353,Q3603		2SC2412K
	Q3605-Q3608,Q3651,Q3653		2SC2412K
⚠	Q31		2SD2012
	Q2203,Q2204,Q2805,Q3311,Q3312		2SD2114K
	Q2301,Q2302		2SK368
	Q3313		DTA124EK
	Q2104,Q2105,Q3314		DTC124EK
	Q2103,Q2306,Q2802,Q2807		DTC143EK
	Q3351		IRFI9Z34G
	Q3352		IRFIZ34G
	D3301,D3302		1SR139-100
	D2191,D2301-D2306,D3351-D3354		1SS133
	D3361,D3362,D3601,D3603,D3604		1SS133
	D3621,D3622,D3625,D3626,D3652		1SS133
	D5891,D73		1SS133
	D2102,D2103,D2201,D2202,D3051		1SS355
	D3081,D3082,D3084,D3653,D3654		1SS355
	D3355,D3356		20E2-FC
	D3357,D3358		MTZJ10C
	D35,D36		MTZJ15C
	D3359,D3360		MTZJ18B
	D3651		MTZJ3.9B
	D74		MTZJ33C
	D3363,D3364		MTZJ39C
	D2001		MTZJ6.2A
	D48		MTZJ6.8C
	D75		MTZJ8.2B
⚠	D72,D76		S5688G

COILS AND FILTERS

	L3331,L3332	ATH-133
	L2801	ATX7002
	L3002	LAU100J
	L2301,L2302	LTA822J
	F2201,F2202	RTF1209

RELAY

	RY3601	ASR7008

CAPACITORS

	C2303,C2304 (270pF)	ACG7024
	C2301,C2302	CCSQCH100D50
	C3047,C3048	CCSQCH101J50
	C2192	CCSQCH390J50
	C3319,C3320	CCSQCH3R0C50
	C3311,C3312	CEANL1R0M50
	C3317,C3318	CEANP220M35
	C3621	CEANP2R2M2A
	C3313,C3314	CEANP2R2M50
	C73	CEAT100M2A
	C2207,C2803,C2810,C33,C35	CEAT100M50
	C3602,C43	CEAT100M50
	C3056	CEAT101M10
	C2002,C2316	CEAT101M16
	C3652	CEAT101M35
	C3303,C3304	CEAT101M50
	C2312,C2313,C32,C42	CEAT1R0M50
	C3653	CEAT220M35
	C2106,C2214,C2215,C2321,C2322	CEAT220M50
	C72	CEAT220M50
	C2001,C3601	CEAT221M16
	C71	CEAT221M63
⚠	C41	CEAT222M25
⚠	C31	CEAT222M35
	C2201,C2202,C2205,C2206	CEAT2R2M50
	C2212,C2213,C2319,C2320	CEAT2R2M50
	C3005-C3010,C3015-C3018	CEAT2R2M50
	C3039,C3040,C3655	CEAT2R2M50
	C2804,C2805	CEAT330M16
	C3082	CEAT330M50
	C3045,C3046,C3091	CEAT470M35
	C3021,C3022	CEATR10M50
	C2203,C2204	CEATR22M50
	C3011,C3012,C3325	CEATR47M50
	C3027,C3028	CFTLA334J50
	C3023,C3024	CFTLA474J50
	C2802	CKCYB681K2H
	C5892	CKSQYB102K50
	C2315,C2317,C2318,C3053,C3057	CKSQYB103K50
	C3083,C3098,C3651,C3654	CKSQYB103K50
	C2191,C2193,C3055,C3099,C3991	CKSQYB104K25
	C5891	CKSQYB104K25
	C2194	CKSQYB105K10
	C3033,C3034	CKSQYB122K50
	C2208,C2209	CKSQYB152K50
	C3315,C3316	CKSQYB222K50
	C2323,C2326	CKSQYB223K50
	C3029,C3030	CKSQYB273K50
	C2808,C2809	CKSQYB332K50
	C2807	CKSQYB472K50
	C2307,C2308,C3013,C3014	CKSQYB681K50
	C3019,C3020,C3031,C3032	CKSQYB682K50
	C3025,C3026	CKSQYB683K25
	C3331-C3333	CKSQYF104Z50
	C2801	CQHA822J2A
	C2210,C2211	CQMBA103J50
	C2806	CQMBA223J50

RESISTORS

	R72	RD1/2LMF222J
	R2812	RD1/2LMF270J
	R2813	RD1/2LMF471J
	R2809	RD1/2LMF4R7J
	R3333,R3334	RD1/4LMF100J
	R3353,R3354	RD1/4PU101J
	R73	RD1/4PU103J
	R3317,R3318	RD1/4PU683J
	R3665	RD1/4PU822J
	R3663	RS1LMF151J
	R3652	RS1LMF470J
	R3991,R3992	RS2LMF331J
	R3601,R3602	RS2LMFR22J
	VR2303,VR2304 (10kΩ)	VCP1156
	VR2301,VR2302 (100kΩ)	VCP1162
	VR2801,VR2802 (220kΩ)	VCP1164
	Other Resistors	RS1/10S□□□J

Mark	No.	Description	Part No.
OTHERS			
		CABLE HOLDER (15P)	51063-1505
	CN1052	22P FFC CONNECTOR	52045-2245
	CN5102	38P FFC CONNECTOR	52045-3845
	CN81	4P JUMPER CONNECTOR	52147-0410
	CN3331	SPEAKER TERMINAL 4P	AKE7001
	CN2302	KR CONNECTOR	B2B-PH-K-S
	CN1054	KR CONNECTOR	B3B-PH-K-R
	CN2301	KR CONNECTOR	B3B-PH-K-S
	CN3002	KR CONNECTOR	B4B-PH-K-S
	CN3001	KR CONNECTOR	B5B-PH-K-S
	JA1652	OPTICAL RECEIVE MOD.	GP1F32R
	CN3051	14P PLUG	KM200IB14
	JA3001	2P PIN JACK	VKB1060
	J3651	CONNECTOR ASSY 2P	XDX3002
	CN3991	HEADPHONE JACK	XKN3001

L SECONDARY ASSY

Although XWZ3173 and XWZ3182 are different in part number, they consit of the same components.

● PARTS LIST FOR XWZ3173

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC71		AEK7010
⚠	IC31		AEK7015
⚠	IC41		AEK7016
⚠	IC11,IC12		AEK7019
⚠	IC21,IC22		AEK7053
⚠	D11,D21		GBU4DL-5303
⚠	D31-D34,D41-D44		S5688G
CAPACITORS			
⚠	C11,C12 (2200µF/63V)		ACH7071
	C21,C22		CEAT222M50
OTHERS			
		CABLE HOLDER (15P)	51063-1505
	CN41	3P JUMPER CONNECTOR	52147-0310
	J11	JUMPER WIRE	D15A15-350-2651

M PRIMARY ASSY

(1) CONTRAST TABLE

XWZ3175 and XWZ3184 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		XWZ3175	XWZ3184	
⚠	S1 VOLTAGE SELECTOR	Not used	AKX7006	
	H3-H6 FUSE CLIP	Not used	AKR7001	

(2) PARTS LIST FOR XWZ3175

Mark	No.	Description	Part No.
CAPACITORS			
⚠	C3 (10000pF/AC250V)		ACG7020

N SUB TRANS ASSY

(1) CONTRAST TABLE

XWZ3176 and XWZ3185 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		XWZ3176	XWZ3185	
⚠	S2 VOLTAGE SELECTOR	Not used	AKX7004	
⚠	R1	RCN1080	Not used	
⚠	AN1 AC INLET 1P	AKP7032	BKP1046	
	KN1 EARTH METAL FITTING	VNF1084	Not used	

(2) PARTS LIST FOR XWZ3176

Mark	No.	Description	Part No.
SEMICONDUCTORS			
⚠	IC81		NJM7805FA
	Q81		2SD1859X
	D85,D88-D90		1SS133
⚠	D81-D84		S5688G
COIL			
⚠	L1		ATF-151
TRANSFORMER			
⚠	T2		ATT7027
RELAY			
⚠	RY81		ASR7018
CAPACITORS			
	C83		CEAT100M50
⚠	C82		CEAT102M25
RESISTORS			
⚠	R1 (2.2MΩ)		RCN1080
	Other Resistors		RD1/4PU□□□J
OTHERS			
		4P CABLE HOLDER	51048-0400
⚠	AN1	AC INLET 1P	AKP7032
	H1,H2	FUSE CLIP	AKR7001
	J81	JUMPER WIRE	D20PYY0425E
	KN1	EARTH METAL FITTING	VNF1084

O DISPLAY ASSY

(1) CONTRAST TABLE

XWZ3174 and XWZ3183 are constructed the same except for the following :

Mark	Symbol and Description	Part No.		Remarks
		XWZ3174	XWZ3183	
	D5597	1SS355	Not used	

(2) PARTS LIST FOR XWZ3174

Mark	No.	Description	Part No.
SEMICONDUCTORS			
	IC5501		PDC055A
	Q5501		2SA1037K
	Q2903,Q2908		2SB1132
	Q5503,Q5604,Q5801		2SC2412K
	Q2910		DTA124EK

Mark	No.	Description	Part No.
	Q5606		DTC124EK
	Q2901,Q2907,Q5502,Q5601-Q5603		DTC143EK
	Q5605,Q5821		DTC143EK
	D5631,D5811		1SS133
	D5551-D5554,D5562,D5564		1SS181
	D5566-D5568		1SS181
	D2901,D2903,D5569,D5570,D5597		1SS355
	D5626,D5901		1SS355
	D5602,D5617-D5620		SLP3118C51H
	D5601		SLP7118C51H
	D5603,D5604,D5621		SLP9118C51H

COIL

	L5811		LAU220J

SWITCHES

	S5951		ASX7004
	S5952		ASX7017
	S5911-S5936,S5942		XSG3001

CAPACITORS

	C5812 (0.047F/5.5V)		ACH1246
	C5821		CEJA100M16
	C5803		CEJA1R0M50
	C5510,C5811,C5814		CEJA470M16
	C5804		CKSQYB102K50
	C5995,C5996		CKSQYB103K50
	C5816,C5997-C5999		CKSQYB104K25
	C5530		CKSQYB222K50
	C5509,C5951-C5954		CKSQYB471K50
	C5506-C5508		CKSQYB472K50
	C5634,C5901		CKSQYF104Z50
	C5625		CKSQYF224Z25
	C5503,C5504,C5813,C5822		CKSQYF473Z50

RESISTORS

	R5529 (470Ω)		ACN7056
	R5554,R5562 (1.5kΩ)		ACN7062
	R5558,R5564 (47kΩ)		ACN7077
	R5508		RA11T104J
	R5506		RA7T104J
	R2902,R2907,R2910,R5919		RD1/4PU102J
	R5914		RD1/4PU151J
	R5915		RD1/4PU181J
	R5916		RD1/4PU271J
	R5925		RD1/4PU331J
	R5612,R5613,R5926		RD1/4PU561J
	R5927		RD1/4PU821J
	R5702		RS1/8S223J
	Other Resistors		RS1/10S□□□J

OTHERS

	X5501	CERAMIC RESONATOR (6MHz)	RSS1050
	CN2901	11P FFC CONNECTOR	52045-1145
	CN5502	13P FFC CONNECTOR	52045-1345
	CN5501	38P FFC CONNECTOR	52045-3845
	5901	REMOTE RECEIVER UNIT	GP1U28X
	5631	FL HOLDER	VNF1096
	V5621	FL TUBE	XAV3007

6. ADJUSTMENT

6.1 TUNER SECTION

■ FM Tuner Section

- Set the mode selector to FM BAND.
- Connect the wiring as shown in Fig. 1.

Step No.	Adjustment Title	FM SG (1kHz, ± 75kHz dev.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (MHz)	Level (dBμV)			
1	Front End Sensitivity	98	0 to 30	98MHz	L6402 T6401	Adjust so that the DC voltage between the IC6201-pin 20 and GND becomes at maximum level.
2	TUNED IND. Lighting Level	98	18 ± 2	98MHz	VR6201	Adjust so that the indicator of TUNED IND. starts to light up.

Note:
Before adjusting, make sure there is no gap between L6401 and L6402. If there is a gap between them, bring them into contact with each other first, and then make adjustments.

■ AM Tuner Section

- Set the mode selector to AM BAND.
- Connect the wiring as shown in Fig. 1.

Step No.	Adjustment Title	AM SG (400Hz, 30% Mod.)		Reception Frequency Display	Adjustment Location	Specifications
		Frequency (kHz)	Level (dBμV/m)			
1	Front End Sensitivity	999 (∗1)	35 to 45	999kHz (∗1)	T6201	Adjust so that the DC voltage between the IC6201-pin 20 and GND becomes at maximum level.

Note (∗1): For the area using 10kHz step, frequencies should be 1000kHz.

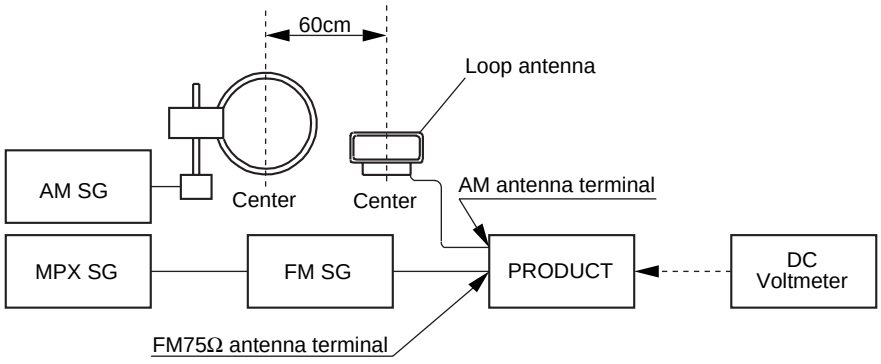


Fig.1 AM and FM Adjustment Wiring Diagram

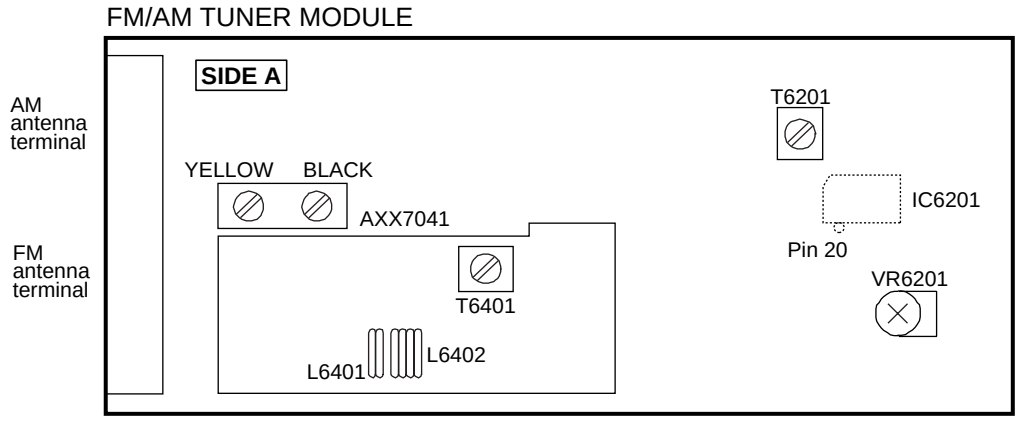


Fig.2 Adjustment Point

6.2 CASSETTE DECK SECTION

● Adjustment points and test points are shown in Fig.3, Fig.5 and Fig.7.

■ Mechanical Adjustment

● Test tape: NCT-111 (3kHz, 30min).

1. Tape Speed Adjustment

No.	Mode	Test Tape	Adjusting Points	Measurement Points	Adjustment Procedure	Remarks
1	PLAY	NCT-111 (Playback : 3kHz)	ADJ. VR on CASSETTE MECHA(Fig. 3)	TAPE TEST POINT (Rch) (AF Assy)	Press the PLAY SW and adjust so that the reading becomes 3000Hz ± 20Hz. Confirm that wow & flutter level is below 0.3% (in the reverse direction, confirm that the reading is within 3000Hz ± 60Hz).	

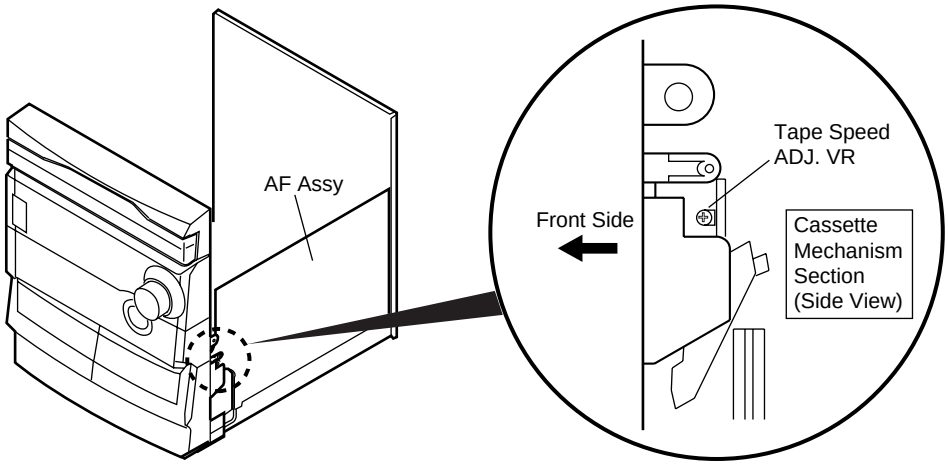


Fig.3 Tape Speed ADJ. Point

■ Electrical Adjustment

Check the following before starting.

(1) Confirm that the tape speed adjustment has been completed.
(2) Clean the heads and demagnetize them using a head eraser.
(3) Set the measurement level to 0 dBV = 1 Vrms.
(4) Use the specified tape for adjustment. Use the labeled (A) side of the test tape.
STD-331E : For playback check
STD-632 : Normal blank tape
(5) Provide yourself with the following measuring devides:
- AC millivoltmeter
- Low-frequency oscillator
- Attenuator
- Oscilloscope

(6) Adjust both right and left channels unless otherwise specified.
(7) Turn the DOLBY NR switch off unless otherwize specified.
(8) Warm up the unit for several minutes before adjustment. In particular, be sure to warm up the unit in the REC/PLAY mode for 3 to 5 minutes before starting recording/playback frequency characteristics adjustment.
(9) Always follow the indicated adjustment order. Otherwise, a complete adjustment may not be achieved.

Playback Adjustment

(1) Head Azimuth Adjustment
(2) Playback Level Adjustment

Recording Adjustment

(1) Bias Oscillation Frequency Adjustment
(2) Recording Bias Adjustment
(3) Recording Level Adjustment.
(4) ALC Operation Check

* As the reference recording level is 250nwb/m for STD-331E, the recording level will be higher by 4 dB for STD-331B (160nwb/m). When adjusting, pay carefull attention to the type of tape used.

0 dB 30s

315Hz	0 dB: 315 Hz, 250 nwb/m															
	30s	30s	30s	10s	10s 10s											–20 dB
	6.3kHz	10kHz	315Hz	14kHz	12.5 kHz	10kHz	8kHz	6.3 kHz	4kHz	2kHz	1kHz	500 Hz	250 Hz	125 Hz	63Hz	40Hz

Fig.4 STD-331E Test Tape

■ Playback Adjustment

(1) Head Azimuth Adjustment

● Do not switch between forward and reverse operation with the screwdriver inserted.

Step	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	PLAY	STD-331E test tape (Playback: 10kHz, -20dB)	Head azimuth adjustment screw (Fig. 5)	TAPE TEST POINT (L, Rch) (AF Assy)	Max. playback signal level	After adjustment, apply silicon bond to the head azimuth adjustment screw.

(2) Playback Level Adjustment

● Since this adjustment determines playback Dolby NR level, perform it carefully.

Step	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	PLAY	STD-331E test tape (Playback: 315Hz,0dB)	VR2303(Lch) VR2304(Rch)	TAPE TEST POINT (L, Rch) (AF Assy)	– 3.7dBV	

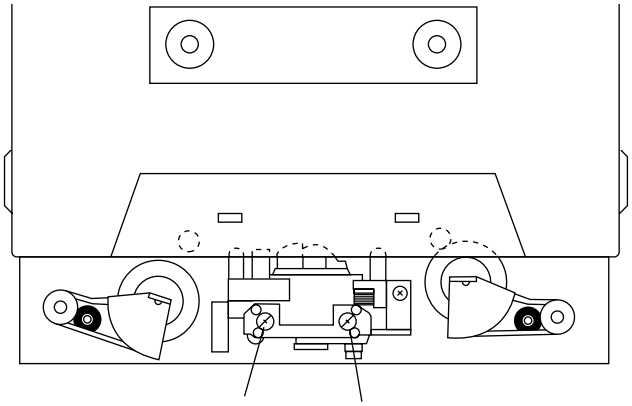


Fig.5 Head Azimuth Adjustment Screw

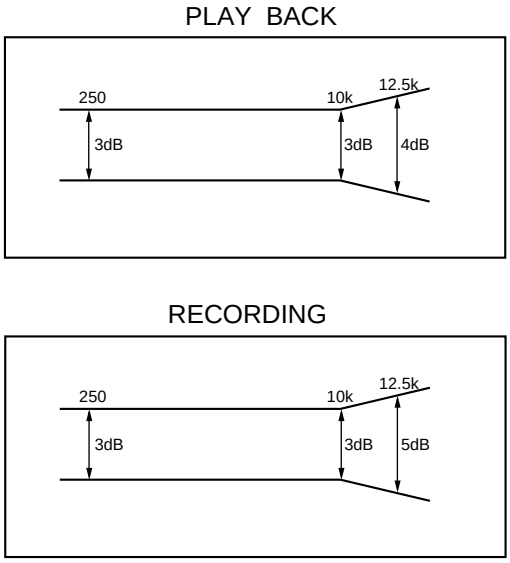


Fig.6 Frequency Characteristics

■ Recording Adjustment

(1) Bias Oscillation Frequency Adjustment

Step	Mode	Input Signal/ Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	REC	Load the STD-632 test tape and set the recording mode.	L2801 (AF Assy)	Between Ⓐ point in Fig.7 and GND.	Oscillation frequency to be 105.0kHz ± 2kHz.	If the REC/STOP button for four seconds while the power is in STAND BY mode, the frequency will decrease 2 to 3 kHz.

(2) Recording Bias Adjustment

● Since this adjustment affects recording bias, prevent distortion from increasing due to underbias.

Step	Mode	Input Signal/Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	REC	Input a 315Hz signal to the AUX terminal and set the input selector to AUX.	Input signal level	TAPE TEST POINT (L, Rch) (AF Assy)	– 23.7dBV	
2	REC → PLAY	Load the STD-632 test tape and record/playback the 315Hz and 10kHz signals. (see the Note below)	VR2801(Lch) VR2802(Rch)	TAPE TEST POINT (L, Rch) (AF Assy)	Repeat adjustment until playback level of the 10kHz signal is within 0 ± 0.5dB from that of the 315Hz signal.	

Note : Set the 10kHz input signal level to the same value as the 315Hz input signal level of step 1.

(3) Recording Level Adjustment

Step	Mode	Input Signal/Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	REC	Input a 315Hz signal to the AUX terminal and set the input selector to AUX.	Input signal level	TAPE TEST POINT (L, Rch) (AF Assy)	– 7.7dBV	
2	REC → PLAY	Load the STD-632 test tape and record/playback the 315Hz signal.	VR2301(Lch) VR2302(Rch)	TAPE TEST POINT (L, Rch) (AF Assy)	Repeat recording, playback and adjustment until playback level of the 315Hz signal becomes – 7.7dBV.	

(4) ALC Operation Check

Step	Mode	Input Signal/Test Tape	Adjusting Points	Measurement Points	Adjustment Value	Remarks
1	REC/ PAUSE	Input a 315Hz signal to the AUX terminal and set the input selector to AUX.	Input signal level	TAPE TEST POINT (L, Rch) (AF Assy)	– 8.2dBV	
2			Set to a level +10dB adove the input level at step1.		Confirm that the reading is – 2.2 ± 2.5dBV.	

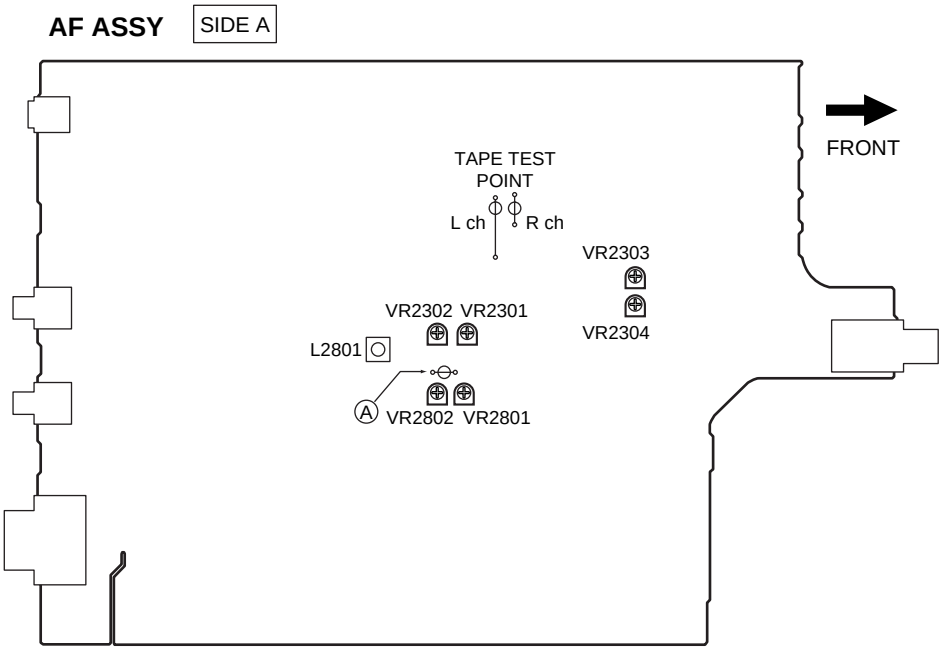


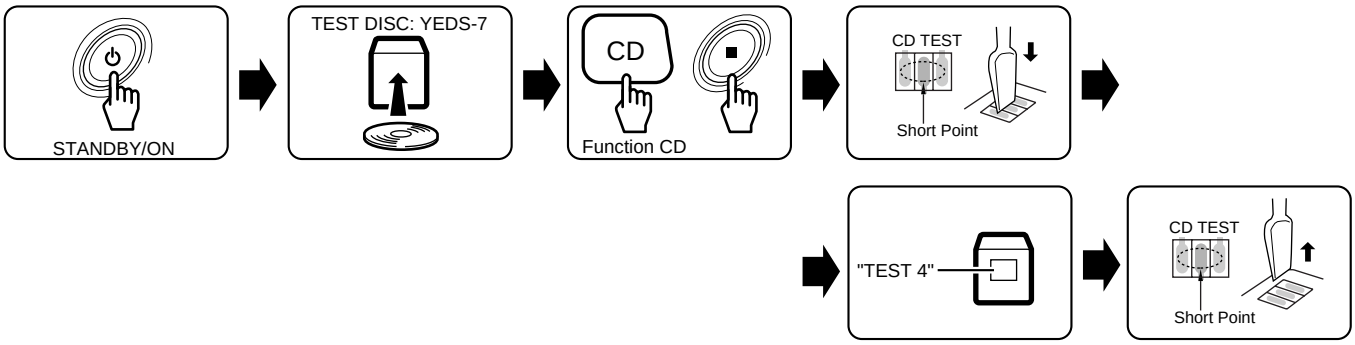
Fig.7 Adjustment and Measurement Points

6.3 CD SECTION TEST MODE

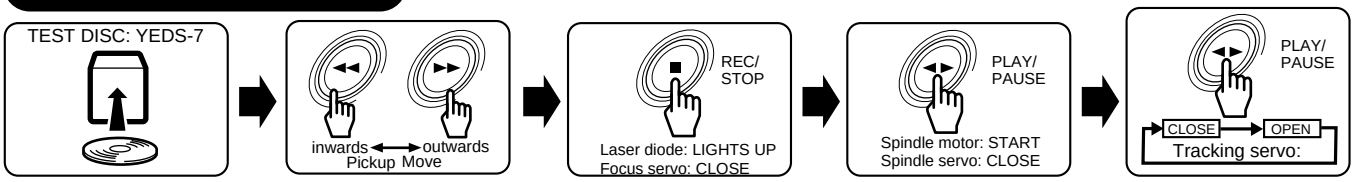
NOTE: There is no information to be shown in this CD adjustment.

■ How to Start/Cancel Test Mode

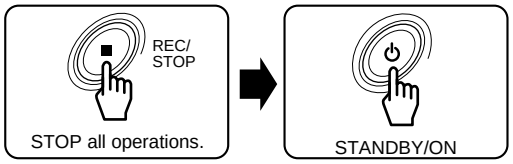
TEST MODE : ON



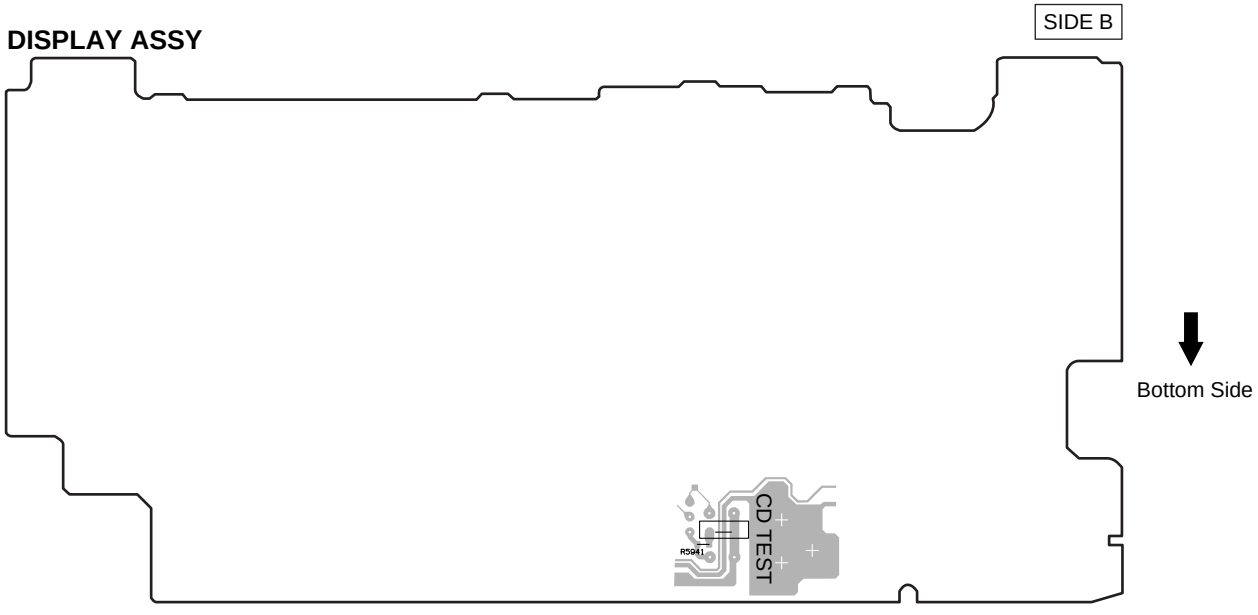
TEST MODE : PLAY



TEST MODE : STOP CANCEL



■ Test Point



6.4 MD SECTION

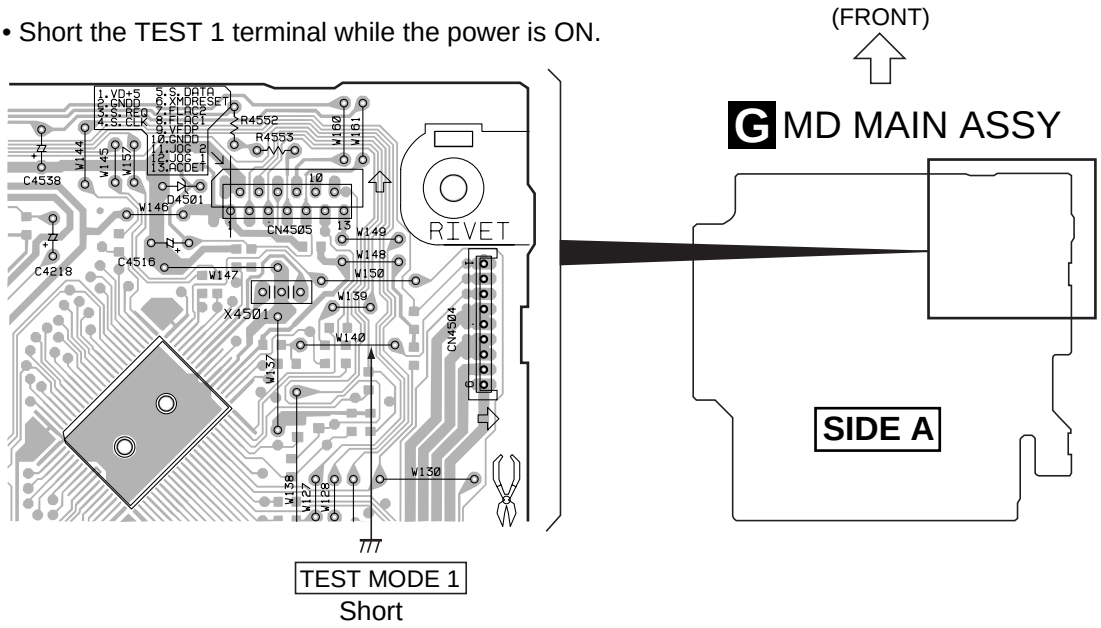
6.4.1 Test Mode 1

● Test Mode Types

Test Mode	Entering the Test Mode	Application
TEST 1	TEST 1 short	CA Check
TEST 2	TEST 2 short	For MD Mechanism Adjustment

TEST MODE : ON

• Short the TEST 1 terminal while the power is ON.



Notes)
- When the TEST1 terminal has been shorted without a bus being received even once after RESET, the bus data will be ignored and POWER ON status determined, and the unit will operate independently.
- When the TEST1 terminal is shorted again under these conditions, the normal operation will be restored.

TEST MODE : CANCEL

Turn the Power to STANDBY mode or short-circuit.

■ Test Mode Menu

● LCD Check

Changes the LCD pattern according to key input and checks for defects in the LCD.

● LED Check

Turn on and off the LED in order according to key input.

● Auto Recording/Palyback Check

Outputs a request for function changeover to AUX with a bus. REC is executed in analog after 1 second.
Stops recording after 3 seconds and outputs a request for function changeover to MD with a bus. After 1 second, the recorded portion will be played back for 3 seconds without confirming that the function has switched to MD.
- When the S.M. JOG key is turned counterclockwise, digital input is activated and the same operations as above will be performed.
- When the S.M. JOG key is turned clockwise, the function is switched to CD (1) and only signal ON/OFF will be confirmed digitally.

6.4.2 Test Mode 2

6.4.2.1 Preparations

● **Test Disc**

	Type	Test Disc	Code	Part Number
1	High refective disc	TGYS1 (SONY)[for playback]	124 636 0001	TGYS1
2	Low refective disc	Recording minidisc	124 957 0001	GGF1277
3	————	Transparent disc for adjustment head	124 957 0002	GGF1276

● **Extension Cable (Refer to Fig.7)**

	Type	Code	Part Number
1	Extension board for servicing	124 685 0044	GGF1320
2	2-pin extension connector for servicing	124 512 0059	GGD1108
3	6-pin extension connector for servicing	124 512 0323	GGD1181
4	5-pin flat cable for servicing	124 512 0325	GGD1182
5	28-pin flat cable for servicing	124 512 0324	GGD1180

6.4.2.2 Test Mode

● **Test Mode Types**

Test Mode	Entering the Test Mode	Application
TEST 1	TEST 1 short	CA Check
TEST 2	TEST 2 short	For MD Mechanism Adjustment

TEST MODE : ON

• Short the TEST 2 terminal while the power is ON.

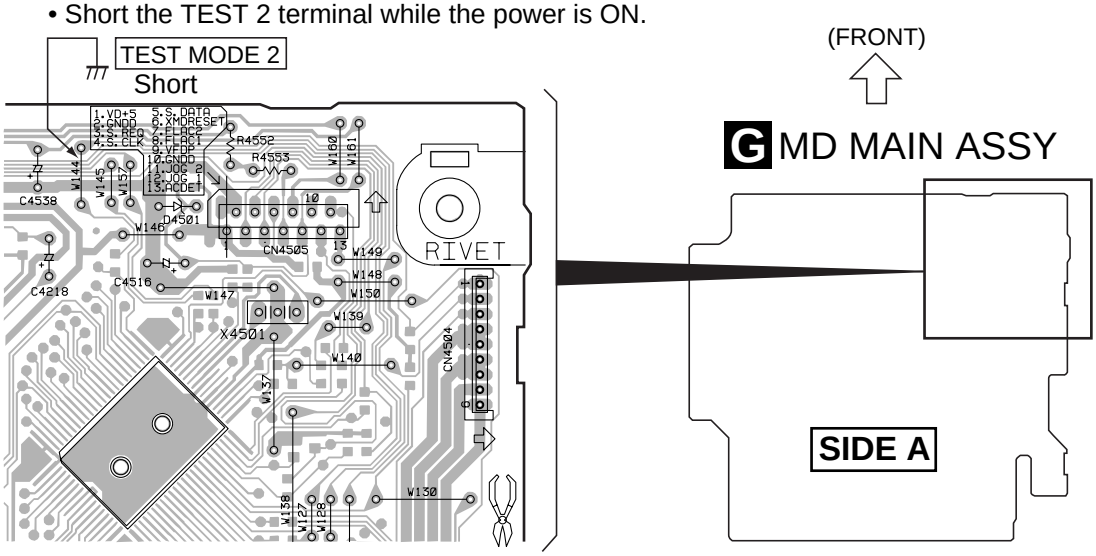


Fig.1 Test Mode Short Point

Microcomputer Version Display (1 sec)

(1 second when EJECT is completed.)

[tsmOOOOeOO]

- EEPROM protect data version (from 01)
- Microcomputer ROM version (from 01)
- Model code

When this is displayed, it is called "Test Mode Stop status."

In "Test Mode Stop status" and "EJECT status":

- Operation will switch to the mechanism forced EJECT direction while ►► button is pressed.
- Operation will switch to the mechanism forced LOAD direction while ◄◄ button is pressed.

In each Menu status:

- The mechanism slide outer track feed will operate while the S.M. JOG key is turned clockwise.
- The mechanism slide inner track feed will operate while the S.M. JOG key is turned counterclockwise.

To move according to the adjusted value set in Test Mode, Press the PRESET key in Test Mode Stop status. The adjusted value will be written to EEPROM and the AUTO Adjustment Disabled Mode will be engaged.

Notes)

- Canceling the AUTO Adjustment Disabled Mode will stop the power supply. (If a receiver is connected, disconnect the receiver power cord.)
- When a setting is changed in Test Mode and the unit is moved according to that setting, the mechanism may not operate if the set value is faulty. When changing a set value, therefore, make a note of the original value.
- In Test Mode the companion may be not only the SX-R9 but also the power jig. When the TEST2 terminal has been shorted without a bus being received even once after RESET, the bus data will be ignored and POWER ON status determined, and the unit will operate independently.
- When the TEST2 terminal is shorted again under these conditions, the normal operation will be restored.

TEST MODE : CANCEL

Turn the Power OFF.

● MD Mechanism Test Mode

When the MD mechanism pickup and PWB-A (MD MAIN Assy) are newly assembled enter the MD mechanism Test Mode and execute AUTO Preliminary Adjustment and AUTO Adjustment according to the following procedure.

(1) Short-circuit pin 8 (PROTECT) and pin 2 (Vcc) of IC1402 (EEPROM).
(2) Enter the MD mechanism Test Mode and execute AUTO Preliminary Adjustment and AUTO Adjustment.
(3) Press the PRESET key and quit Test Mode. (EEPROM will then be written to.)
(4) Cancel the shorting of pin 8 and pin 2 of IC1402.

Carry out the above procedure and turn the power OFF.

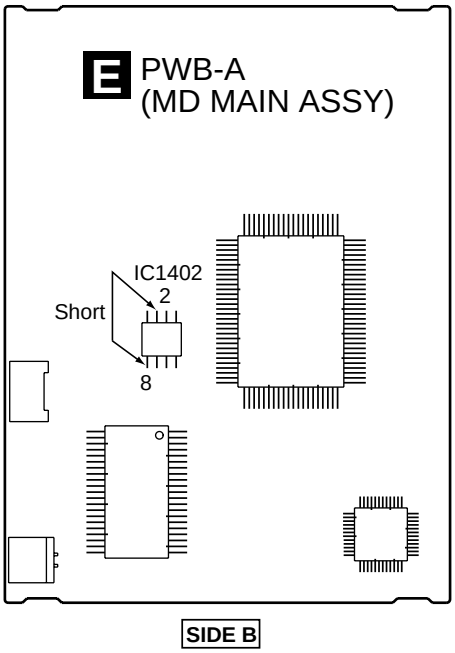


Fig.2 PWB-A (MD MAIN ASSY) Short Point

■ Key Allocation for Test Mode 2

Mode	Meaning and use of commands in Test Mode 2	Remarks
Short	Used when engaging Test Mode. Resets and starts the MD unit and inputs this command.	(Test Mode setting)
PRESET	Operates at adjusted value set in Test Mode, after writing to EEPROM and executing mechanism positioning.	Restart with this key after quitting Test Mode (Auto Adjustment Disabled Mode setting).
⏏	EJECT command Ejects disc.	
MENU	Test Mode menu scan (1) (Scans menus related to adjustments and EEPROM.)	
ENTER	Test Mode menu scan (2) (Scans mainly menus related to continuous playback and continuous recording.)	
DISP/CHARA	Test Mode menu scan (3) (Scans INNER Mode, JUMP SELECT, and other menus.)	
MD REC/STOP	Test Mode menu reverse scan (Scans all Test Mode menus in reverse order.)	
◀▶	Selects or starts execution of a menu.	
■	Stops a test item and moves to the next most important menu selection.	
S.M. JOG (clockwise)	1. Slide forced scan (FWD direction) 2. JUMP execution (FWD) 3. ADDRESS set value UP 4. Direction designation when setting tracking	Continuously pressed down
S.M. JOG (counterclockwise)	1. Slide forced scan (REV direction) 2. JUMP execution (REV) 3. ADDRESS set value DOWN 4. Direction designation when setting tracking	Continuously pressed down
▶▶	1. DISC forced EJECT 2. Set value UP	Continuously pressed down
◀◀	1. DISC forced LOAD 2. Set value DOWN	Continuously pressed down
DELETE	1. Laser power changeover in EJECT 2. Display changeover during continuous playback 3. Set value digit changeover when setting ADDRESS	

■ Test Mode 2 Menu

1. AUTO Preliminary Adjustment Mode	● Executes AUTO Preliminary Adjustment. (After adjustment, Grating Adjustment Mode is engaged.) ● Outputs adjusted value.
2. AUTO Adjustment Mode	● Executes AUTO Adjustment. ● Outputs adjusted value. ● Executes continuous playback (error rate display, jump test)
3. RESULT Preliminary Mode	● Displays measured values, set values, and calculated values. ● Changes set value manually (in Servo OFF status).
4. RESULT Mode (this adjustment)	● Displays set value (after calculation). ● Changes set value manually (in Servo OFF status).
5. MANUAL Preliminary Adjustment Mode	● Executes RF side manual adjustment. ● Executes focus/tracking signal ATT manual adjustment. ● Executes focus/tracking signal offset adjustment.
6. MANUAL Adjustment Mode	● Executes focus/tracking signal ATT manual adjustment.
7. EEPROM Setting Mode	● Manually changes all digital servo coefficients, etc. ● Turns each servo ON independently. ● Measures temperature detector terminal voltage and standard value.
8. TEST-PLAY Mode	● Executes continuous playback from designated address. ● Measures C1 error rate and ADIP error rate.
9. TEST-REC Mode	● Executes continuous recording from designated address. ● Changes recording laser output (and also changes servo gain to match laser output).
10. INNER Mode	● Measures point where INNER switch is turned ON.
11. EJECT Mode	● To (EEPROM set) TEMP setting ● To (EEPROM set) CONTROL setting ● Laser power setting (Rec/Play power)

1. AUTO Preliminary Adjustment Mode (Low-Reflectance Disc Only)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button once.	AUTO Preliminary Adjustment Menu	[_AUT_YOBI_]
Step 3	Press the ◀▶ button once. End of Adjustment	Slide moves to innermost track and AUTO Preliminary Adjustment is engaged. ● During AUTO Adjustment, *** will change as follows. HAo → RFg → SAg → SBg → PTG → PCH → GTG → GCH → RCG → SEG → RFG → SAG → HAO → HEO → TCO → LAO If adjustment is OK, go to step 4. If adjustment is NG, go to step 5.	[*** : _____]
Step 4	Grating adjustment, adjusted value output Press the STOP button.	 Step 2	[_COMPLETE_]
Step 5	Adjusted value output Press the STOP button.	 Step 2 AUTO Preliminary Adjustment Menu	[Can't_ADJ.]

● ***: Adjustment name, □□□□: Address

2. AUTO Adjustment Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 2 times.	AUTO Adjustment Menu	[AUTO_AJST_]
Step 3	Press the ◀▶ button once. End of Adjustment	Slide moves to innermost track and AUTO Adjustment is engaged. ● In the case of a high-reflectance disc, *** will change as follows. PEG → HAG ● In the case of a low-reflectance disc, *** will change as follows. PEG → LAG → GCG → GEG → LAG If adjustment is OK, go to step 4. If adjustment is NG, go to step 7.	[*** : _____]
Step 4	Adjusted value output Press the ◀▶ button. Press the STOP button.	 Step 5 Step 2	[_COMPLETE_]
Step 5	Continuous playback (pit) Continuous playback (groove)		[s □□□□ c ○○○○] [a □□□□ c ○○○○]
Step 6	Press the DELETE button. Press the STOP button.	Continuous playback (groove) Step 2 AUTO Adjustment Menu	[a □□□□ a ○○○○]
Step 7	Adjusted value output Press the STOP button.	 Step 2 AUTO Adjustment Menu	[Can't_ADJ.]

● ***: Adjustment name, ○○○○: Measured value, □□□□: Address

3. RESULT Preliminary Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 3 times.	RESULT Preliminary Menu	[_RST_YOBI_]
Step 3	Press the ◀▶ button.	Set value display	[RFG: _____●]
Step 4	Press the MENU button.	Set value display	[RCG: _____●]
Step 5	Press the MENU button.	Set value display	[PTG: _____●]
Step 6	Press the MENU button.	Set value display	[GTG: _____●]
Step 7	Press the MENU button.	Set value display	[PCH: ____●●]
Step 8	Press the MENU button.	Set value display	[GCH: ____●●]
Step 9	Press the MENU button.	Set value display	[SAG: ___●●●]
Step 10	Press the MENU button.	Set value display	[SBG: ___●●●]
Step 11	Press the MENU button.	Set value display	[SEG: ___●●●]

3. RESULT Preliminary Mode

Step No.	Setting Method	Remarks	Display
Step 12	Press the MENU button.	Set value display	[SFG: ___●●●]
Step 13	Press the MENU button.	Measured value display	[HAO: ○○○___]
Step 14	Press the MENU button.	Measured value display	[HBO: ○○○___]
Step 15	Press the MENU button.	Measured value display	[HEO: ○○○___]
Step 16	Press the MENU button.	Measured value display	[HFO: ○○○___]
Step 17	Press the MENU button.	Measured value display	[LAO: ○○○___]
Step 18	Press the MENU button.	Measured value display	[LBO: ○○○___]
Step 19	Press the MENU button.	Measured value display	[LEO: ○○○___]
Step 20	Press the MENU button.	Measured value display	[LFO: ○○○___]
Step 21	Press the MENU button.	Measured value display	[TCO: _○○___]
Step 22	Press the MENU button.	Adjustment error sequence No. display	[YOB: _□□___]
Step 23	Press the MENU button.	Adjustment status display	[DIF: _□□___]
Step 24	Press the MENU button.	Preliminary adjustment Not yet completed (00)/Completed (4B) display	[ADJ: _□□___]
Step 25	Press the STOP button.	RESULT Preliminary Menu status	[_RST_YOBI_]

- ○○: Measured value, ●●: Adjusted value, □□: Other data
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a set value is being displayed, the set value will increase and the new set value will be stored in RAM.
- If the ◄◄ button is pressed while a set value is being displayed, the set value will decrease and the new set value will be stored in RAM.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.
- Digits increased/decreased with the ►►/◄◄ buttons can be moved with the DELETE button.

4. RESULT Mode (This Adjustment)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 4 times.	RESULT Menu	[_RESULT___]
Step 3	Press the ◄► button.	Set value display	[HAG: ___●●●]
Step 4	Press the MENU button.	Set value display	[HBG: ___●●●]
Step 5	Press the MENU button.	Set value display	[LAG: ___●●●]
Step 6	Press the MENU button.	Set value display	[LBG: ___●●●]
Step 7	Press the MENU button.	Set value display	[PEG: ___●●●]
Step 8	Press the MENU button.	Set value display	[PFG: ___●●●]
Step 9	Press the MENU button.	Set value display	[GEG: ___●●●]
Step 10	Press the MENU button.	Set value display	[GFG: ___●●●]
Step 11	Press the MENU button.	Set value display	[GCG: ____●●]
Step 12	Press the STOP button.	RESULT Menu status	[_RESULT___]

- ●●: Set value
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a set value is being displayed, the set value will increase and the new set value will be stored in RAM.
- If the ◄◄ button is pressed while a set value is being displayed, the set value will decrease and the new set value will be stored in RAM.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.
- Digits increased/decreased with the ►►/◄◄ buttons can be moved with the DELETE button.

5. MANUAL Preliminary Adjustment Mode (Low-Reflectance Disc only)

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 5 times.	MANUAL Preliminary Adjustment Menu	[_MNU_YOBI_]
Step 3	Press the ◀▶ button.	Initial setting → Temperature Setting Mode	[TMP: _△△___]
Step 4	Press the MENU button.	Offset "0" setting → Signal A offset temporary measurement	[HAo: △△△___]
Step 5	Press the MENU button.	Signal B offset temporary measurement	[HBo: △△△___]
Step 6	Press the MENU button.	Signal E offset temporary measurement	[HEo: △△△___]
Step 7	Press the MENU button.	Signal F offset temporary measurement	[HFo: △△△___]
Step 8	Press the MENU button.	Offset temporary measurement → Laser ON	[LON: _____]
Step 9	Press the MENU button.	Innermost track move → RF side FG rough adjustment	[RFg: △△△__●]
Step 10	Press the MENU button.	Focus ATT (signal A) temporary setting	[SAg: △△△○○○]
Step 11	Press the MENU button.	Focus ATT (signal B) temporary setting	[SBg: △△△○○○]
Step 12	Press the MENU button.	RF side pit TG adjustment	[PTG: △△△__●]
Step 13	Press the MENU button.	Pit COUT level setting	[PCH: △△△_○○]
Step 14	Press the MENU button.	Outer track move → RF side groove TG adjustment	[GTG: △△△__●]
Step 15	Press the MENU button.	Groove COUT level setting	[GCH: △△△_○○]
Step 16	Press the MENU button.	RF side TCRS adjustment	[RCG: △△△__●]
Step 17	Press the MENU button.	Tracking ATT (signal E) setting	[SEG: △△△○○○]
Step 18	Press the MENU button.	Tracking ATT (signal F) setting	[SFG: △△△○○○]
Step 19	Press the MENU button.	Tracking EFMIO measurement display	[gMI: △△△___]
Step 20	Press the MENU button.	RF side pit FG adjustment	[RFG: △△△__●]
Step 21	Press the MENU button.	Focus ATT (signal A) setting	[SAG: △△△○○○]
Step 22	Press the MENU button.	Focus ATT (signal B) setting	[SBG: △△△○○○]
Step 23	Press the MENU button.	Offset "0" setting → Signal A offset measurement	[HAO: △△△___]
Step 24	Press the MENU button.	Signal B offset measurement	[HBO: △△△___]
Step 25	Press the MENU button.	Signal E offset measurement	[HEO: △△△___]
Step 26	Press the MENU button.	Signal F offset measurement	[HFO: △△△___]
Step 27	Press the MENU button.	TCRS signal offset measurement	[TCO: △△△___]
Step 28	Press the MENU button.	Signal A offset measurement	[LAO: △△△___]
Step 29	Press the MENU button.	Signal B offset measurement	[LBO: △△△___]
Step 30	Press the MENU button.	Signal E offset measurement	[LEO: △△△___]
Step 31	Press the MENU button.	Signal F offset measurement	[LFO: △△△___]

- △△△: Measured value, ●: Set value, ○○○: Calculated value
- If the ▶▶/◀◀ buttons are pressed while a set value is being displayed, the set value will increase/decrease and the new set value will be stored in RAM.
- If the ▶▶/◀◀ buttons are pressed and held down, data will change continuously in 100ms cycles.
- If the MD REC/STOP button is pressed, operation will move back one step at a time, except for the following cases:
  Signal A offset (HAO) → offset temporary setting → RF side FG adjustment (RFG)
  RF side TCRS adjustment (RCG) → RF side groove TG adjustment (GTG)
  RF side groove TG adjustment (GTG) → Innermost track move → RF side pit adjustment (PTG)
  RF side pit TG adjustment (PTG) → RF side FG rough adjustment (RFg) → Laser ON (LON)
  Laser ON (LON) → Offset "0" setting → Signal A offset temporary measurement (HAo)
  If the measured value is within the OK range, an asterisk (*) will be displayed in the eighth character.

6. MANUAL Adjustment Mode

● High-Reflectance Disc

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsmOOOOeOO]
Step 2	Press the MENU button 6 times.	MANUAL Adjustment Menu	[_MNU_AJST_]
Step 3	Press the ◀▶ button.	Initial setting → Temperature Setting Mode	[TMP: _△△___]
Step 4	Press the MENU button.	Laser ON	[LON: _____]
Step 5	Press the MENU button.	Innermost track move → Tracking ATT (signal E) setting	[PEG: △△△OOO]
Step 6	Press the MENU button.	Tracking ATT (signal F) setting	[PFG: △△△OOO]
Step 7	Press the MENU button.	Tracking EFMIO measurement display	[PMI: △△△___]
Step 8	Press the MENU button.	Focus ATT (signal A) setting	[HAG: △△△OOO]
Step 9	Press the MENU button.	Focus ATT (signal B) setting	[HBG: △△△OOO]

- If the STOP (■) button is pressed while the MANUAL Adjustment Menu is being displayed, operation will move to Test Mode STOP status.
- If the MD REC/STOP button is pressed, operation will move back one step at a time.

● Low-Reflectance Disc

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsmOOOOeOO]
Step 2	Press the MENU button 6 times.	MANUAL Adjustment Menu	[_MNU_AJST_]
Step 3	Press the ◀▶ button.	Initial setting → Temperature Setting Mode	[TMP: _△△___]
Step 4	Press the MENU button.	Laser ON	[LON: _____]
Step 5	Press the MENU button.	Innermost track move → Tracking ATT (signal E) setting	[PEG: △△△OOO]
Step 6	Press the MENU button.	Tracking ATT (signal F) setting	[PFG: △△△OOO]
Step 7	Press the MENU button.	Tracking EFMIO measurement display (pit)	[PMI: △△△___]
Step 8	Press the MENU button.	Focus ATT (signal A) setting	[LAg: △△△OOO]
Step 9	Press the MENU button.	Focus ATT (signal B) setting	[LBg: △△△OOO]
Step 10	Press the MENU button.	Outer track move → Track cross setting	[GCG: △△△OOO]
Step 11	Press the MENU button.	Tracking ATT (signal E) setting	[GEG: △△△OOO]
Step 12	Press the MENU button.	Tracking ATT (signal F) setting	[GFG: △△△OOO]
Step 13	Press the MENU button.	Tracking EFMIO measurement display (groove)	[GMI: △△△___]
Step 14	Press the MENU button.	Focus ATT (signal A) setting	[LAG: △△△OOO]
Step 15	Press the MENU button.	Focus ATT (signal B) setting	[LBG: △△△OOO]

- If the STOP (■) button is pressed while the MANUAL Adjustment Menu is being displayed, operation will move to Test Mode STOP status.
- If the MD REC/STOP button is pressed, operation will move back one step at a time, except for the following case:
- Track cross ATT setting (GCG) → Innermost track move → Focus ATT (signal B) setting (LBg)

7. EEPROM Setting Mode

(a) Focus Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsmOOOOeOO]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◀▶ button.	Focus Setting Menu	[__Focus___]
Step 4	Press the ◀▶ button.	Focus system loop filter gain constant setting	[FG _____♦♦]
Step 5	Press the MENU button.	Focus system loop filter f characteristics 1 setting	[FF1_____♦♦]
Step 6	Press the MENU button.	Focus system loop filter f characteristics 2 setting	[FF2_____♦♦]
Step 7	Press the MENU button.	FZC detection hysterisis level setting a	[FZHLEV__♦♦]
Step 8	Press the MENU button.	Comparison level setting (normal) during FOK formation	[FOKLEVn_♦♦]
Step 9	Press the MENU button.	Comparison level setting (when Focus ON) during FOK formation	[FOKLEVf_♦♦]

(a) Focus Setting

Step No.	Setting Method	Remarks	Display
Step 10	Press the MENU button.	LPF coefficient measurement (normal) during FOK formation	[FOKLPFn_ ♦♦]
Step 11	Press the MENU button.	LPF coefficient measurement (when Focus ON) during FOK formation	[FOKLPFf_ ♦♦]
Step 12	Press the MENU button.	Wait setting for Auto Focus lead in	[WAITf___ ♦♦]

- ♦♦: Set value
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.

(b) Spin Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◄► button.	Focus Setting Menu	[__Focus___]
Step 4	Press the MENU button.	Spin Setting Menu	[_Spindle___]
Step 5	Press the ◄► button.	Spin system loop filter gain constant setting (until tracking servo is ON)	[SPG _____ ♦♦]
Step 6	Press the MENU button.	Spin system loop filter gain constant setting (subsequent to tracking servo ON, inner)	[SPG_in__ ♦♦]
Step 7	Press the MENU button.	Spin system loop filter gain constant setting (subsequent to tracking servo is ON, middle)	[SPG_mid_ ♦♦]
Step 8	Press the MENU button.	Spin system loop filter gain constant setting (subsequent to tracking servo is ON, outer)	[SPG_out_ ♦♦]
Step 9	Press the MENU button.	Spin system loop filter f characteristics 1 setting	[SP1 _____ ♦♦]
Step 10	Press the MENU button.	Spin system loop filter f characteristics 2 setting	[SP2 _____ ♦♦]
Step 11	Press the MENU button.	Spin system loop filter f characteristics 3 setting	[SP3 _____ ♦♦]
Step 12	Press the MENU button.	Spin system loop filter f characteristics 4 setting	[SP4 _____ ♦♦]
Step 13	Press the MENU button.	Spin system loop filter f characteristics 5 setting	[SP5 _____ ♦♦]
Step 14	Press the MENU button.	Spin drive output limiter setting	[SPDLIM__ ♦♦]

- ♦♦: Set value
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.

(c) Tracking Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◄► button.	Focus Setting Menu	[__Focus___]
Step 4	Press the MENU button 2 times.	Tracking Setting Menu	[_Tracking_]
Step 5	Press the ◄► button.	Tracking system loop filter gain constant setting	[TG _____ ♦♦]
Step 6	Press the MENU button.	Tracking system loop filter f characteristics 1 setting	[TF1 _____ ♦♦]
Step 7	Press the MENU button.	Tracking system loop filter f characteristics 2 setting	[TF2 _____ ♦♦]
Step 8	Press the MENU button.	Tracking system servo mode 4 setting	[SVCNT4__ ♦♦]

(c) Tracking Setting

Step No.	Setting Method	Remarks	Display
Step 9	Press the MENU button.	Tracking deceleration pulse level setting (for 1 jump)	[TRBLVo__ ♦♦]
Step 10	Press the MENU button.	Tracking deceleration pulse level setting (for 10 jumps)	[TRBLVt__ ♦♦]
Step 11	Press the MENU button.	Tracking kick pulse level setting (for 1 jump)	[TRKLVo__ ♦♦]
Step 12	Press the MENU button.	Tracking kick pulse level setting (for 10 jumps)	[TRKLVt__ ♦♦]
Step 13	Press the MENU button.	Tracking drive pulse width setting (for 1 jump)	[TDPWo___ ♦♦]
Step 14	Press the MENU button.	Tracking drive pulse width setting (for 10 jumps)	[TDPW+___ ♦♦]
Step 15	Press the MENU button.	Tracking slide Stop time setting (for 1 jump)	[SLCTo___ ♦♦]
Step 16	Press the MENU button.	Tracking slide Stop time setting (for 10 jumps)	[SLCTt___ ♦♦]
Step 17	Press the MENU button.	Tracking slide Stop time setting (Move)	[SLCTm___ ♦♦]
Step 18	Press the MENU button.	TCRS comparison level 1 for high-reflectance disc	[TCRSC1P_ ♦♦]
Step 19	Press the MENU button.	Comparison level during COUT formation (during playback)	[COTLVp__ ♦♦]
Step 20	Press the MENU button.	Comparison level during COUT formation (during recording)	[COTLVr__ ♦♦]
Step 21	Press the MENU button.	Wait time setting for Auto Move	[WAITm___ ♦♦]

- ♦♦: Set value
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.

(d) Slide Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◄► button.	Focus Setting Menu	[__Focus___]
Step 4	Press the MENU button 3 times.	Slide Setting Menu	[___Sled___]
Step 5	Press the ◄► button.	Slide system loop filter gain constant setting	[SLG_____ ♦♦]
Step 6	Press the MENU button.	Slide system loop filter f characteristics 2 setting	[SL2 _____ ♦♦]
Step 7	Press the MENU button.	Slide output limiter setting	[SLDLIM__ ♦♦]
Step 8	Press the MENU button.	Slide servo output dead zone level setting	[SLDLEV__ ♦♦]
Step 9	Press the MENU button.	Slide kick pulse level setting (during forced Move)	[SLKLVk__ ♦♦]
Step 10	Press the MENU button.	Slide kick pulse level setting (for 10 auxiliary jumps)	[SLKLVt__ ♦♦]
Step 11	Press the MENU button.	Slide kick pulse level setting (during Move)	[SLKLVm__ ♦♦]

- ♦♦: Set value
- If the MD REC/STOP button is pressed, operation moves in reverse direction.
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.

(e) TEMP Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◀▶ button.	Focus Setting Menu	[__Focus___]
Step 4	Press the MENU button 4 times.	TEMP Setting Menu	[___Temp___]
Step 5	Press the ◀▶ button.	TEMP standard value setting	[TEMP_○○_♦♦]

Step No.	Setting Method	Remarks	Display
Step 1	EJECT status (or No Mechanism status)		[__EJECT___]
Step 2	Press the ENTER button.	TEMP standard value setting	[TEMP_○○_♦♦]

- ♦♦: Set value, ○○: Measured value
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.

Measured Temperature Values Correction Table

Ambient temperature	Correction value
–0.9 °C to +2.7 °C	–06 H
+2.7 °C to +6.3 °C	–05 H
+6.3 °C to +10.0 °C	–04 H
+10.0 °C to +14.5 °C	–03 H
+14.5 °C to +18.2 °C	–02 H
+18.2 °C to +22.3 °C	–01 H
+22.3 °C to +26.3 °C	±0 H
+26.3 °C to +30.3 °C	+01 H
+30.3 °C to +34.6 °C	+02 H
+34.6 °C to +39.0 °C	+03 H
+39.0 °C to +42.8 °C	+04 H

EEPROM recording value = microcomputer measured value + correction value

* EEPROM recording value
  Predicted value when measured with microcomputer when temperature is +25 °C.
* Microcomputer measured value
  Predicted value when measured with microcomputer at a certain temperature.
* Correction value
  Correction value for converting to +25 °C measured value (see Table at left).

Temperature Code Confirmation

After AUTO Adjustment has been completed, the temperature code will be read. If it is within the ranges below, it is OK.

Ambient temperature	Temperature Code
–18.2 °C to +30.3 °C	06
+6.3 °C to +18.2 °C	07

(f) CONTROL Setting

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the MENU button 7 times.	EEPROM Setting Menu	[EEPROM_SET]
Step 3	Press the ◀▶ button.	Focus Setting Menu	[__Focus___]
Step 4	Press the MENU button 5 times.	CONTROL Setting Menu	[_Control__]
Step 5	Press the ◀▶ button.	CONTROL 1 Setting	[CONTRL1_♦♦]
Step 6	Press the MENU button.	CONTROL 2 Setting	[CONTRL2_♦♦]
Step 7	Press the MENU button.	Spin kick level setting during Move	[SPKLEVm_♦♦]
Step 8	Press the MENU button.	Readjustment interval (minutes) setting	[ADJTTM_♦♦]
Step 9	Press the MENU button.	Equalizer coefficient A, D (high reflectance) setting	[HDEQAD_♦♦]
Step 10	Press the MENU button.	Equalizer coefficient A, D (low reflectance) setting	[LDEQAD_♦♦]
Step 11	Press the MENU button.	Equalizer coefficient A, D (low reflectance groove) setting	[GDEQAD_♦♦]
Step 12	Press the MENU button.	Equalizer coefficient B, C (high reflectance) setting	[HDEQBC_♦♦]
Step 13	Press the MENU button.	Equalizer coefficient B, C (low reflectance pit) setting	[LDEQBC_♦♦]

(e) CONTROL Setting

Step No.	Setting Method	Remarks	Display
Step 14	Press the MENU button.	Equalizer coefficient B, C (low reflectance groove) setting	[GDEQBC_ ♦♦]
Step 15	Press the MENU button.	Auto level slicer gain (high reflectance) setting	[HALSG___ ♦♦]
Step 16	Press the MENU button.	Auto level slicer gain (low reflectance pit) setting	[LALSG___ ♦♦]
Step 17	Press the MENU button.	Auto level slicer gain (low reflectance groove) setting	[GALSG___ ♦♦]
Step 18	Press the MENU button.	Auto level slicer offset (high reflectance) setting	[HALSOFS_ ♦♦]
Step 19	Press the MENU button.	Auto level slicer offset (low reflectance pit) setting	[LALSOFS_ ♦♦]
Step 20	Press the MENU button.	Auto level slicer offset (low reflectance groove) setting	[GALSOFS_ ♦♦]

Step No.	Setting Method	Remarks	Display
Step 1	EJECT status (or No Mechanism status)		[__EJECT___]
Step 2	Press the DISP/CHARA button.	CONTROL 1 setting	[CONTRL1_ ♦♦]
Step 3	Press the MENU button.	CONTROL 2 setting	[CONTRL2_ ♦♦]

- ♦♦: Set value
- If the ►► button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ◄◄ button is pressed while a setting item is being displayed, the set value will increase and the new set value will be set in LSI.
- If the ►►/◄◄ buttons are pressed and held down, data will change continuously in 100ms cycles.
- CONTROL 1
  Pit 7: High-frequency weight ON/OFF during recording (0: OFF, 1: ON)
  Pits 6 – 4: Play start SD number (30 – 100 sectors; 10-sector steps)
  Pit 2 – 0: High-speed jump overrun amount (384 – 830 jumps; 64-jump steps)
- CONTROL 2
  Pit 4 – 0: EEPROM version (a –)

8. TEST-PLAY Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the ENTER button.	TEST-PLAY Menu	[TEST_PLAY_]
Step 3	Press the DELITE button. Press the ◄► button.	ADRES setting (displays standard address initial setting) Sets Search output to "H" during Search operation and returns to "L" at start of playback.	[ADRES _0050]
Step 4	Continuous playback (pit) Continuous playback (groove)	(Address + C1 error display) (Address + C1 error display)	[s □□□□ c ○○○○] [a □□□□ c ○○○○]
Step 5	Press the DELETE button. Continuous playback (groove)	(Address + ADIP error display)	[a □□□□ a ○○○○]
Step 6	Press the STOP button.	TEST-PLAY Menu	[TEST_PLAY_]

- □□□□: Address, ○○○○: Error rate, ▲▲▲: Number of Jumps
- If the STOP (■) button is pressed while the TEST-PLAY Menu is displayed, operation moves to Test Mode STOP status.
- If the ◄► button is pressed while the TEST-PLAY Menu is displayed, continuous playback will commence from the pickup point at that time.
- Each time the ENTER button is pressed in Address Setting Mode, the address will change as follows:
  0050 → 03C0 → 0700 → 08A0 → 0050 → .....
- Each time the DELETE button is pressed in Address Setting Mode, the digits will change as follows with the S.M. JOG button.
  00<u>5</u>0 → 00<u>5</u>0 → 0<u>0</u>50 → 00<u>5</u>0 → .....
- In Address Setting Mode, the designated address digits can be changed +01H / –01H with the S.M. JOG and DELETE buttons (0 – F).
  If the S.M. JOG button is turned and held down, the data will change in 100ms cycles.
- If the DISP/CHARA button is pressed in Continuous Play Mode, the number of Jumps will change as follows:
  1 Jump → 10 Jumps → 400 Jumps → 1 Jump → .....
  After the number of Jumps is displayed for 1 second, the Address display will be restored [▲▲▲TR_JUMP]
- If the S.M. JOG button is turned in Continuous Play Mode, the designated number of Jumps will be executed in FWD/REV directions.
  If the S.M. JOG button is turned and held down, the data will change in 100ms cycles.

- Each time the DELETE button is pressed in Continuous Play Mode, the display will change as follows:
  Pit part: Continuous playback (SUBQ address display + C1 error display) is unchanged. [s □□□□ c ○○○○]
  Groove part: Continuous playback (ADIP address display + C1 error display) [a □□□□ c ○○○○]
  ⬇
  Continuous playback (ADIP address display + ADIP error display) [a □□□□ a ○○○○]
  ⬇
  Continuous playback (ADIP address display + C1 error display) [a □□□□ c ○○○○]
  ⬇

9. TEST-REC Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the ENTER button 2 times.	TEST-REC Menu	[TEST_REC__]
Step 3	Press the DELITE button.	ADRES setting (displays standard address initial setting)	[a0050_pw∇∇]
Step 4	Press the ◀▶ button.	Sets Search output to "H" during Search operation and returns to "L" at start of playback. Continuous recording	[a □□□□ pw∇∇]
Step 5	Press the STOP button.	TEST-REC Menu	[TEST_REC__]

- □□□□: Address, ∇∇: Laser power code
- If the STOP (■) button is pressed while the TEST-REC Menu is displayed, operation moves to Test Mode STOP status.
- If the ◀▶ button is pressed while the TEST-REC Menu is displayed, continuous playback will commence from the pickup point at that time.
- Each time the ENTER button is pressed in Address Setting Mode, the address will change as follows:
  0050 → 03C0 → 0700 → 08A0 → 0050 → .....
- Each time the DELETE button is pressed in Address Setting Mode, the digits will change as follows with the S.M. JOG button.
  0050 → 0050 → 0050 → 0050 → .....
- In Address Setting Mode, the designated address digits can be changed +01H / –01H with the S.M. JOG button (0 - F).
  If the S.M. JOG button is turned and held down, the data will change in 100ms cycles.
- If the Test Record Mode and Continuous Recording Mode ▶▶/◀◀ buttons are pressed, the laser recording power will change. (And the laser gain will change to match the recording power.)

10. INNER Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test mode STOP state		[tsm○○○○e○○]
Step 2	Press the DISP/CHARA button.	INNER Menu	[__INNER___]
Step 3	Press the ◀▶ button.	INNER switch position measurement (SUBQ address and C1 error are both displayed.)	[s □□□□ c ○○○○]
Step 4	Press the STOP button.	INNER Menu	[__INNER___]

- □□□□: Address
- Press the STOP (■) button in the INNER Menu and move to Test Mode STOP status.

11. EJECT Mode

Step No.	Setting Method	Remarks	Display
Step 1	Test Mode EJECT status		[__EJECT___]
Step 2	Press the DELETE button.	Maximum power output status	[xpw_____]
Step 3	Press the DELETE button.	Recording power output status	[rpw_____]
Step 4	Press the DELETE button.	Playback power output status	[ppw_____]
Step 5	Press the ENTER button.	To EEPROM setting TEMP setting (Refer to EEPROM setting TEMP setting.)	
Step 6	Press the DISP/CHARA button.	To EEPROM setting CONTROL setting (Refer to EEPROM setting CONTROL setting.)	

● Read-IN Switch Position Measurement Mode

NOTE) Adjust the read-in switch position to 5F FF85 to FFD2.

1. Loosen the three screws (A) securing the MD MECHA SW ASSY.
2. While pressing the MD MECHA SW ASSY in the + direction, tighten the screws, and measure the read in switch position again. After adjusting the position, secure the three screws (A).

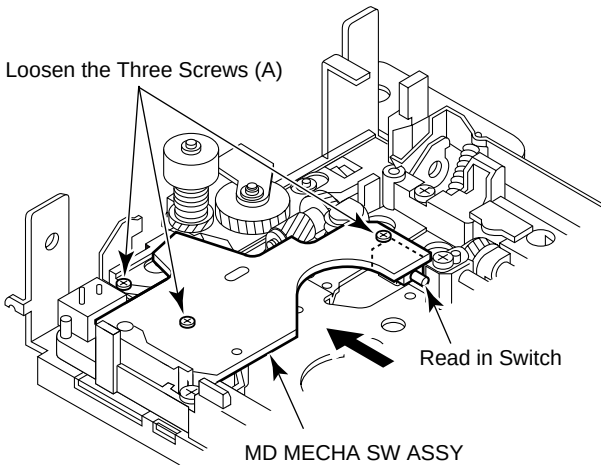


Fig.3

● Loading Motor Forced Rotation

When Test Mode STOP status and EJECT status are displayed, the loading motor can be forcefully rotated by pressing the ►►/◄◄ buttons.

6.4.2.3 Mechanism Adjustment

1. Detecting the Optical Pickup Grating

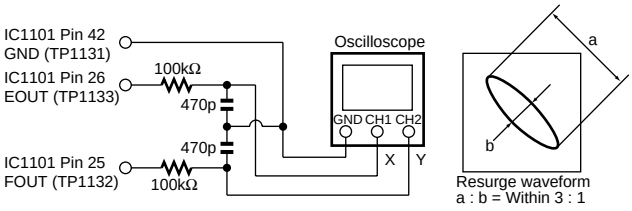


Fig.4 Measuring the Optical Pickup Grating Deviation

Using a high reflective MD disc, perform automatic adjustment in the AUTO test mode (COMPLETE is displayed), and adjust the EOUT: FOUT resurge waveform (x-y).

(1) Desolder the two points of the disc motor board, solder the lead wire to the motor terminal and board temporarily as shown in the figure, loosen the three screws of the motor slightly, and while looking at the resurge waveform, adjust it.

(2) After adjusting, tighten the screws in the order of ①, ②, and ③.

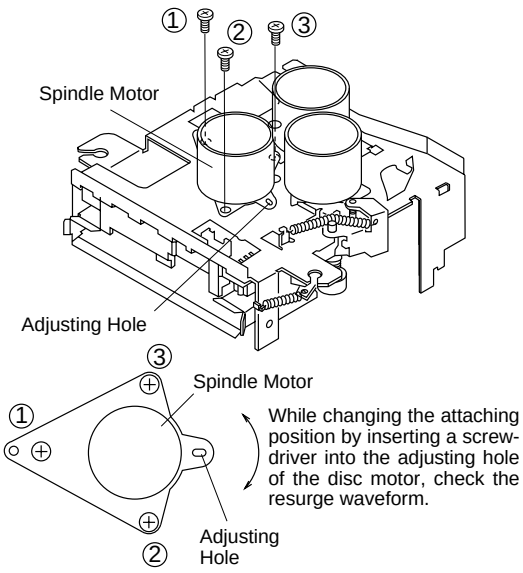


Fig.5

2. Checking Jitter

After automatic adjustment in the AUTO Mode of Test Mode for low-reflectance MD is completed, check the jitter with the pit Continuous Play Mode and groove Continuous Play Mode.

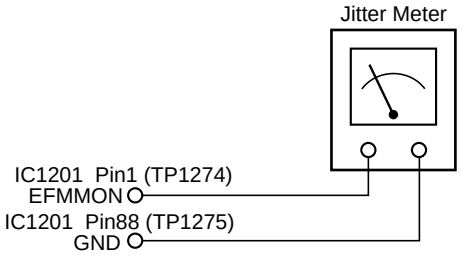


Fig.6

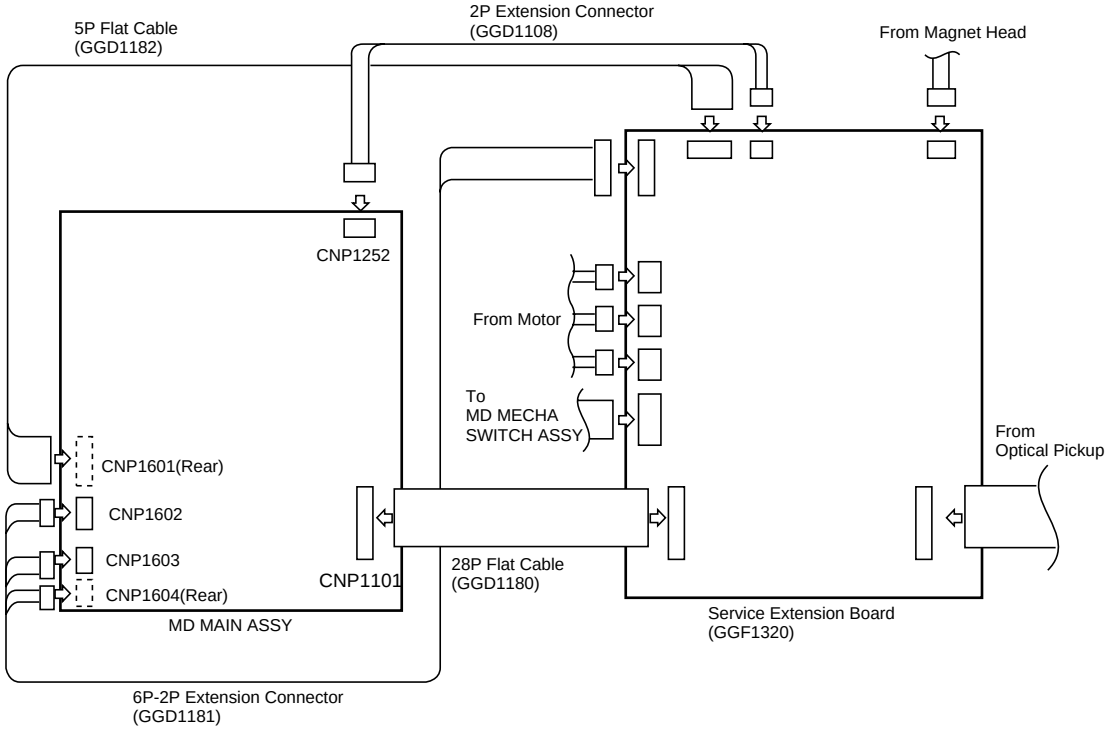
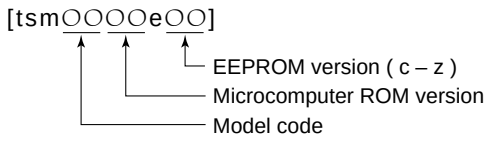


Fig.7 Connection

6.4.2.4 EEPROM (IC1402) Writing Procedure

1. Procedure for replacing EEPROM and writing microcomputer initial settings to EEPROM

(1) Replace EEPROM.
(2) Short the IC1402 (EEPROM) 8 pin (PROTECT) and 2 pin (Vcc).
(3) Refer to the latest "EEPROM Content Table."
(4) Short TEST MODE2 while the power is ON and engage the Test Mode 2.
(5) Version display



(6) Press the MENU button 7 times. [EEPROM_SET]
(7) Perform the operation shown in the "EEPROM Setting Mode Transition Diagram," compare the "EEPROM Content Table" and the display, and set the "EEPROM Content Table" with the FADE-OUT button and the FADE-IN button.
(8) Set the temperature standard value. (See "Temperature Standard Value Setting Method.")
(9) Set all settings the same as those in the "EEPROM Content Table."
(10) Execute AUTO Preliminary Adjustment and AUTO Adjustment.
(11) Cancel the IC1402 8 pin and 2 pin short.
(12) Press the PRESET button and write to EEPROM.

2. Temperature Standard Value Setting Method (Must be set with room temperature of 21°C – 29°C.)

(1) Test Mode STOP status ..... [tsm○○○○e○○]
(2) Because of the ambient temperature, apply a temperature correction in accordance with the following table.

Ambient temperature	Correction value
–0.9 °C to +2.7 °C	–06 H
+2.7 °C to +6.3 °C	–05 H
+6.3 °C to +10.0 °C	–04 H
+10.0 °C to +14.5 °C	–03 H
+14.5 °C to +18.2 °C	–02 H
+18.2 °C to +22.3 °C	–01 H
+22.3 °C to +26.3 °C	±0 H
+26.3 °C to +30.3 °C	+01 H
+30.3 °C to +34.6 °C	+02 H
+34.6 °C to +39.0 °C	+03 H
+39.0 °C to +42.8 °C	+04 H

Example)
When the measured temperature is 73H and the ambient temperature 22°C,
Temperature set value =
73H - 01H = 72H.
When there is a discrepancy between two measured temperature values, set the lower value. (If the measured values are 73H and 72H, for example, use 72H.)

(3) Press the MENU button 7 times ..... [EEPROM_SET]
(4) Press the ◀▶ button once ..... [__Focus___]
(5) Press the MENU button 4 times ..... [___Temp___]
(6) Press the ◀▶ button ..... [TEMP_○○_♦♦]
○○: Measured value, ♦♦: Set value
(7) Set the temperature set value to the value determined above, using the ▶▶/◀◀ buttons.
(8) Press the ◀▶ button ..... [___Temp___]

■ EEPROM Content Table

Focus Settings

Item display		Set value
FG	○○	97H
FF1	○○	9EH
FF2	○○	E0H
FZHLEV	○○	EDH
FOKLEVn	○○	08H
FOKLEVf	○○	88H
FOKLPFn	○○	00H
FOKLPFf	○○	88H
WAITf	○○	90H

Spin Settings

Item display		Set value
SPG	○○	20H
SPG-in	○○	B8H
SPG-mid	○○	76H
SPG-out	○○	50H
SP1	○○	10H
SP2	○○	87H
SP3	○○	E3H
SP4	○○	E3H
SP5	○○	10H
SPDLIM	○○	78H

Tracking Settings

Item display		Set value
TG	○○	45H
TF1	○○	70H
TF2	○○	E0H
SVCNT4	○○	01H
TRBLVo	○○	53H
TRBLVt	○○	60H
TRKLVo	○○	4CH
TRKLVt	○○	38H
TDPWo	○○	89H
TDPWt	○○	1AH
SLCTo	○○	00H
SLCTt	○○	40H
SLCTm	○○	53H
TCRSCIP	○○	16H
COTLVP	○○	14H
COTLVr	○○	28H
WAITm	○○	FFH

Slide Settings

Item display		Set value
SLG	○○	35H
SL2	○○	27H
SLDLIM	○○	65H
SLDLEV	○○	16H
SLKLVk	○○	55H
SLKLVt	○○	3AH
SLKLVm	○○	55H

Control Settings

Item display		Set value
CONTRL1	○○	80H
CONTRL2	○○	01H
SPKLEVm	○○	26H
ADJTTM	○○	14H
HDEQAD	○○	90H
LDEQAD	○○	8FH
GDEQAD	○○	91H
MDEQBC	○○	90H
LDEQBC	○○	8FH
GDEQBC	○○	8AH
HALSG	○○	21H
LALSG	○○	21H
GALSG	○○	21H
HALSOFS	○○	FEH
LALSOFS	○○	00H
GALSOFS	○○	00H

■ EEPROM Setting Mode Transition Diagram

7. GENERAL INFORMATION

7.1 PARTS

7.1.1 IC

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

■ PDG244A (MD MAIN ASSY : IC4502)

• MD Control Microcomputer

●Pin Function

No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	————	O	GND	41	JOG2	I	JOG2 input
2	————	O	NC	42	JOG1	I	JOG1 input
3	————	O	NC	43	S.REQ	I/O	System bus request
4	————	O	NC	44	S.DATA OUT	O	System bus data output
5	————	I	Pull up	45	S.DATA IN	I	System bus data input
6	————	O	NC	46	————	O	NC
7	————	O	NC	47	XMUTE	O	Line mute
8	————	O	NC	48	DSCK	O	MD unit communication clock
9	————	O	NC	49	MDDAT	I	MD unit→System control data
10	————	O	NC	50	KDAT	O	System control data→MD unit
11	————	O	NC	51	FL CP	O	FL driver clock
12	————	O	NC	52	MDST	O	MD unit ON
13	————	O	NC	53	FL DATA	O	FL driver data
14	————	O	NC	54	LOAD	I	Load-in detection
15	————	O	NC	55	DSTB	I	MD unit communication strobe
16	————	O	NC	56	————	I	Pull up
17	CDDIG	O	Digital in CD	57	————	I	Pull up
18	AUXDIG	O	Digital in AUX	58	————	O	NC
19	————	O	NC	59	————	O	NC
20	————	O	NC	60	S.CLK	I	System bus clock
21	————	O	NC	61	XREC MUTE	O	REC mute
22	————	O	NC	62	MDRST	O	MD unit reset
23	————	O	NC	63	SERCH	O	Cut in rehearsal pause request
24	XTEST2	I	Test terminal 2	64	ACDET	I	Power failure detection
25	————	O	NC	65	6.5/5	O	NC
26	PDWN	O	Transmit the power failure to the MD unit	66	————	O	NC
27	FL RESET	O	FL driver reset	67	————	O	NC
28	FL CS	O	FL driver chip select	68	————	O	NC
29	————	O	NC	69	————	O	NC
30	XMDRESET	I	MD microcomputer reset terminal	70	————	O	NC
31	EXTAL	I	Connect the oscillator (8.38MHz)	71	————	O	NC
32	XTAL	O		72	Vdd	–	
33	Vss	–		73	NC	–	
34	TX	O		74	————	O	NC
35	TEX	I		75	————	O	NC
36	AVss	–	A/D converter GND	76	————	O	NC
37	AVref	I	Reference voltage of A/D conversion	77	————	O	NC
38	KEY	I	Key input (A/D conversion)	78	————	O	NC
39	————	I	NC	79	————	O	NC
40	XTEST1	I	Test terminal 1	80	————	O	GND

■ PDC055A (DISPLAY ASSY : IC5501)

• **System Control Microcomputer**

●Pin Function

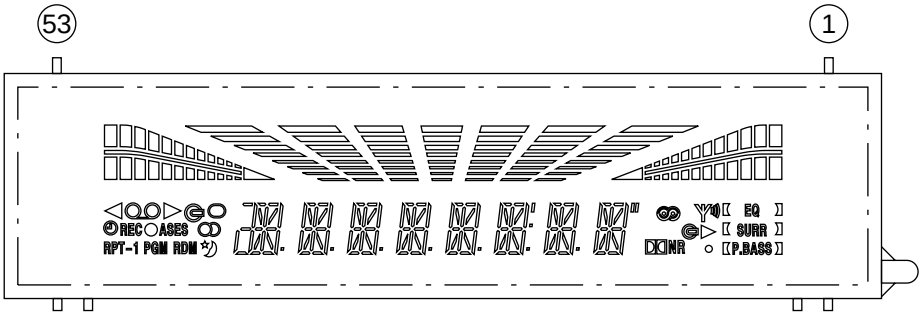
No.	Pin Name	I/O	Function	No.	Pin Name	I/O	Function
1	CD RESET	O	Reset output for CD LSI	51	VFDP	–	
2	CD CE	O	Strobe output for CD LSI	52	S05	O	FL display control segment
3	CD DRF	I	RF level detection input	53	S06		
4	S.DATA OUT	O	System bus data output	54	S07		
5	EXP CLK	O	Clock output for EXP IC (BU4094BCF)	55	S08		
6	EXP DATA	O	Data output for EXP IC (BU4094BCF)	56	S09		
7	EXP CE	O	Strobe output for EXP IC (BU4094BCF)	57	S10		
8	LED1	O	LED1 control	58	S11		
9	LED2	O	LED2 control	59	S12		
10	LED3	O	LED3 control	60	S13		
11	AC	I	AC pulse input for power supply monitor	61	S14		
12	XRESET	I	CPU reset input	62	S15		
13	REEL1	I	Pulse input for deck reel	63	CLAMP/S16	I/O	
14	————	I	Pull down	64	OPEN/S17		
15	VSS	–		65	INSIDE/S18		
16	CF1	I		66	DISC123/S19		
17	CF2	O		67	ARR/S20		
18	VDD	–		68	ARF/S21		
19	KEY1	I	Front key input 1	69	MODE1/S22		
20	MS	I	DECK MS signal input	70	S23	O	
21	ST/TUNE	I	TUNER TUNED (STEREO) detection	71	HALF1/S24	I/O	
22	————	I	Pull down	72	VDD	–	Power supply
23	S.REQ	I/O	System bus request input/output	73	S25	O	FL display control segment
24	KEY2	I	Front key input 2	74	CrO2_1/S26	I/O	
25	SPE-IN	I	Spectram analizer signal input	75	S27	O	
26	KEY3	I	Front key input 3	76	SCAN ON	O	Key scan input control
27	CD WRQ	I	Q data OK signal input of CD sub code	77	S.CLK	O	System bus clock output
28	RDS CLK	I	Clock input (BU1923) for RDS IC	78	SOL1	O	Deck solenoid control
29	REMOCON	I	Remote control signal input	79	MOTOR	O	Deck motor control
30	G01	O	FL display control grid	80	RDSDATA	I	Data input for RDS
31	G02			81	VOLJOG1	I	Pulse input for Volume JOG
32	G03			82	VOLJOG2		
33	G04			83	PLL CE	O	TUNER PLL IC strobe output
34	G05			84	XMDRESET	O	Reset output for MD system microcomputer
35	G06			85	EVOL CE	O	Main volume control IC strobe output
36	G07			86	POWER	O	Main power control
37	G08			87	LINE MUTE	O	Line mute control
38	G09			88	LED CE	O	LED control for timer
39	G10			89	VSS	–	GND
40	G11			90	VDD	–	Power supply
41	G12			91	S.DATA IN	I	System bus data input
42	G13			92	————	I	Pull down
43	G14			93	MORP JOG1	I	Pulse input for Sound Morphing JOG
44	————			94	MORP JOG2		
45	————			95	SYSDATA	O	Serial data output
46	VDD	–	Power supply	96	TXDATA	I	Serial data input
47	D1/S01	I/O	FL display control segment	97	SYS CLK	O	Serial clock output
48	D2/S02	I/O		98	CD DATA	O	Serial data output for CD LSI
49	S03	O		99	SQ OUT	I	Serial data (Q data) input for CD LSI
50	S04	O		100	CD CLK	O	Serial clock output for LSI

7.1.2 DISPLAY

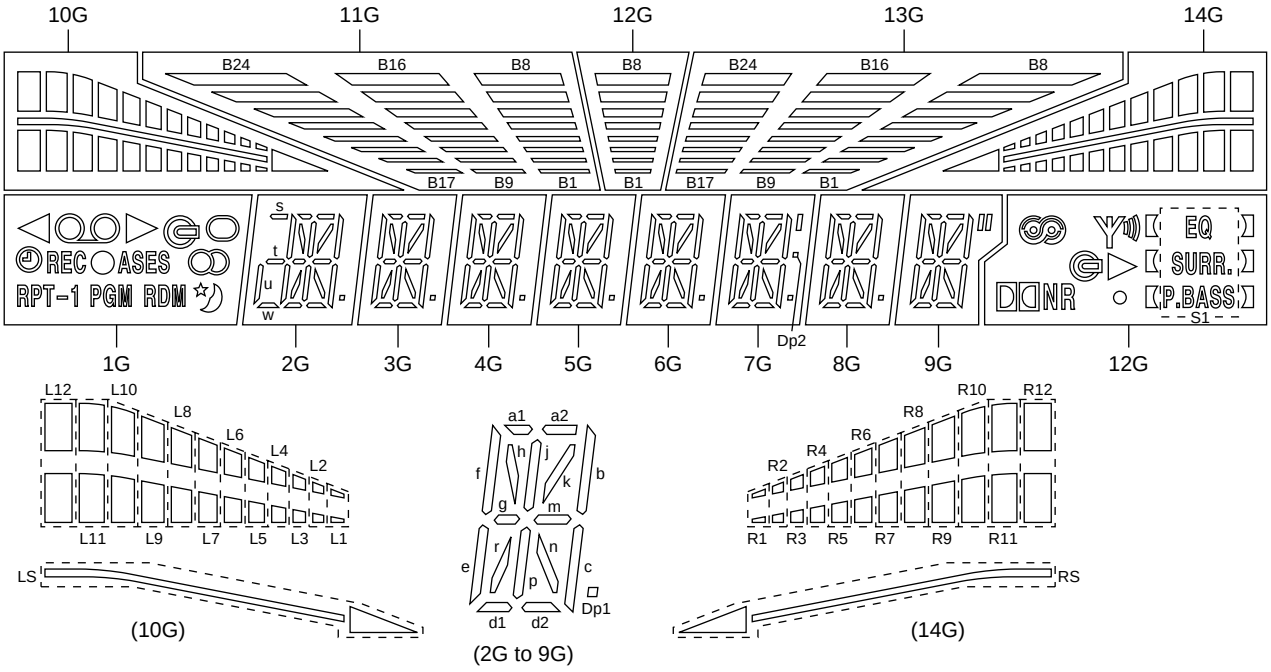
■ XAV3007 (DISPLAY ASSY : V5621)

• FL Display

• Pin Assignment



• Grid Assignment



• Pin Connection

Pin No.	53	52	51	50	49	48	47	46	45	44	43	42	41	40	39	38	37	36	35	34	33	32	31	30	29	28	27
Connection	F2	F2	NP	NP	NX	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G	11G	12G	13G	14G	NX	NX	P1	P2	P3	P4	P5	P6

Pin No.	26	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1
Connection	P7	P8	P9	P10	P11	P12	P13	P14	P15	P16	P17	P18	P19	P20	P21	P22	P23	P24	P25	P26	P27	NX	NP	NP	F1	F1

NOTE 1) F1, F2..... Filament
2) NP..... No pin
3) NX..... No extend pin
4) DL..... Datum Line
5) 1G to 14G..... Grid
6) Field of vision is a minimum of 25.8° from the lower side.

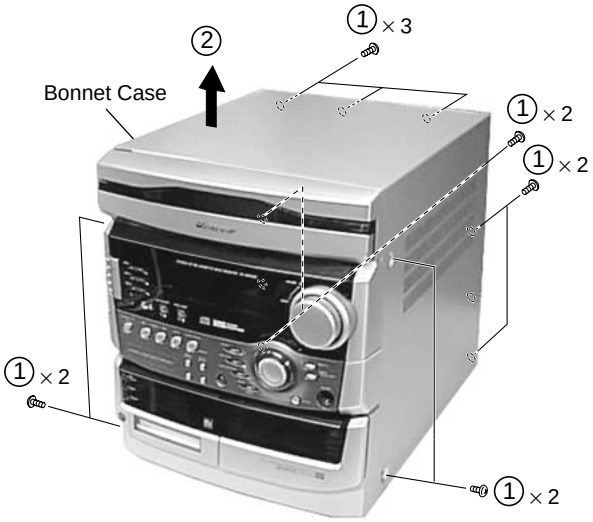
• Anode Connection

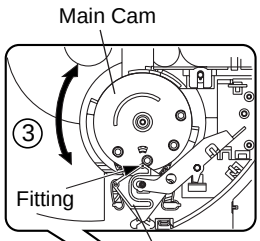
	1G	2G	3G to 6G	7G	8G	9G	10G	11G	12G	13G	14G
P1	◁	a1	a1	a1	a1	a1	L1	B1	B1	B1	R1
P2	◯◯	a2	a2	a2	a2	a2	L2	B2	B2	B2	R2
P3	▷	h	h	h	h	h	L3	B3	B3	B3	R3
P4	◎	j	j	j	j	j	L4	B4	B4	B4	R4
P5	◯	k	k	k	k	k	L5	B5	B5	B5	R5
P6	◎	b	b	b	b	b	L6	B6	B6	B6	R6
P7	REC	f	f	f	f	f	L7	B7	B7	B7	R7
P8	◯	g	g	g	g	g	L8	B8	B8	B8	R8
P9	ASES	m	m	m	m	m	L9	B9	◎◎	B9	R9
P10	◯◯	c	c	c	c	c	L10	B10	Y◎	B10	R10
P11	RPT	e	e	e	e	e	L11	B11	◎	B11	R11
P12	-1	r	r	r	r	r	L12	B12	▷	B12	R12
P13	PGM	p	p	p	p	p	–	B13	DNR	B13	–
P14	RDM	n	n	n	n	n	–	B14	–	B14	–
P15	☆☽	d1	d1	d1	d1	d1	–	B15	–	B15	–
P16	–	d2	d2	d2	d2	d2	–	B16	–	B16	–
P17	–	s	–	–	–	//	LS	B17	◯	B17	RS
P18	–	t	–	–	–	–	–	B18	S1	B18	–
P19	–	u	–	–	–	–	–	B19	〖 (EQ) 〗	B19	–
P20	–	w	–	–	–	–	–	B20	〖 (SURR.) 〗	B20	–
P21	–	–	–	–	–	–	–	B21	〖(P.BASS)〗	B21	–
P22	–	–	–	–	–	–	–	B22	–	B22	–
P23	–	–	–	–	–	–	–	B23	–	B23	–
P24	–	–	–	–	–	–	–	B24	–	B24	–
P25	–	Dp1	Dp1	Dp1	Dp1	–	–	–	–	–	–
P26	–	–	–	Dp2	–	–	–	–	–	–	–
P27	–	–	–	/	–	–	–	–	–	–	–

7.2 DIAGNOSIS

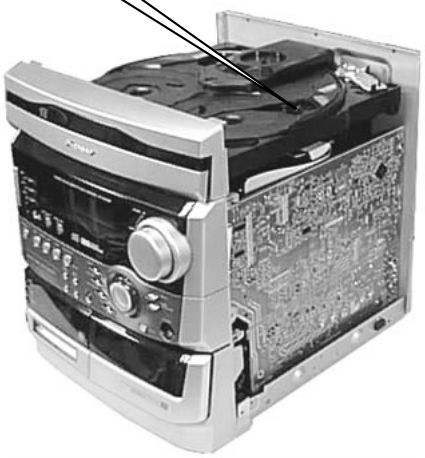
7.2.1 DISASSEMBLY

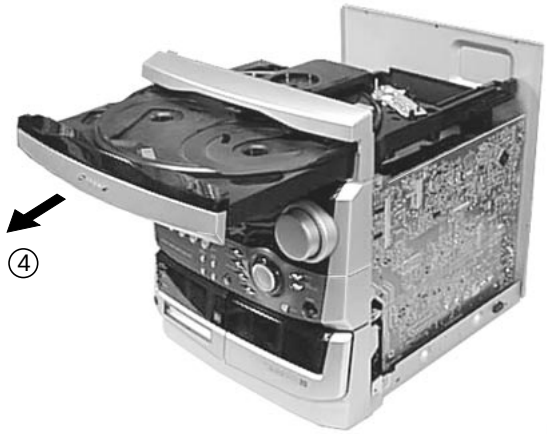
■ $M MECHANISM CD

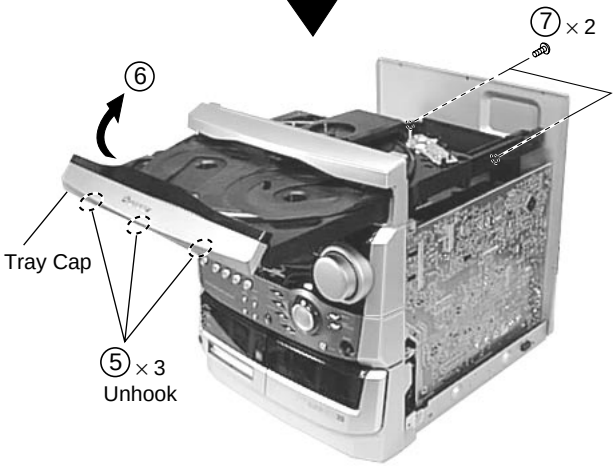


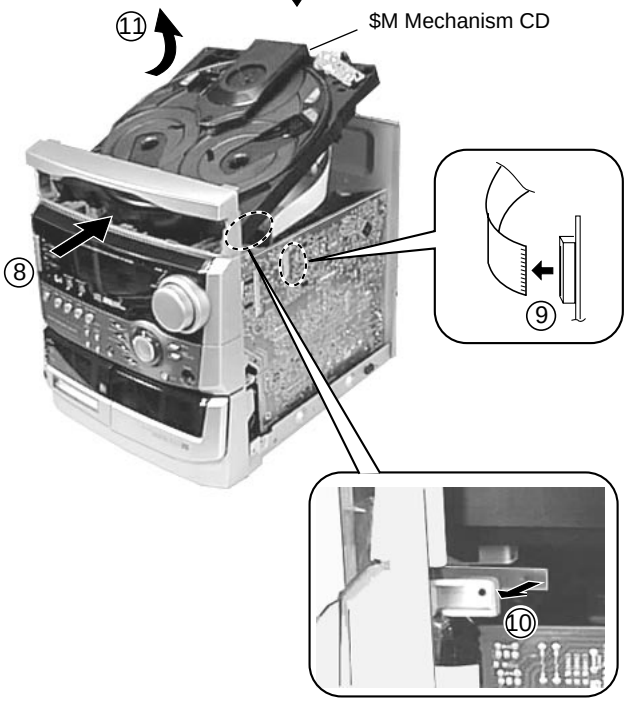


Note: The loading tray can be pulled out when the main cam is in this position. (The Lock Lever should be in the notch of the Main Cam.)

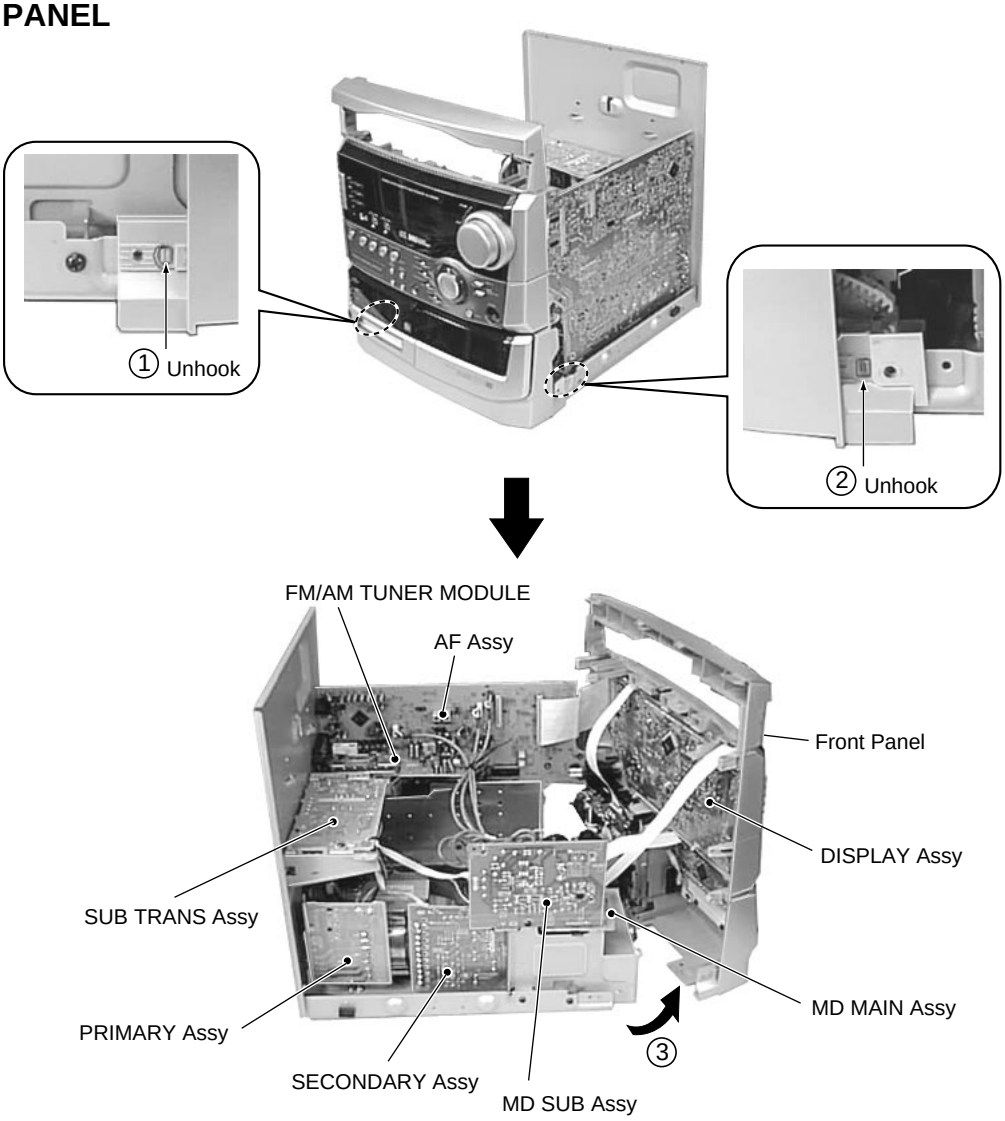






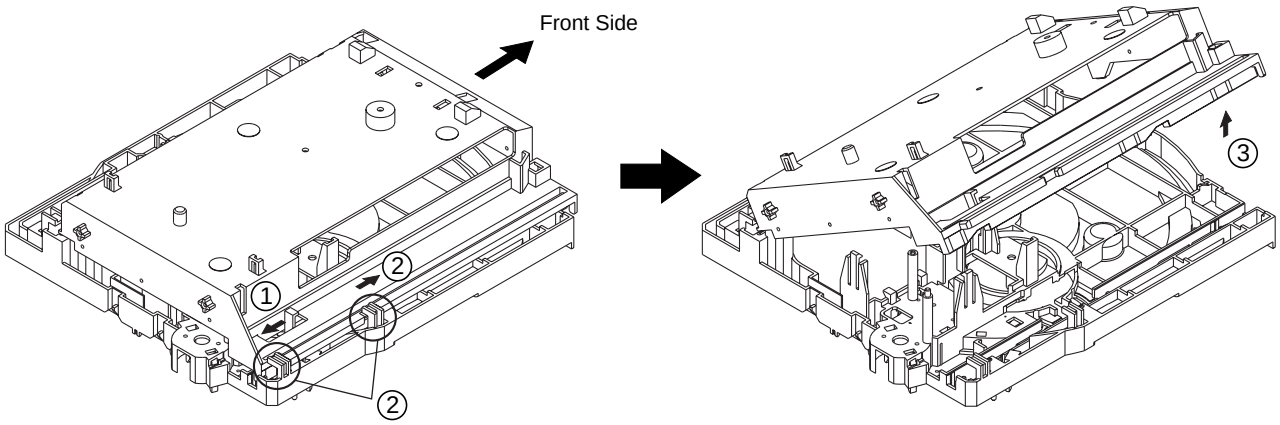


■ FRONT PANEL

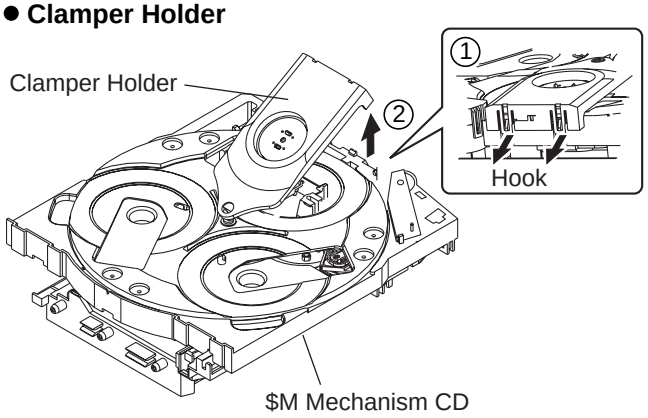


■$M MECHANISM CD ADDITIONAL TO JOB

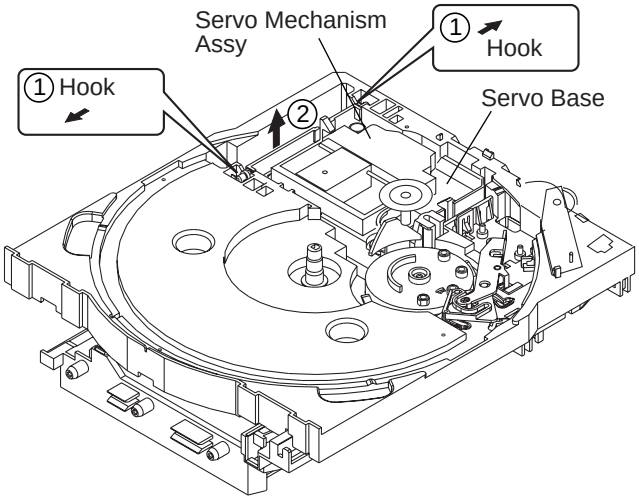
● **Mechanism Base (Bottom View)**



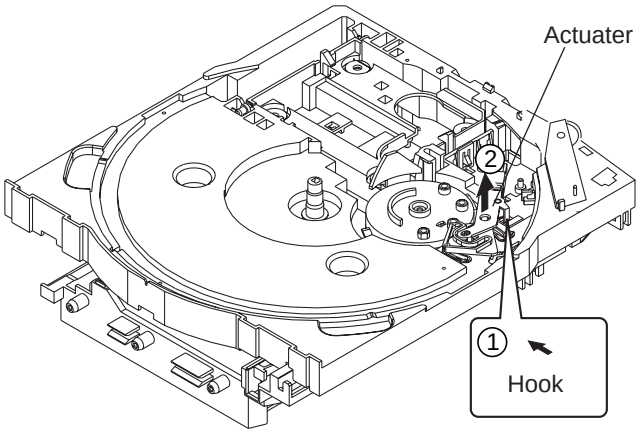
● **Clamper Holder**



● **Servo Base**

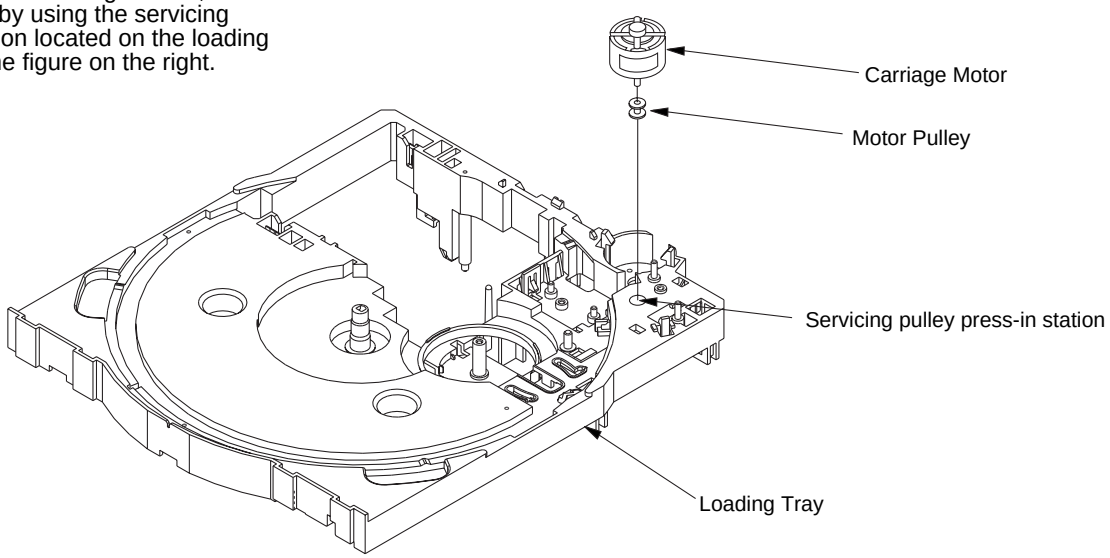


● **Actuater**

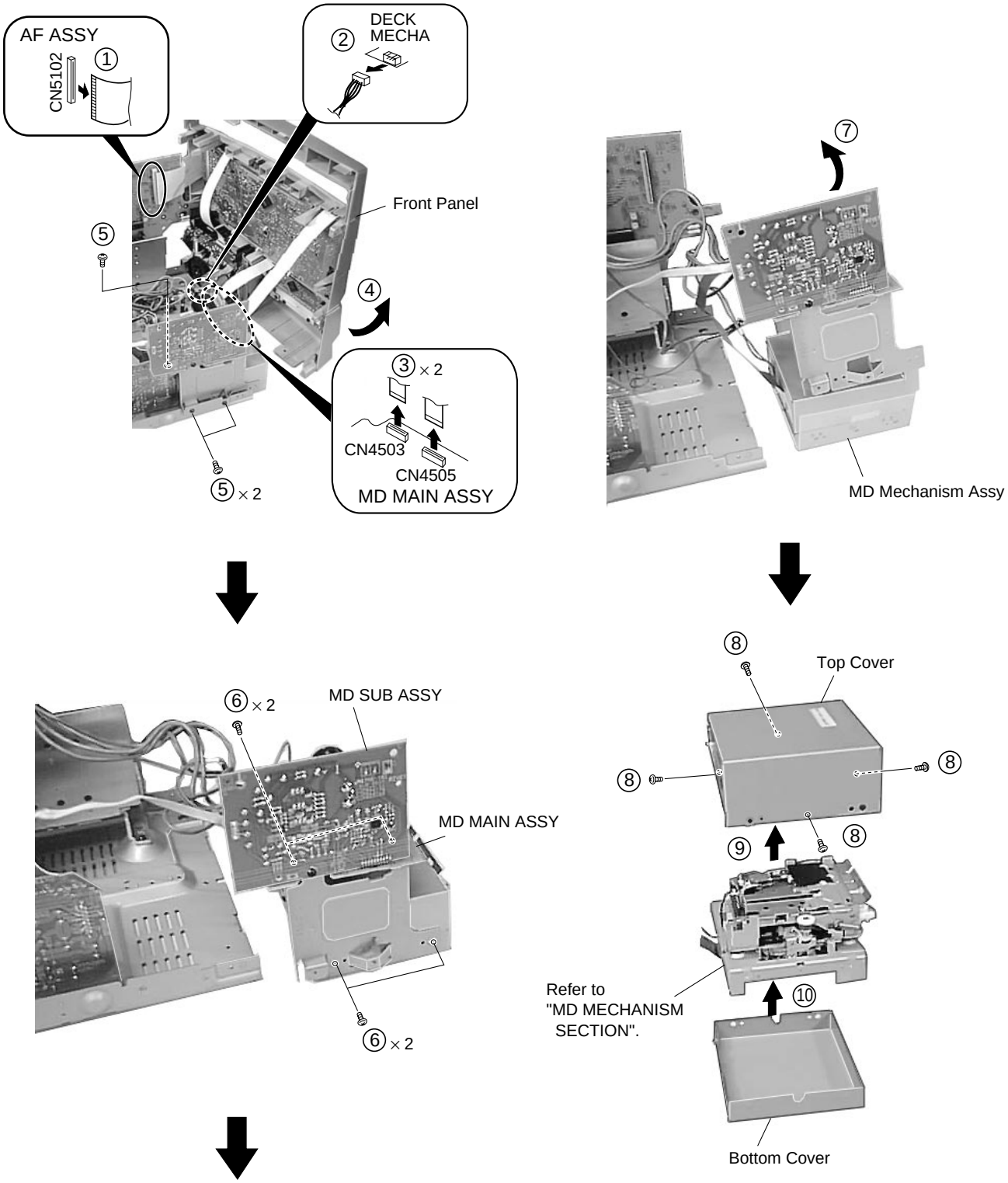


■FITTING THE PULLEY INTO THE CARRIAGE MOTOR

For replacement of the carriage motor, fit the motor pulley by using the servicing pulley press-in station located on the loading tray, as shown in the figure on the right.



■MD MECHANISM ASSY



■ MD MECHANISM SECTION

● Removing the Magnetic Head (Fig.1)

(1) Remove a Screw (A1).

CAUTION: Take adequate caution not to damage the Magnetic Head during reinstallation.

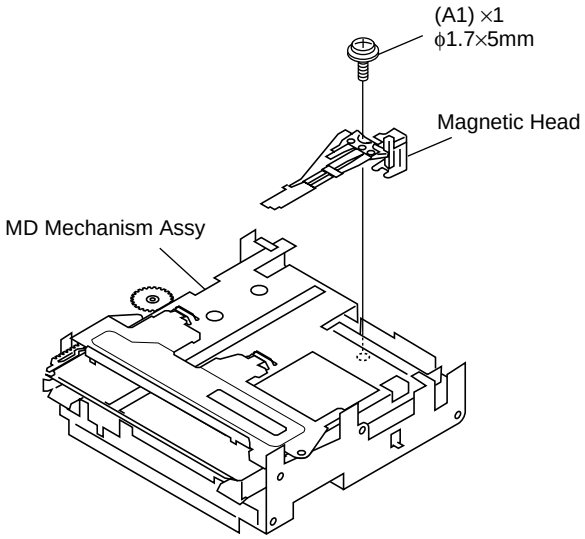


Fig.1

● Removing the Cartridge Holder (Fig.2)

(1) Open the roller arm lever in the direction of the arrow, and lower the clamper lever until it reaches the unit rear.
(2) Apply +5V to the red wire side of the loading motor blue connector, and push the rack gear in the direction of the arrow, moving it until the cam plate lever starts to clatter.
(3) Remove the screw (B1) × 1 and spring (B2) × 1 holding the holder arm in place, and remove the cartridge holder, sliding it out to the left.

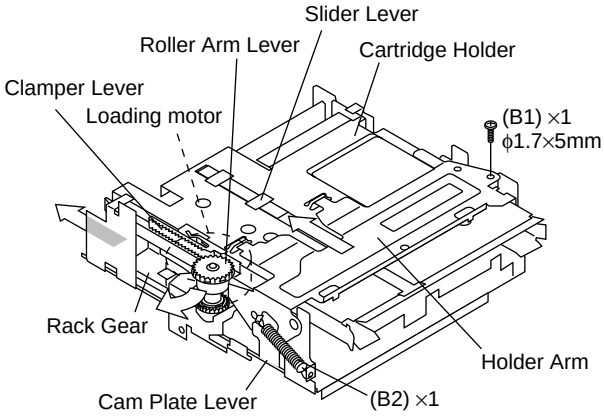


Fig.2

● Removing the MD MECHANISM SWITCH Assy (Fig.3)

(1) Remove the two Screws (E1).
Remove the MD MECHA SW Assy.

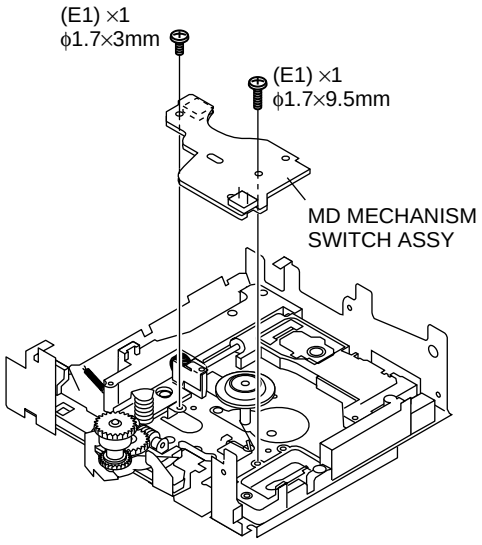


Fig.3

● Removing the Slide and Loading Motors (Fig.4)

(1) Remove the four Screws (D1) to remove the Slide and Loading Motors.

CAUTION: Be careful not to damage the Gears. (Damaged Gears may cause abnormal noise during searching.)

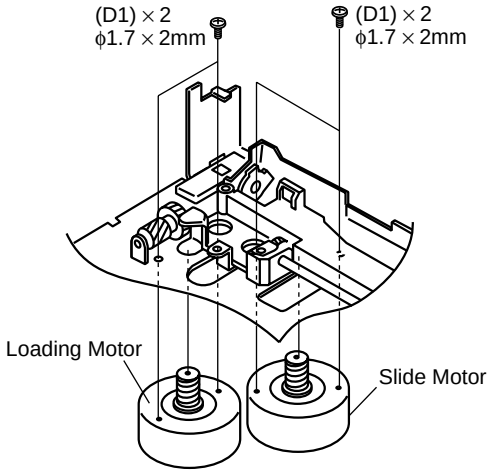


Fig.4

● Removing the Spindle Motor (Fig.5)

(1) Remove the three Screws (C1) to remove the Spindle Motor.

CAUTION : Be careful not to damage the Gears. (Damaged Gears may cause abnormal noise during searching.)

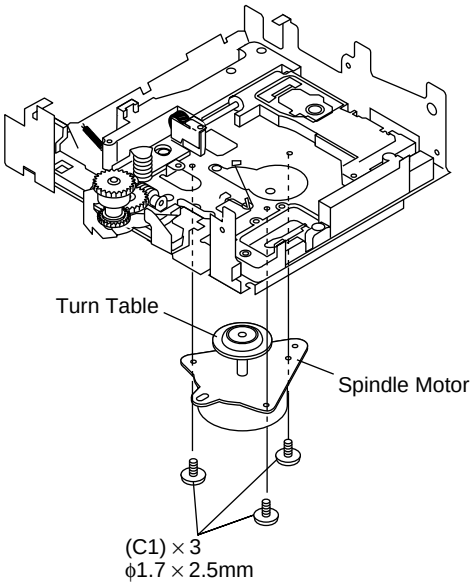


Fig.5

● Removing the Light Pickup (Fig.6)

(1) Remove the three Screws (F1).

CAUTION: Be careful not to damage the Gears. (Damaged Gears may cause abnormal noise during searching.)

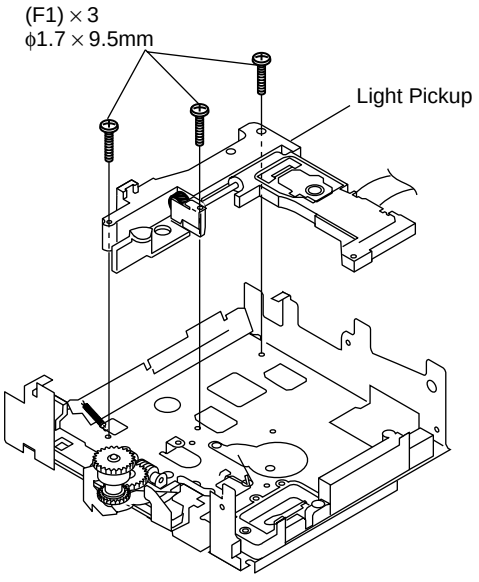


Fig.6

7.2.2 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.)
D-IN UNLOCK	● The following occurred for digital signal input from D-IN during REC-PAUSE, REC-PLAY, or CD FUNC playback 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.
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 ERROR	● 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.
UNKNOWN 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.
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.
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	● Data read was incorrect or could not be read properly. ● Error occurred during music data recording and recording could not be performed correctly.	● Faulty TOC or UTOC data or scratch on disc. Replaced with other discs.

Error Display	Details of Error	Measure
UNKNOWN DISC	● 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.
UTOC W ERR	● Fault occurred during rewriting of UTOC rewriting, and rewriting could not be performed correctly.	● Scratch on disc. Replaced with other discs.
UNKNOWN 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.
BLANK MD	● 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 REC-PLAY.	● 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 ERROR	● 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 ERROR	● The EEPROM data are incorrect.	● Try doing a RESET operation again. If the problem still persists, replace the EEPROM.

Detail of Mechanism Error

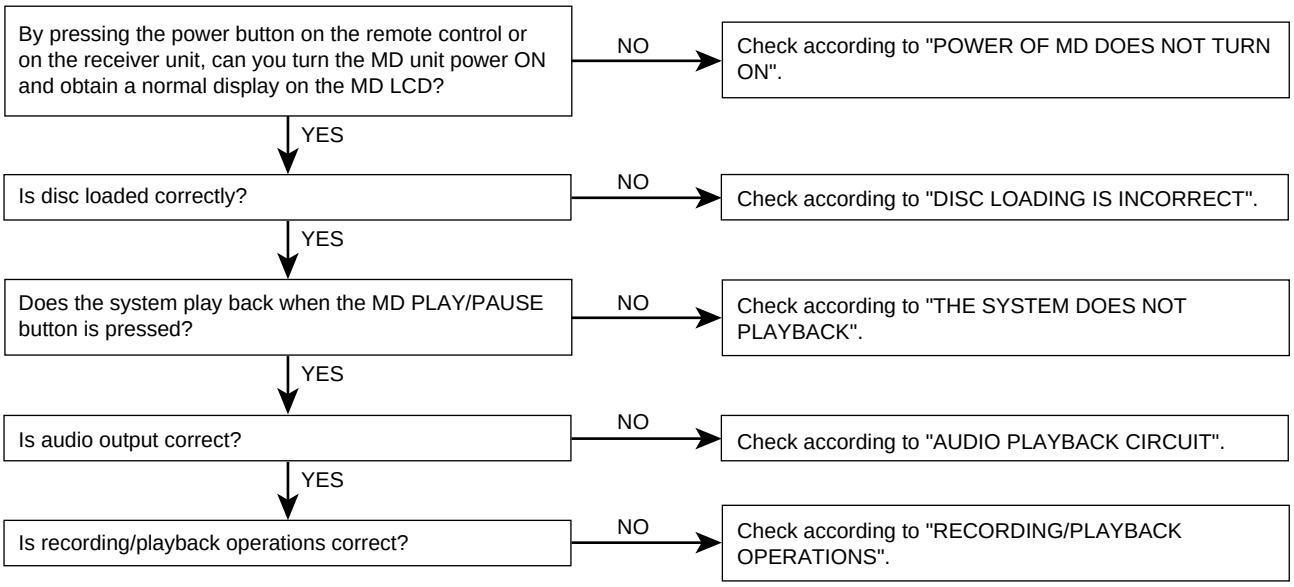
Error Display	Details of Error
MECHA ERROR	• Never completes EJECT. • Never moves HEAD UP. • Never moves HEAD DOWN. • The set microcomputer and MD mechanism microcomputer are not communicating properly.

7.2.3 TROUBLESHOOTING

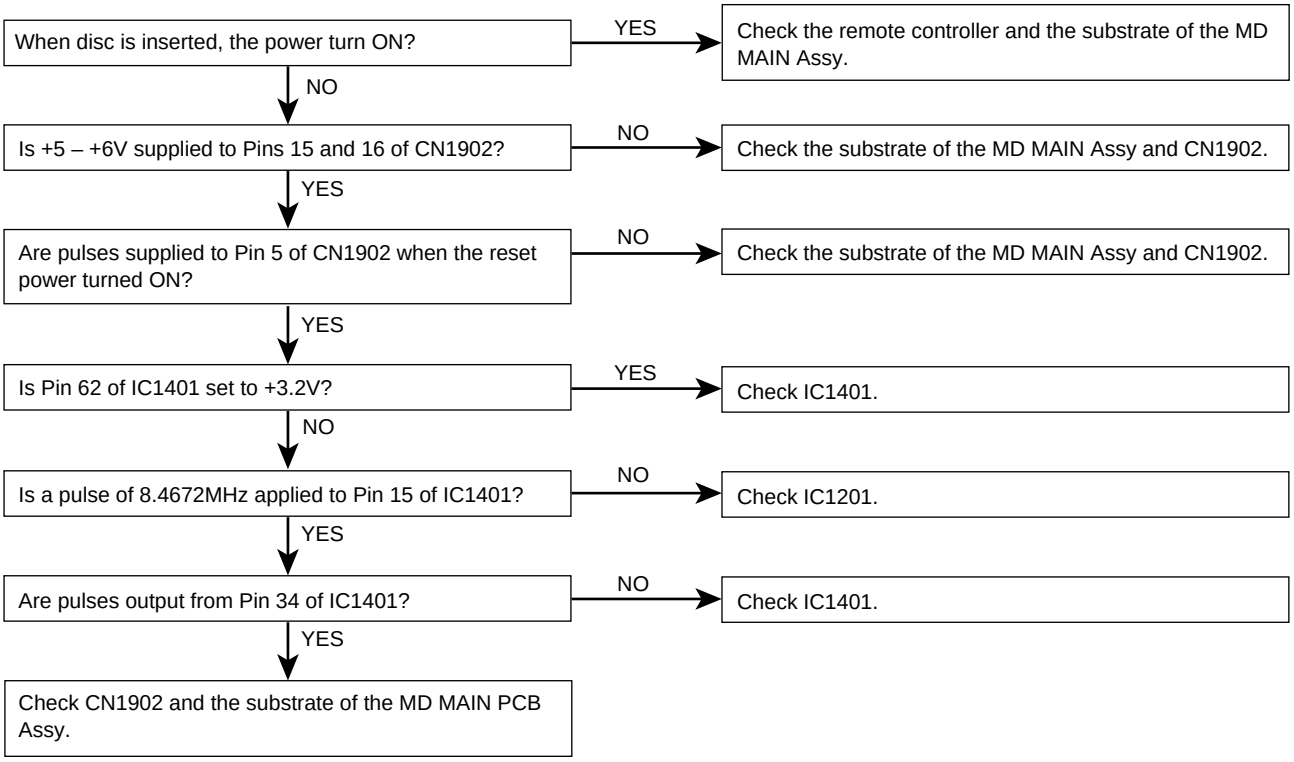
● MD does not Operate

MD may not operate if the objective lens of the Light Pickup is soiled. Clean the objective lens, then check playback operation. If the symptom still persists, check the points according to the flowchart below.
If dust or foreign matter has deposited on the Pickup Lens, the system may skip tracks or may not display TOC (content of song titles). Confirm that the lens is clean before making adjustment. If the lens is soiled, perform as follows:

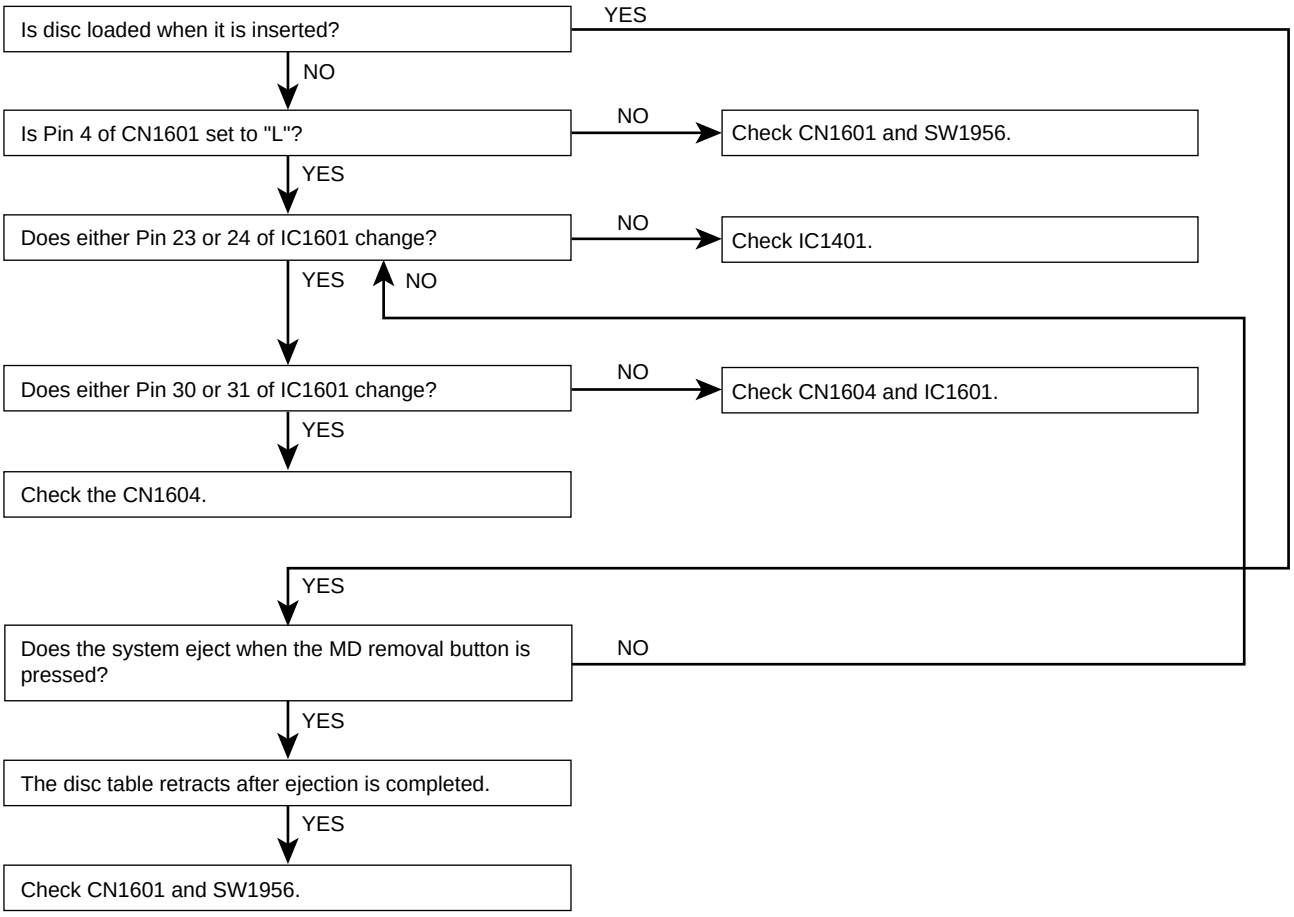
Switch the power of the unit OFF. Apply a small amount of isopropyl alcohol to the lens cleaning paper and clean the lens carefully. Be careful not to damage the lens. Do not touch the lens directly with your hand.



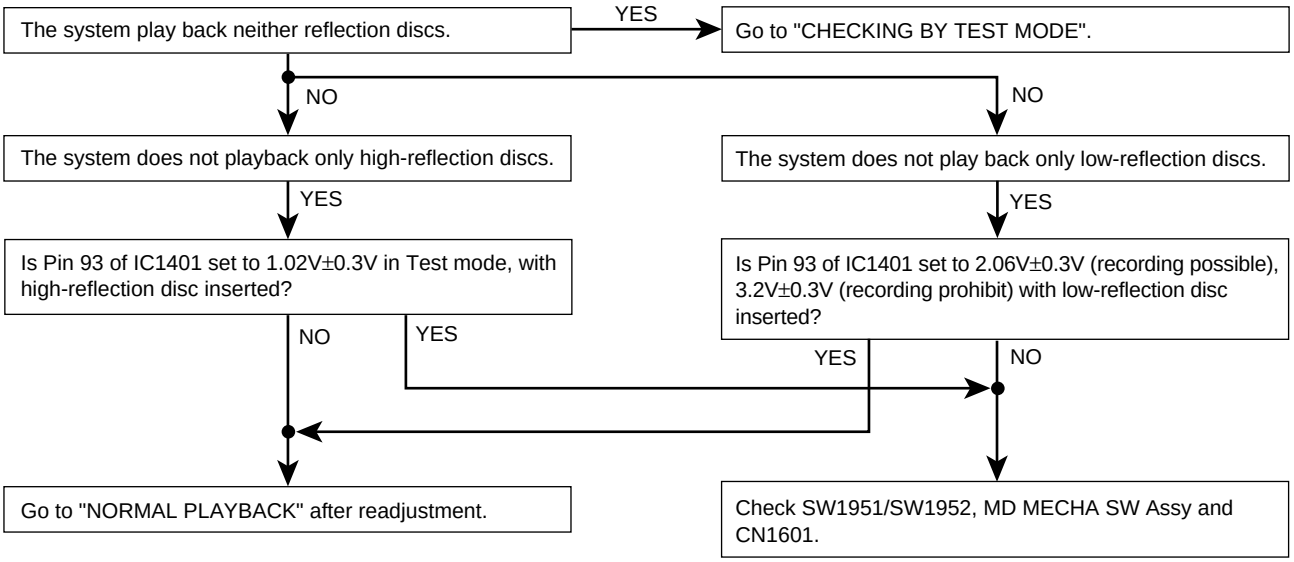
● Power of MD does not turn on



● Disc loading is incorrect

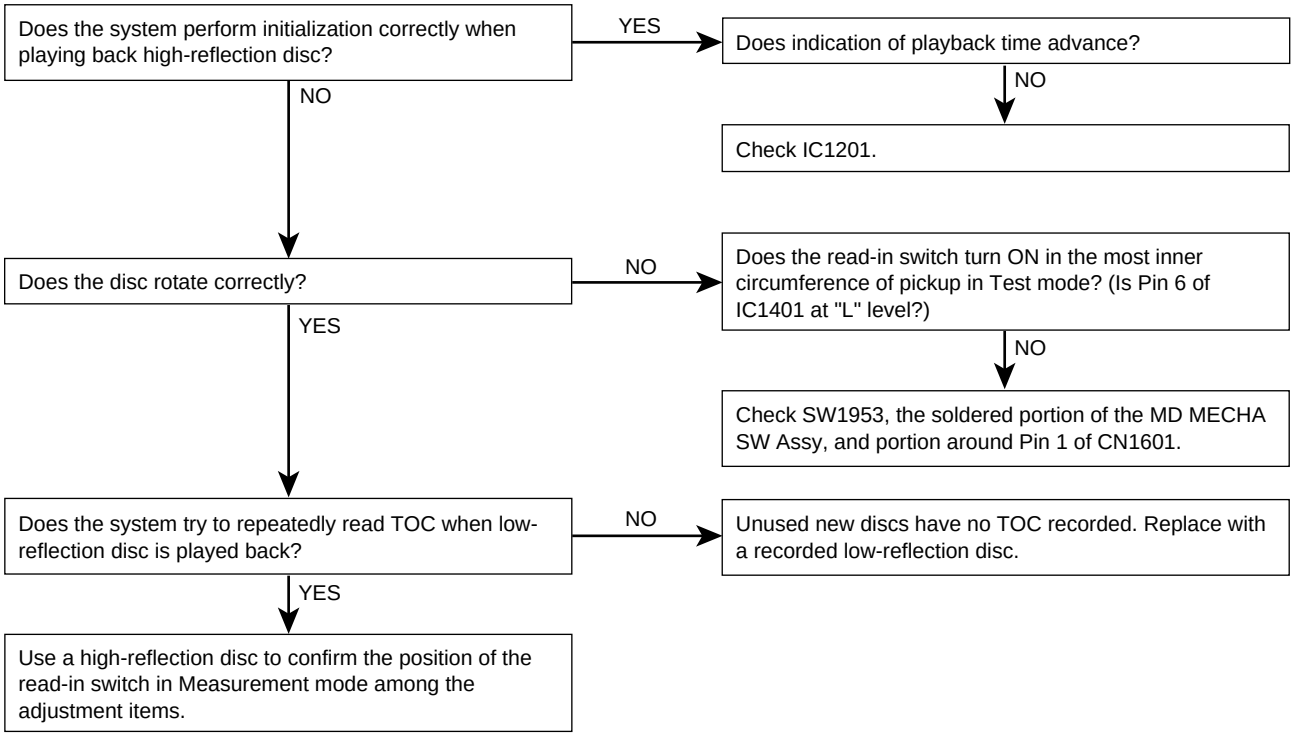


● The system does not playback



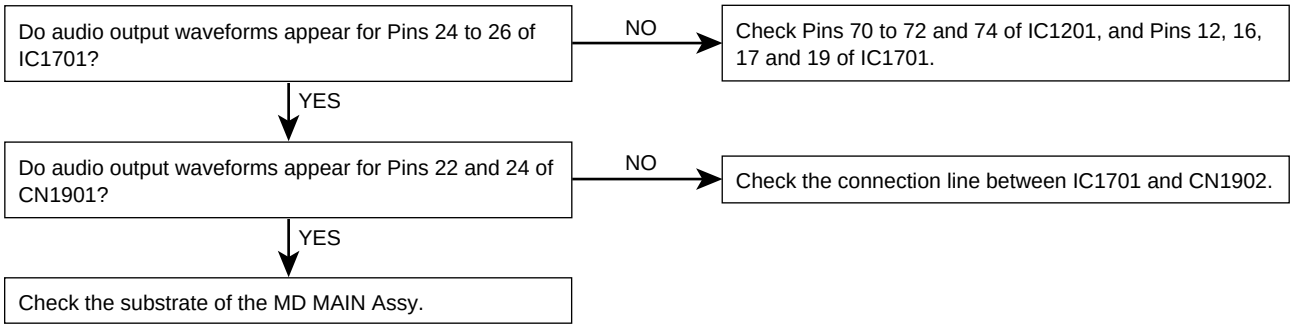
● Normal playback

It is confirmed that EEPROM value is correct in Test mode:



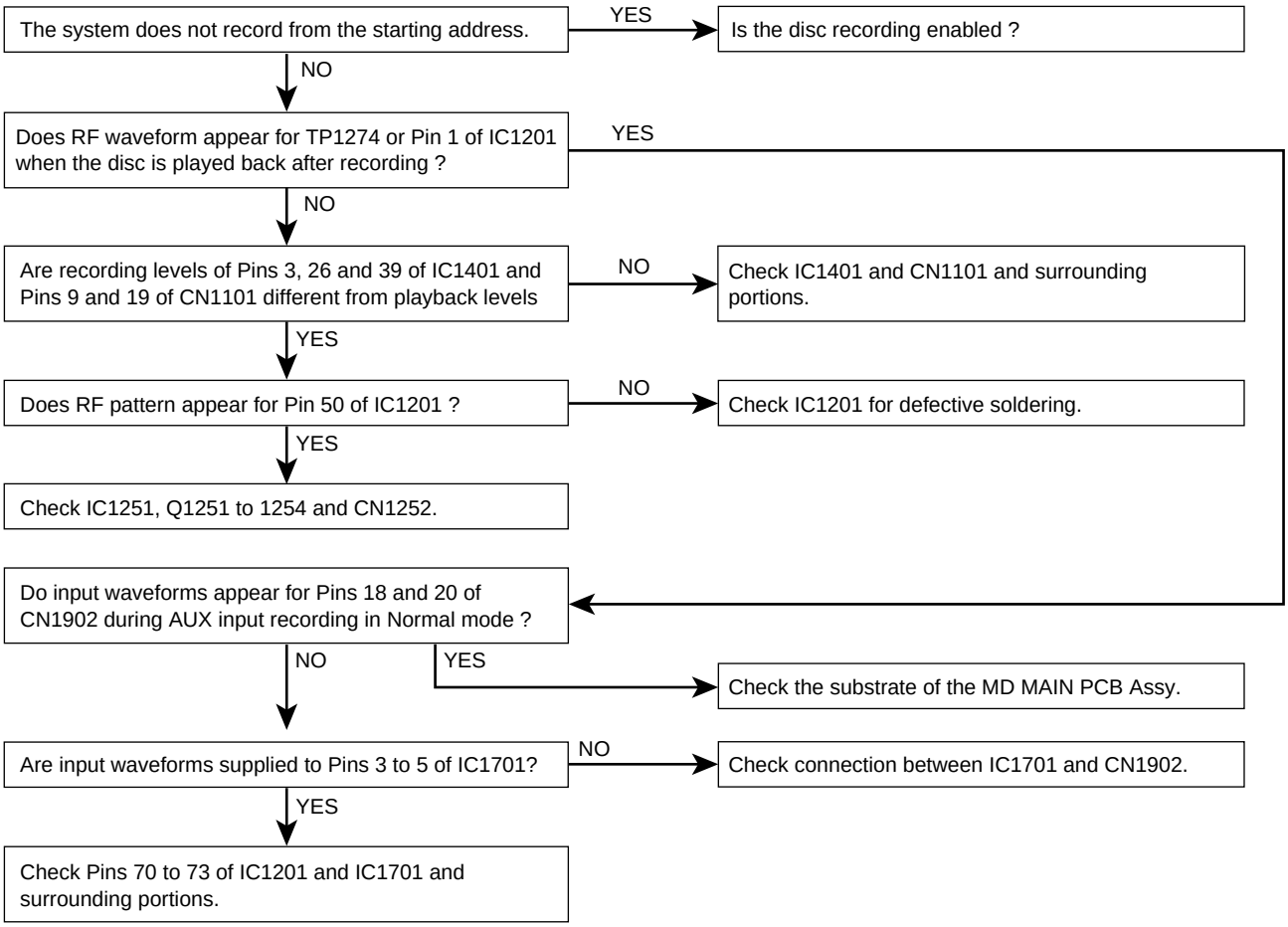
● Audio playback circuit

No sound is output even though indication of playback time advances during playback in Normal mode:

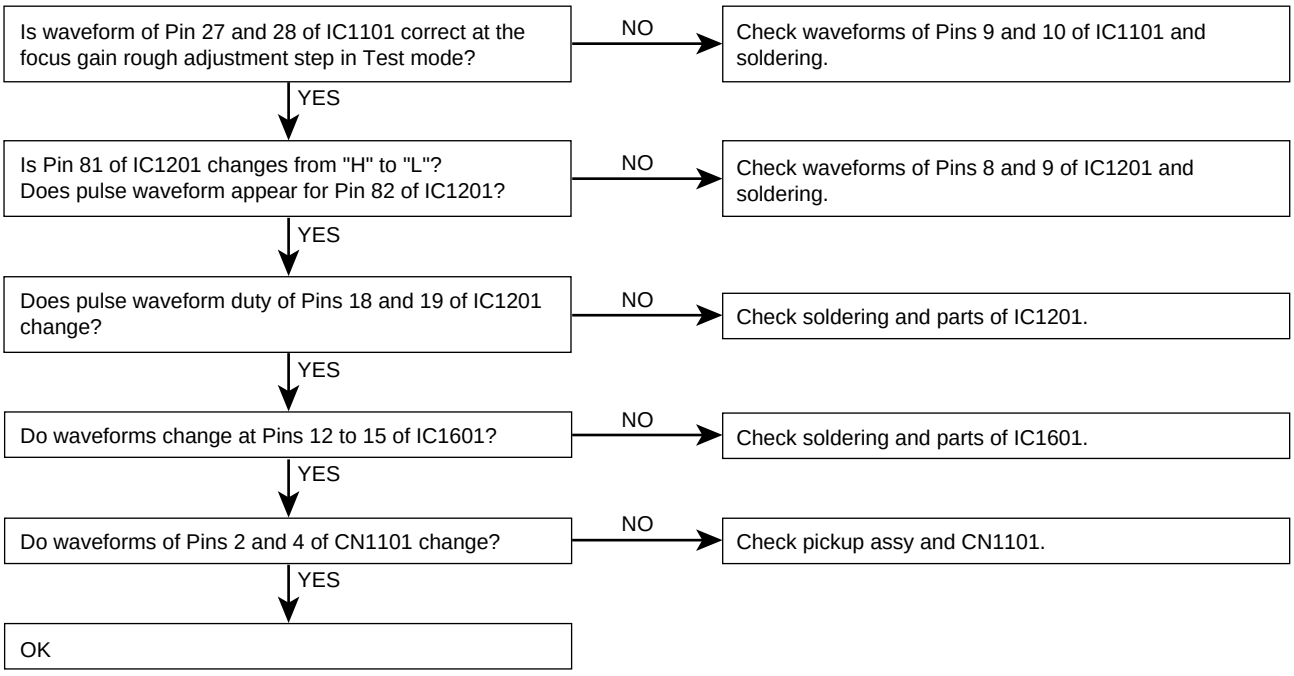


● Recording/playback operations

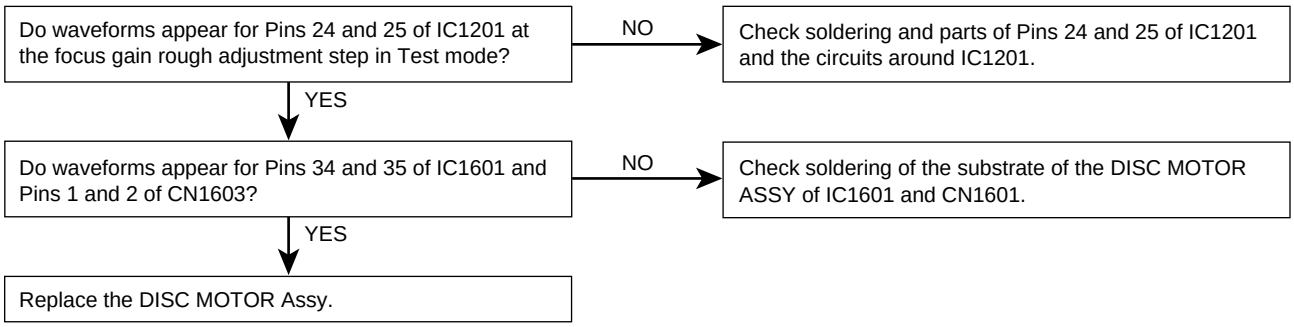
Insert a low-reflection disc to confirm audio output during playback in Normal mode, then set the system to Recording/Playback Test mode.



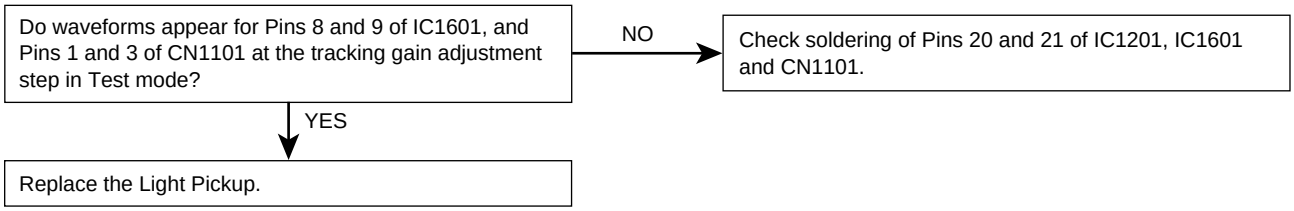
● The focus servo does not function



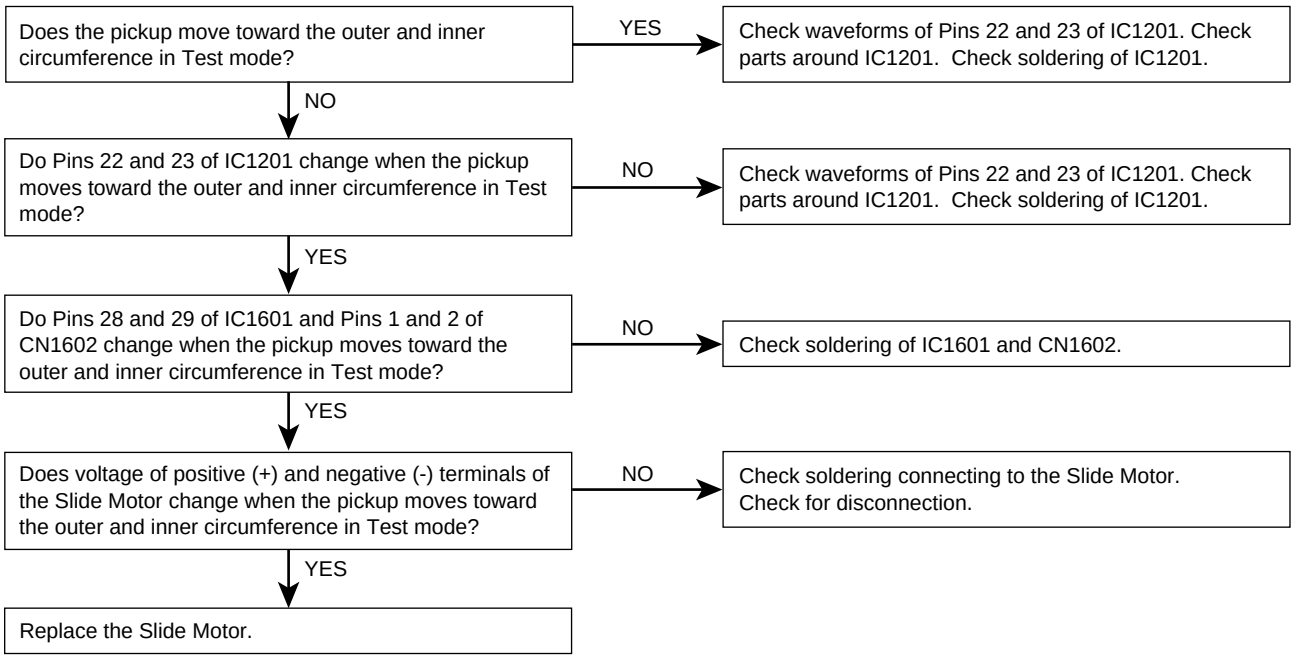
● The disc motor does not rotate



● The tracking servo does not function

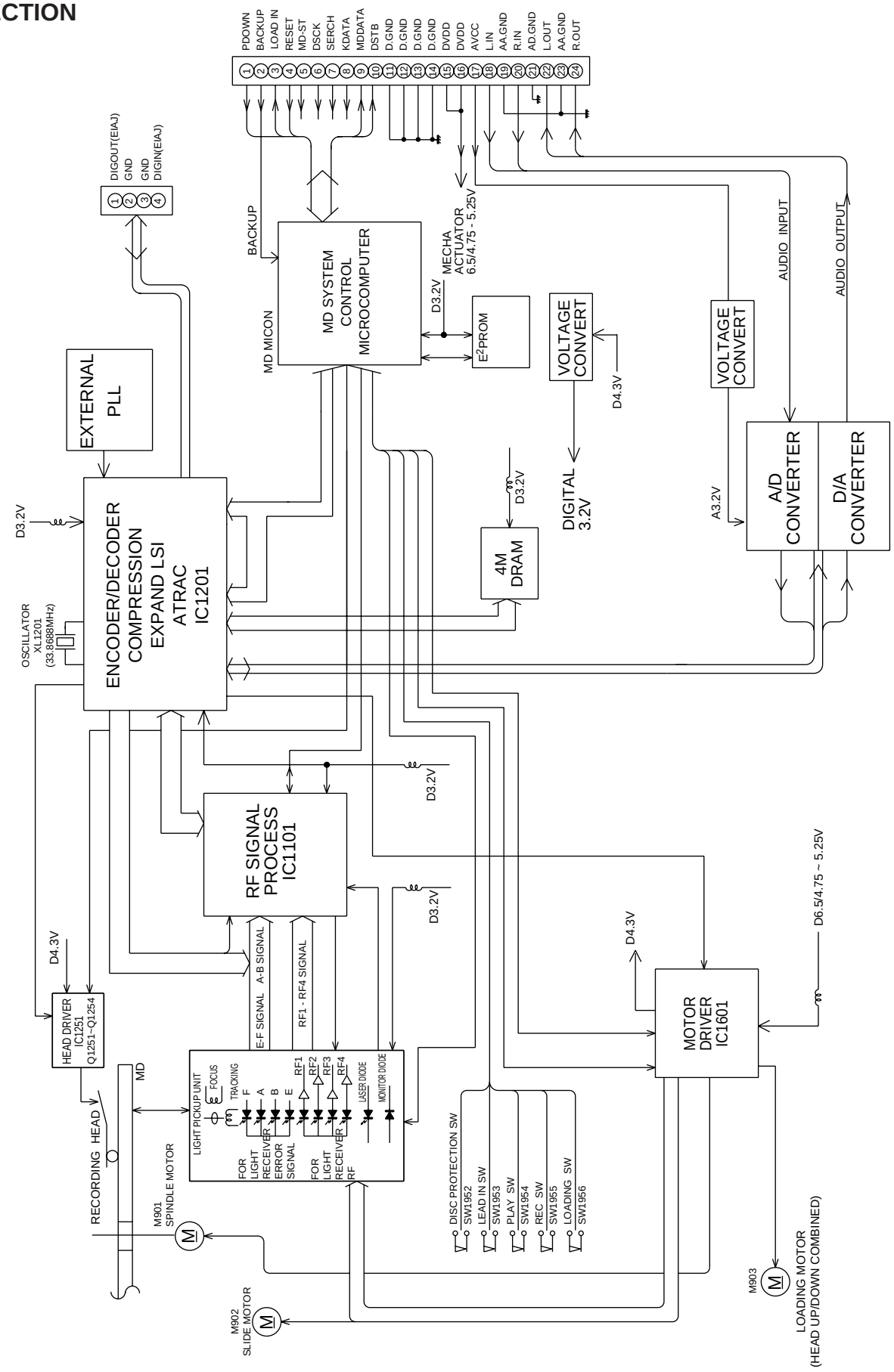


● The slide servo does not function

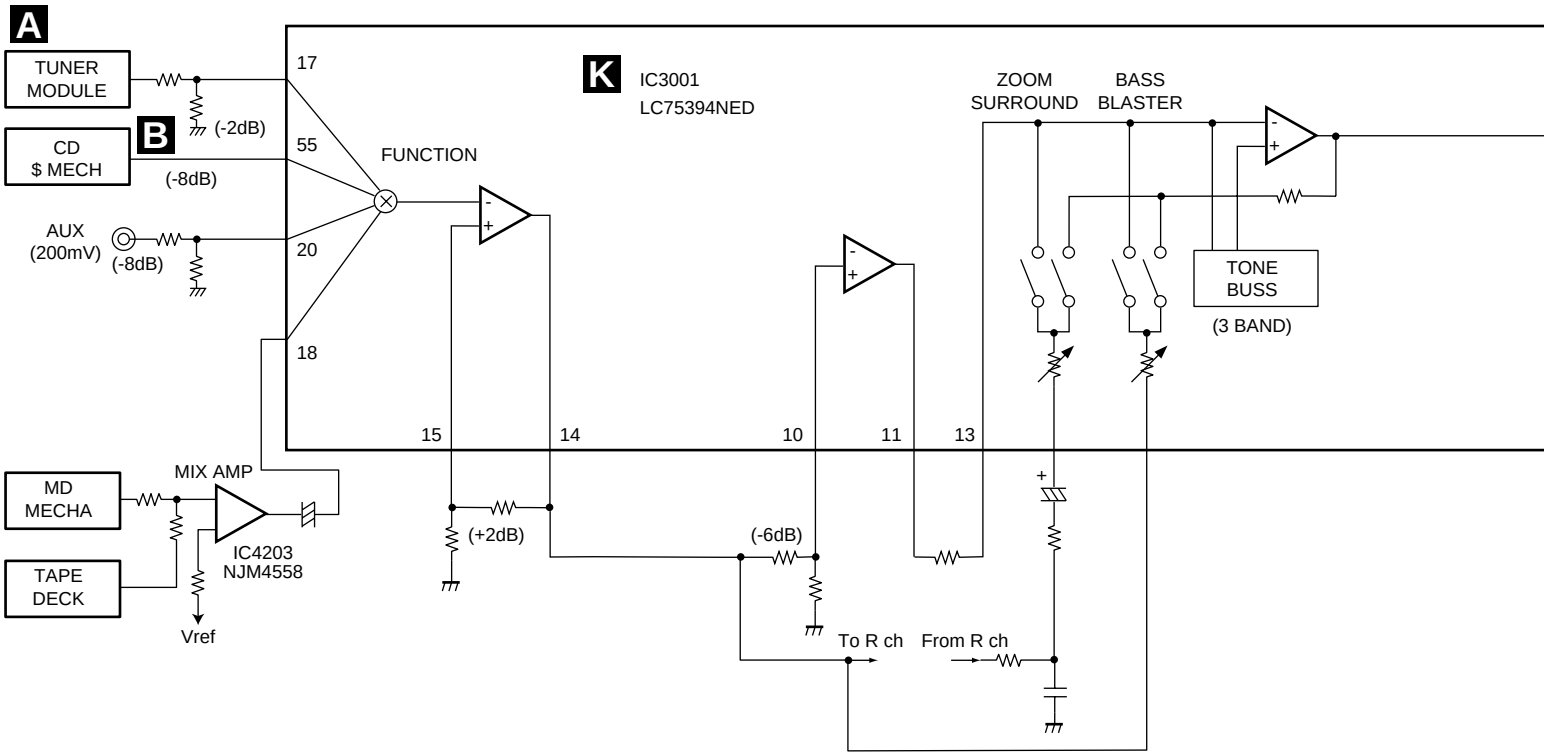


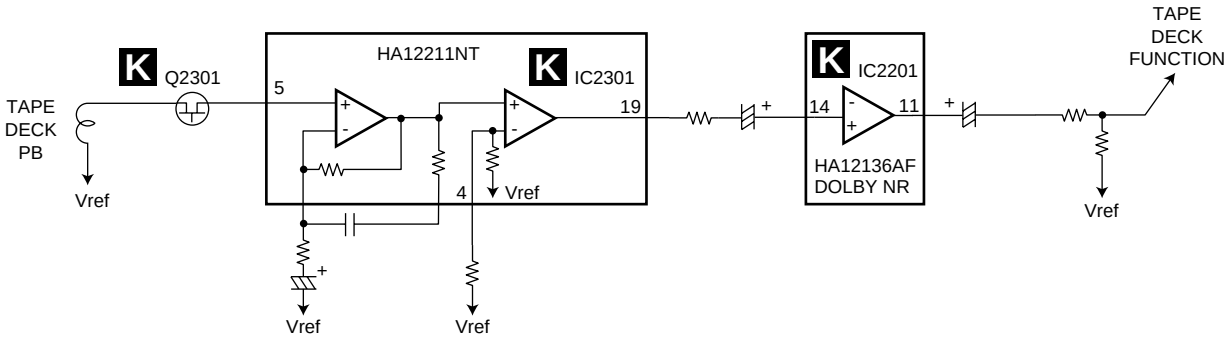
7.3 BLOCK DIAGRAM

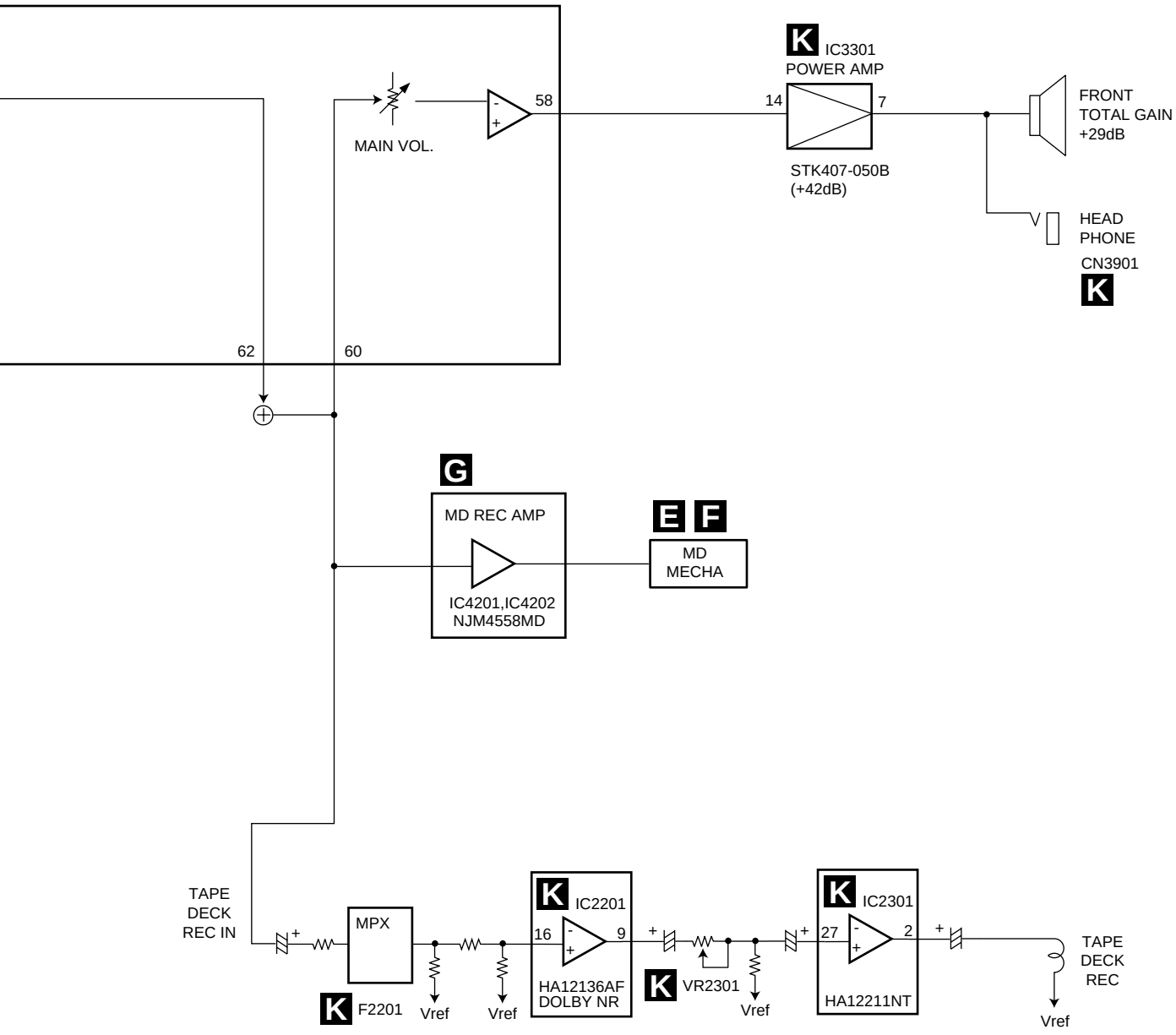
MD SECTION



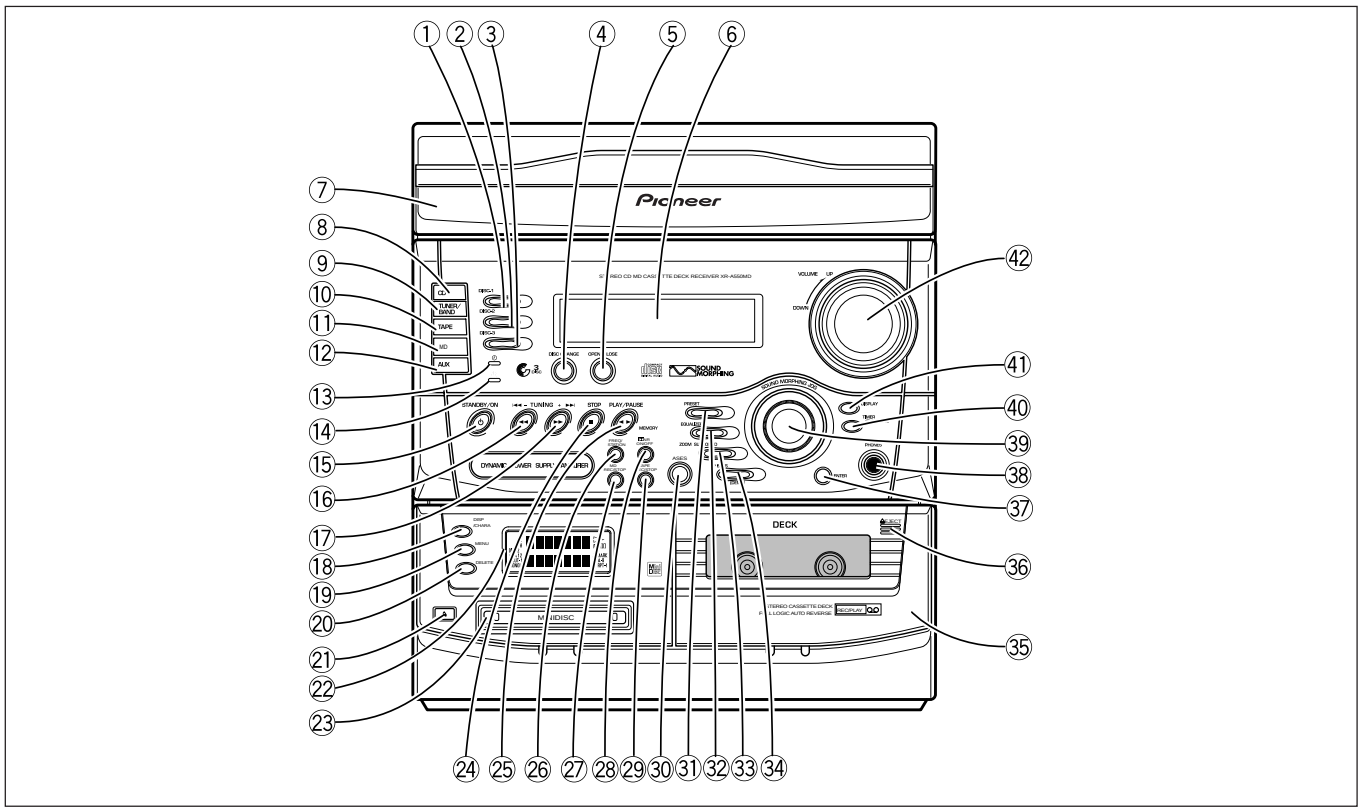
MAIN SECTION






K IC3301
POWER AMP
14
7
STK407-050B
(+42dB)
FRONT
TOTAL GAIN
+29dB
HEAD
PHONE
CN3901
K
MAIN VOL.
58
62
60
G
MD REC AMP
IC4201,IC4202
NJM4558MD
E F
MD
MECHA
TAPE
DECK
REC IN
MPX
K F2201
Vref
Vref
K IC2201
16
9
HA12136AF
DOLBY NR
K VR2301
Vref
K IC2301
27
2
HA12211NT
TAPE
DECK
REC
Vref

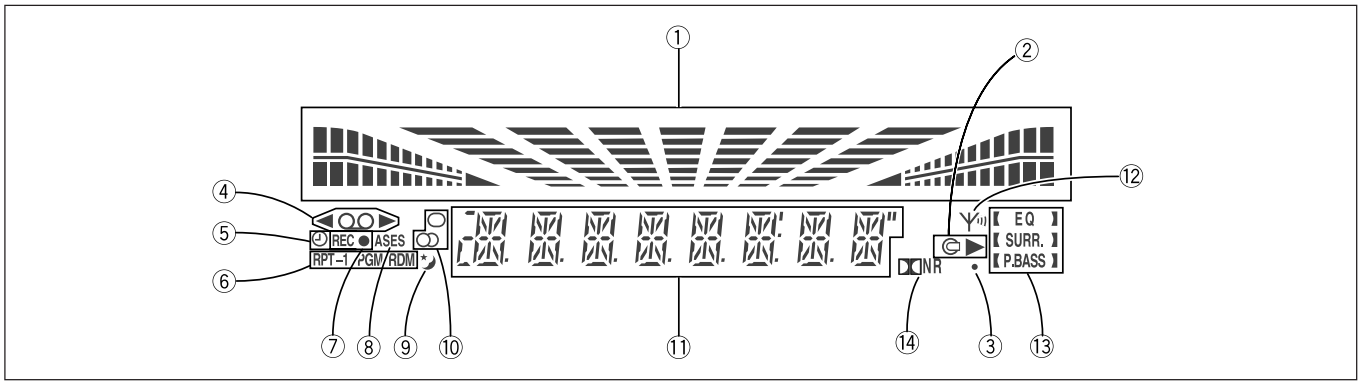
8. PANEL FACILITIES AND SPECIFICATIONS
8.1 PANEL FACILITIES



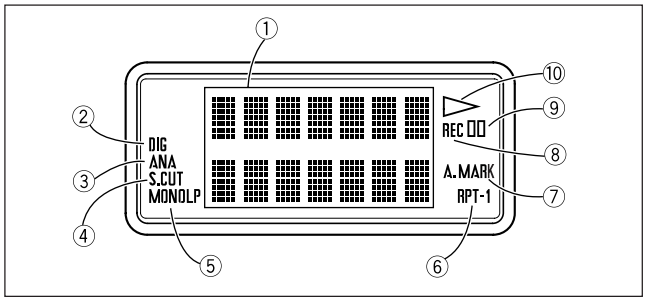
① **DISC-1 select button & indicator**
② **DISC-2 select button & indicator**
③ **DISC-3 select button & indicator**
④ **DISC CHANGE button**
⑤ **OPEN/CLOSE button**
⑥ **Display**
⑦ **CD disc tray**
⑧ **CD Function button**
⑨ **TUNER / BAND Function button**
⑩ **TAPE Function button**
⑪ **MD function button**
⑫ **AUX Function button**
⑬ **TIMER indicator**
Lights in Standby mode when the system has been set for timer operation.
⑭ **STANDBY indicator**
⑮ **STANDBY/ON switch**
⑯ **TUNNING ◄◄ I◄◄ - button**
⑰ **TUNNING + ►►I ►► button**
⑱ **DISPLAY/CHARA button**
⑲ **MENU button**
⑳ **DELETE button**
㉑ **MD Eject button**
㉒ **MD Display**
㉓ **MD insertion slot**
㉔ **STOP (■) button**
㉕ **PLAY / PAUSE , MEMORY button**
㉖ **FREQ/STATION button**
㉗ **MD Record/Stop button**
㉘ **Dolby* NR button**
㉙ **Tape Record/Stop button**
㉚ **A.S.E.S. button**
㉛ **PRESET button**
㉜ **EQUALIZER button**
㉝ **ZOOM SURROUND button**
㉞ **P.BASS (DEMO) button**
㉟ **TAPE cassette door**
㊱ **TAPE Eject button (▲)**
㊲ **ENTER button**
㊳ **PHONES jack (Headphones)**
㊴ **S.M. JOG (Sound Morphing JOG)**
㊵ **TIMER/ CLOCK ADJ button**
㊶ **DISPLAY button**
㊷ **Volume control (VOLUME)**

*
- ***Dolby noise reduction manufactured under license from Dolby Laboratories Licensing Corporation.***
- ***"DOLBY" and the double-D symbol are trademarks of Dolby Laboratories Licensing Corporation.***

Display section

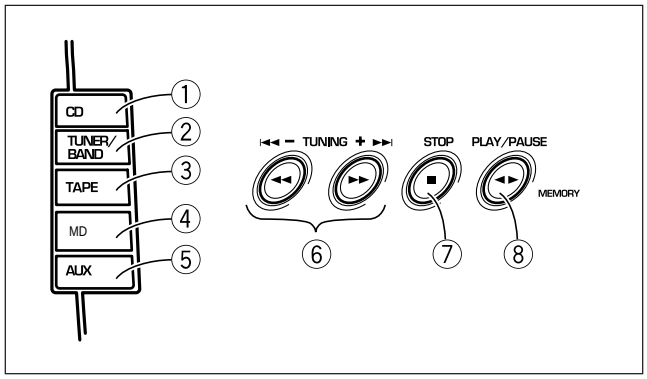


① **Indicates Audio level.**
② **Indicates CD operation status.**
③ **Lights when BEAT CUT 2 is selected.**
④ **Indicates tape transport direction.**
⑤ **Displays timer function indications.**
⑥ **Lights when the selected function is CD.**
⑦ **Lights during tape recording.**
⑧ **Lights during ASES operation.**
⑨ **Lights during Sleep Timer operation.**
⑩ **Indicates tuner operation status.**
⑪ **Displays a wide range of operation status indications.**
⑫ **Indicates tuner reception status.**
⑬ **Indicates SOUND MORPHING status.**
⑭ **Lights when Dolby NR is switched ON.**



① **Alphanumeric display**
② **Lights when the unit is set for digital recording**
③ **Lights when the unit is set for analog recording**
④ **Lights when the unit is set for Synchro recording**
⑤ **Lights when the unit is set for extended monaural recording**
⑥ **Lights during Repeat play**
⑦ **Lights when the Auto Mark function is set**
⑧ **Lights during recording**
⑨ **Lights during pause**
⑩ **Lights during play and recording**

Function button section



① **CD function button**
② **TUNER/BAND function button**
③ **TAPE function button**
④ **MD function button**
⑤ **AUX function button**
⑥ **TUNING [◄◄,I◄◄ (–), (+) ►►I,►►] buttons**
⑦ **STOP button (■)**
⑧ **Play/Pause/Memory button**

- **The operations controlled by buttons ⑥ through ⑧ change as follows depending on whether you select CD with the CD function button, Tuner with the Tuner/Band function button, Tape with the Tape function button, or MD with the MD function button.**

<When CD or MD is selected>
PLAY/PAUSE: Play/pause button
STOP: Stop button
(+) ►►I,►►: Fast forward/track search button
◄◄,I◄◄ (–): Fast reverse/track search button

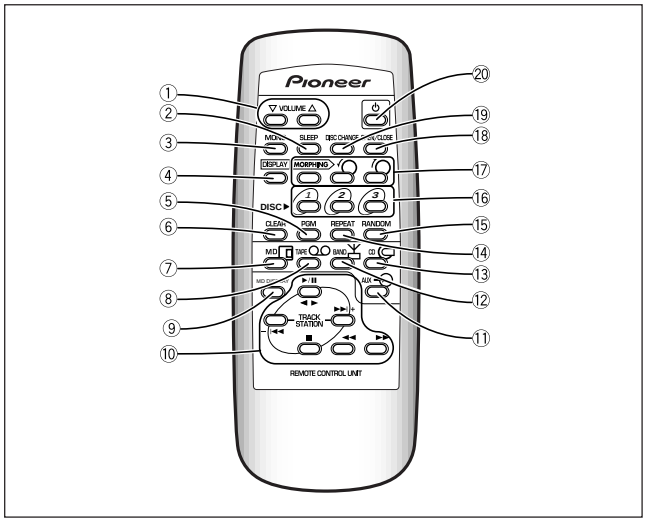
<When TAPE is selected>
PLAY/PAUSE: Play button/Tape transport direction
STOP: Stop button
(+) ►►I,►►: Fast forward button/Music search button
◄◄,I◄◄ (–): Rewind button/Music search button

<When TUNER/BAND is selected>
PLAY/PAUSE MEMORY: STATION MEMORY button
(+) ►►I,►►: Frequency & Station + (up) button
◄◄,I◄◄ (–): Frequency & Station – (down) button

■ Function Auto Play
When a CD (or MD) is loaded, if you press the CD function button (or MD function button) the CD (or MD) starts playing. If there's a tape loaded in the deck, it starts playing as soon as you press the Tape function button.

NOTE:
You cannot select Function Auto Play during MD or tape recording.

REMOTE CONTROL UNIT



① **VOLUME ▲ (up), ▼ (down) buttons**
② **SLEEP timer button**
③ **MONO button**
④ **DISPLAY button**
⑤ **PGM button**
⑥ **CLEAR button**
⑦ **MD function button**
⑧ **TAPE function button**
⑨ **MD display button**
⑩ **CD/MD/Tape/Tuner operation buttons**
- **CD/MD operation buttons**
  (Play/Pause ►/II , Track search I◄◄ ►►I , Stop ■, Fast ◄◄ ►►)
- **TAPE operation buttons**
  (Play ◄ ► , Music Search I◄◄ ►►I , Stop ■, Fast ◄◄ ►►)
- **TUNER buttons**
  \+ Stations change in order in the upward direction.
  – Stations change in order in the downward direction.
  ◄◄ Frequency down.
  ►► Frequency up.

⑪ **AUX function button**
⑫ **BAND button**
Use to switch between FM and AM bands.

⑬ **CD function button**
⑭ **REPEAT button**
⑮ **RANDOM button**
⑯ **DISC select buttons (1-3)**
⑰ **SOUND MORPHING mode button & SOUND MORPHING jog control buttons**
⑱ **OPEN/CLOSE button**
⑲ **DISC CHANGE button**
⑳ **STANDBY / ON button**

8.2 SPECIFICATIONS

■ **STEREO FILE-TYPE CD CASSETTE DECK RECEIVER**

Amplifier Section

Continuous Average Power Output is 45 Watts* per channel, min., at 6 ohms from 60 Hertz to 15.000 Hertz, with no more than 5.0 % total harmonic distorsion.**

* ***Measured pursuant to the Federal Trade Commission's Trade Regulation rules on Power Output Claims for Amplifiers.***
** ***Measured bu Audio Spectrum Analyzer.***

Continuous Power Output (RMS)
..... 70 W + 70 W(1kHz, T.H.D. 10 %, 6 Ω)

FM/AM Tuner section
FM tuner section
Frequency Range ..... 87.5 MHz to 108 MHz
Antenna input ..... 75 Ω unbalanced
AM tuner section
FrequencyRange
With 10 kHz step ..... 530 kHz to 1,700 kHz
With 9 kHz step ..... 531 kHz to 1,602 kHz
Antenna input ..... Loop antenna
CD section
Type ..... Compact disc digital audio system
Wow and Flutter ..... Limit of measurement (±0.001 % W.PEAK) or less (EIAJ)
MD section
Type ..... Mini Disc digital audio system
Recording system ..... Field modulation overwrite system
Reproduce system ..... Non-contact optical readout
Sampling frequencies ..... 44.1 kHz
Frequency response ..... 8 Hz to 20 kHz
S/N ratio ..... 101 dB
Wow & flutter ..... Below measurable limit
Cassette deck section
Systems ..... 4 track, 2-channel stereo
Heads ..... Recording/playback head x 1
..... Erasing head x 1
Motor ..... DC servo motor x 1
Tape type ..... TYPE I (Normal) tape / TYPE II (HIGH/CrO_2) tape
Miscellaneous
Power Requirements ..... AC120V, 60 Hz
Power Consumption ..... 96 W
Power Consumption in standby mode ..... 1 W
Dimensions ..... 270 (W) x 300 (H) x 336 (D) mm
10-5/8 (W) x 11-13/16 (H) x 13-1/4 (D) in.
Weight (without package) ..... 8.2 kg (18 lb 2 oz)

Accessories
Operating instructions 1
Remote control unit 1
Size AA/R6P dry cell batteries 2
FM antenna 1
AM loop antenna 1
Power Cord 1

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

US and foreign patents licensed from Dolby Laboratories Licensing Corporation.

POWER-CORD CAUTION
Handle the power cord by the plug. Do not pull out the plug by tugging the cord and never touch the power cord when your hands are wet as this could cause a short circuit or electric shock. Do not place the unit, a piece of furniture, etc., on the power cord, or pinch the cord. Never make a knot in the cord or tie it with other cords. The power cords should be routed such that they are not likely to be stepped on. A damaged power cord can cause a fire or give you an electrical shock. Check the power cord once in a while. When you find it damaged, ask your nearest PIONEER authorized service center or your dealer for a replacement.

Accessories

① Remote control unit × 1
② FM antenna × 1
③ AM loop antenna × 1
④ AA/R6P dry cell batteries × 2
⑤ Power Cord × 1